BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

UNITED STATES STEEL CORPORATION Petitioner, v. ILLINOIS ENVIRONMENTAL PROTECTION AGENCY, Respondent.	)))))))))	PCB _____ (Permit Appeal – Air)

NOTICE OF FILING

TO: Mr. Don A. Brown
Clerk of the Board
Illinois Pollution Control Board
60 East Van Buren Street, Suite 630
Chicago, Illinois 60605
don.brown@illinois.gov

Division of Legal Counsel
Illinois Environmental Protection Agency
1021 North Grand Avenue East
P.O. Box 19276
Springfield IL 62794-9276
epa.dlc@illinois.gov

(VIA ELECTRONIC MAIL)

(SEE PERSONS ON ATTACHED SERVICE LIST)

PLEASE TAKE NOTICE that I have today electronically filed with the Office of the Clerk of the Illinois Pollution Control Board **ENTRY OF APPEARANCE OF MICHAEL MURPHY, ENTRY OF APPEARANCE OF LADONNA DRIVER, ENTRY OF APPEARANCE OF MELISSA BROWN, and PETITION FOR REVIEW OF DENIAL OF PSD PERMIT WITH INTEGRATED PROCESSING**, copies of which are hereby served upon you.

Respectfully submitted,

UNITED STATES STEEL CORPORATION,

By:/s/ *Michael P. Murphy*
One of Its Attorneys

Dated: June 12, 2024

LaDonna. Driver
Melissa S. Brown
Michael P. Murphy
HEPLERBROOM, LLC
4340 Acer Grove Drive
Springfield, Illinois 62711
Telephone: 217-528-3674
LaDonna.Driver@heplerbroom.com
Melissa.Brown@heplerbroom.com
Michael.Murphy@heplerbroom.com

CERTIFICATE OF SERVICE

I, the undersigned, on oath state the following: That I have served the attached **ENTRY OF APPEARANCE OF MICHAEL MURPHY, ENTRY OF APPEARANCE OF LADONNA DRIVER, ENTRY OF APPEARANCE OF MELISSA BROWN, and PETITION FOR REVIEW OF DENIAL OF PSD PERMIT WITH INTEGRATED PROCESSING,** via electronic mail upon:

Mr. Don A. Brown
Clerk of the Board
Illinois Pollution Control Board
60 East Van Buren Street, Suite 630
Chicago, Illinois 60605
don.brown@illinois.gov

Division of Legal Counsel
Illinois Environmental Protection Agency
1021 North Grand Avenue East
P.O. Box 19276
Springfield IL 62794-9276
epa.dlc@illinois.gov

That my email address is Michael.Murphy@heplerbroom.com

That the number of pages in the email transmission is 2,640.

That the email transmission took place before 4:30 p.m. on June 12, 2024.

Date: June 12, 2024

/s/ *Michael P. Murphy*
Michael Murphy

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

UNITED STATES STEEL CORPORATION	)	
	)	
Petitioner,	)	
	)	
v.	)	PCB _____
	)	(Permit Appeal – Air)
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY,	)	
	)	
Respondent.	)	

ENTRY OF APPEARANCE

NOW COMES Michael Murphy, of the law firm HEPLERBROOM, LLC, and hereby enters his appearance in this matter on behalf of United States Steel Corporation.

Respectfully Submitted,

By: /s/ *Michael P. Murphy*

DATE: June 12, 2024

Michael P. Murphy
HEPLERBROOM, LLC
4340 Acer Grove Drive
Springfield, IL 62711
Telephone: 217-528-3674
Michael.Murphy@heplerbroom.com

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

UNITED STATES STEEL CORPORATION	)	
	)	
Petitioner,	)	
	)	
v.	)	PCB _____
	)	(Permit Appeal – Air)
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY,	)	
	)	
Respondent.	)	

ENTRY OF APPEARANCE

NOW COMES LaDonna Driver, of the law firm HEPLERBROOM, LLC, and hereby enters her appearance in this matter on behalf of United States Steel Corporation.

Respectfully Submitted,

By: /s/ *N. LaDonna Driver*

DATE: June 12, 2024

N. Ladonna Driver
HEPLERBROOM, LLC
4340 Acer Grove Drive
Springfield, IL 62711
Telephone: 217-528-3674
LaDonna.Driver@heplerbroom.com

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

UNITED STATES STEEL CORPORATION	)	
	)	
Petitioner,	)	
	)	
v.	)	PCB _____
	)	(Permit Appeal – Air)
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY,	)	
	)	
Respondent.	)	

ENTRY OF APPEARANCE

NOW COMES Melissa Brown, of the law firm HEPLERBROOM, LLC, and hereby enters her appearance in this matter on behalf of United States Steel Corporation.

Respectfully Submitted,

By: /s/ *Melissa S. Brown*

DATE: June 12, 2024

Melissa S. Brown
HEPLERBROOM, LLC
4340 Acer Grove Drive
Springfield, IL 62711
Telephone: 217-528-3674
Melissa.Brown@heplerbroom.com

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

UNITED STATES STEEL CORPORATION,	)	
Petitioner,	)	
v.	)	
	)	PCB ___-_____
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY,	)	(Permit Appeal - Air)
Respondent.	)	

PETITION FOR REVIEW OF DENIAL OF PSD PERMIT WITH INTEGRATED PROCESSING

Petitioner, United States Steel Corporation ("U. S. Steel"), by its attorneys, pursuant to Sections 40.3(a)(1), 40.2(a), and 40(a) and (d) of the Illinois Environmental Protection Act ("Act") (415 ILCS 5/40(a), 40(d), 40.2(a) and 40.3(a)(1)), and 35 Ill. Admin. Code 105.600—105.614, 105.300 – 105.304, and 105.200 – 105.214, petitions the Illinois Pollution Control Board ("Board") for a hearing to contest the decision of the Illinois Environmental Protection Agency ("Illinois EPA" or "Agency") to deny U. S. Steel's application for revision of its construction permit/Prevention of Significant Deterioration (PSD) approval that contains a request for Integrated Processing. In support thereof, Petitioner states as follows:

1. On May 8, 2024, Illinois EPA issued its Denial of an Application for Revisions to a Construction Permit/PSD Approval. SR 0001 – 0091. Illinois EPA's grounds for denial of the Application place U. S. Steel in the impossible position to demonstrate somehow that no violations would have existed for a period of approximately 30 years – including about ten of those years in which U. S. Steel did not even own or operate the facility. U. S. Steel cannot attest to the National Steel operations and emissions; nor is it required to do so as U. S. Steel acquired certain assets of the National Steel Granite City facility on May 20, 2003, pursuant to an Order issued by the United

States Bankruptcy Court for the Northern District of Illinois, Eastern Division (Case Nos. 02-08697 – 02-08738). SR 1309 – 1394.

2. The Agency expects U. S. Steel to somehow show that not only every operating scenario would have complied with all regulations, but also none of the regulations over 30 years would have been violated. U. S. Steel is essentially tasked with the impossible burden to demonstrate compliance with all operating scenarios and all PSD provisions over the nearly 30 years – both of which have significantly evolved over the last three decades. This is not only impossible, but it also is not required; and requiring such a demonstration is contrary to the Clean Air Act and supporting law as explained below.

I. BACKGROUND

A. The Agency's Final Decision

3. On May 8, 2024, Illinois EPA issued its Denial of an Application for Revisions to a Construction Permit/PSD Approval. With this Petition, U. S. Steel has provided a Supporting Record (cited as "SR"), SR 0001 — 2501, along with a Table of Contents for the Supporting Record. The denial is included in the Supporting Record at pages SR 0001 – 0091. The Agency's Notification of Denial of Application is also included at SR 0092 – 0094. 35 Ill. Adm. Code 105.608(b)(1).

4. U. S. Steel submits this Petition pursuant to Section 40.3 of the Act, which provides that if the Agency refuses to grant a PSD permit, "the applicant may, within 35 days after final permit action, petition for a hearing before the Board to contest the decision of the Agency." 415 ILCS 5/40.3(a)(1). U. S. Steel also submits this Petition pursuant to Section 105.604(a) and Part 105 Subpart F of the Board's regulations as the Agency refused to grant the PSD permit. 35 Ill. Adm. Code 105.604(a); 35 Ill. Adm. Code Part 105, Subpart F.

5. Because the application for revision of the construction permit/PSD approval at issue in this Petition included a request for Integrated Processing of revisions to Petitioner's Clean Air Act Permit Program ("CAAPP") permit, this Petition is also submitted pursuant to Section 40.2 of the Act, which provides that if the Agency refuses to grant a CAAPP Permit, "the applicant . . . may, within 35 days after final permit action, petition for a hearing before the Board to contest the decision of the Agency." 415 ILCS 5/40.2(a). U. S. Steel also submits this Petition pursuant to Section 105.302 and Part 105 Subpart C of the Board's regulations. 35 Ill. Adm. Code 105.302; 35 Ill. Adm. Code Part 105, Subpart C.

6. Additionally, because the application for revision of the construction permit/PSD approval, and the Agency's denial, addressed general construction permit requirements, this Petition is also submitted pursuant to Sections 40(a) of the Act. Section 40(a)(1) of the Act provides for submitting a petition for hearing of the Agency's refusal to grant a permit under Section 39 of the Act. 415 ILCS 5/40(a)(1). Furthermore, while U.S. Steel did not apply for a permit under 35 Ill. Adm. Code Part 203, because Illinois EPA's denial of the Application addressed Nonattainment New Source Review issues, U.S. Steel is also filing this Petition pursuant to Sections 40(a) and (d) of the Act to be inclusive of all of the Agency's purported bases for denial. Section 40(d) of the Act provides, in reviewing the denial of Nonattainment New Source Review permit,[1] "the decision of the Board shall be based exclusively on the record before the Agency including the record of the hearing, if any, unless the parties agree to supplement the record." 415 ILCS 5/40(d). As such, U. S. Steel submits this Petition pursuant to Section 105.204 and Subpart B of Part 105 of the Board's regulations. 35 Ill. Adm. Code 105.204; 35 Ill. Adm. Code Part 105, Subpart B.

[1] As stated above, U. S. Steel did not apply for a Nonattainment New Source Review Permit. However, Illinois EPA's denial of the Application include bases for denial based on Nonattainment New Source Review issues.

B. Background on the Project and Permit

7. U. S. Steel owns and operates an integrated iron and steel manufacturing facility in Granite City, Madison County, Illinois (ID # 119813AAI) ("Granite City Works" or "Facility"). SR 0608. The prior owner of this facility was National Steel Corporation. SR 0608. U. S. Steel acquired certain assets of the National Steel Granite City facility on May 20, 2003 pursuant to an Order issued by the United States Bankruptcy Court for the Northern District of Illinois, Eastern Division (Case Nos. 02-08697 – 02-08738). SR 0608; SR 1309 – 1394.

8. The Facility is an integrated steel mill employing raw material handling, processing, and preparation; iron production; steel production; steel finishing; and boilers and other ancillary operations. SR 0609. In 1996, National Steel Corporation produced metallurgical coke in a by-product coke plant. SR 0609. Once U. S. Steel acquired the assets of the Facility, U. S. Steel continued to operate the by-product coke plant until 2015 at which time it was permanently idled. SR 0609. For information purposes, in November 2023, the steel and ironmaking production facilities, including, among other emission units, the blast furnaces and basic oxygen furnace operations, at Granite City Works, were indefinitely idled due to market demands and corporate operating needs which is not uncommon in the integrated iron and steel industry. The plant currently continues to process slabs to produce hot-rolled, cold-rolled and coated sheets. While certain emission units are indefinitely idled ("indefinitely" - because a date certain cannot be provided that the operations will resume because it is dependent upon many factors, including market demand, etc.), the assets continue to be maintained and preserved. In addition, these emission units remain permitted and in the facility's air emissions inventories.

9. On January 25, 1996, prior to U. S. Steel acquiring certain assets of National Steel Corporation, the Agency issued Construction Permit No. 95010001, which also serves as a

Prevention of Significant Deterioration ("PSD") approval, to National Steel Corporation. SR 1278 – 1308; SR 0608. Construction Permit No. 95010001 ("Permit") authorized increases in the allowable production rate of iron and steel at the Granite City facility (the "1996 Project" or "Project"). SR 0608; SR 1278 — 1308.

10. At the time of the Project in 1996, the Permit authorized National Steel Corporation to increase throughput and fuel use at the Facility, including as follows: (i) limits on production of hot metal from the two blast furnaces were increased; (ii) limits on production of liquid steel from the two BOFs were increased; (iii) limits on the use of blast furnace gas ("BFG") at the units in which BFG was burned (i.e., Boilers 1 – 12, blast furnace stoves, BFG flare #1, and ladle drying preheaters) were increased; and (iv) already-effective limits on the use of natural gas at the Project-affected units in which natural gas could be burned (i.e., Boilers 1 – 12, blast furnace stoves, BFG flare #1, and ladle drying preheaters) remained in effect. SR 0611; SR 1278 – 1308.

11. At the time the Permit was initially issued, the Granite City area was designated nonattainment for the ozone and particulate matter with aerodynamic diameter of 10 micrometers or less ("PM_{10}") national ambient air quality standards ("NAAQS"). SR 0608. The area was designated attainment or unclassifiable for all other NAAQS criteria pollutants. SR 0608. Consequently, the Permit included limitations on emissions sufficient to ensure that the Project did not trigger applicability of the Illinois Nonattainment New Source Review ("NNSR") program, also known as Major Stationary Sources Construction and Modification ("MSSCM"), codified at 35 Ill. Adm. Code Part 203 for oxides of nitrogen ("NOx") and volatile organic material ("VOM") (both as precursors for ozone) and PM_{10} and did not trigger PSD permitting requirements for particulate matter ("PM"), nitrogen dioxide ("NO_2"), or lead. SR 0608 – 0609; SR 1278 – 1308. The net emission increases for PM, PM_{10}, NOx, and VOM, including contemporaneous changes,

were below the applicable significant emission rates for these pollutants. SR 0611 – 0612; SR 1278 – 1308. For lead, the project emissions increase was below the significant emission rate. *Id*. For SO_2 and CO, the Project resulted in net emission increases that were greater than the significant emission rates. *Id*. As such, the Project was a major modification for SO_2 and CO and the PSD requirements for these pollutants were addressed by National Steel Corporation in the initial application submitted in 1995 and by Illinois EPA in issuing Permit 95010001. *Id.*; SR 1942 – 2173.

12. The Permit has been revised several times. On June 6, 1997, the Agency addressed the 1996 Permit in an Operating Permit issued to National Steel Corporation. SR 2220 – SR 2249. On January 6, 1999, the Operating Permit was revised. SR 2250 – SR 2284. In the 1999 revision, the Agency increased the limits to National Steel Corporation on the use of natural gas at the Project-affected units in which natural gas could be burned (i.e., Boilers 1 – 12, blast furnace stoves, BFG flare #1, and ladle drying preheaters) and the associated limits on emissions from these units were increased. SR 2250 – SR 2284. The most recent revision was made on December 17, 2012, when the Permit was revised to accommodate a proposed improvement to the air pollution control systems serving the Basic Oxygen Furnace ("BOF") Shop Operations at the facility (the addition of a fabric filter baghouse and associated capture system to improve control of particulate matter emissions). SR 0608; SR 1249 – 1277. Subsequent to issuance of the December 2012 permit, the new controls and improvements were constructed and operated.

13. Requirements of the Permit are also incorporated in the Clean Air Act Permit Program ("CAAPP") Permit for the facility that was issued on March 4, 2013 (Permit No. 96030056 or "CAAPP Permit"). SR 0608; SR 1610 – SR 1941. U. S. Steel timely appealed some

of the conditions of the CAAPP Permit. Petition for Review, *United States Steel Corporation v. Illinois EPA*, PCB 13-53 (April 8, 2013).

14. In 2014, U. S. Steel conducted emissions testing and discovered that the NOx and VOM emissions from two BOFs, in which steel is produced, were higher than is allowed by the Permit. This is because the original permit application submitted by National Steel Corporation understated both the pre-project and post-project NOx and VOM emissions of the BOFs; and the erroneous emission limits in the Permit were based on inaccurate information in the original application submitted by National Steel Corporation. SR 0453.

15. On February 28, 2020, U. S. Steel submitted an Application for Revisions to the Construction Permit/Prevention of Significant Deterioration (PSD) Approval for the 1996 Expansion of the Granite City Works. SR 0961 – 1248; SR 2285. The Application was received by Illinois EPA on March 2, 2020. SR 2285 – 2286; SR 0076; SR 0092; SR 0095.

16. On October 3, 2022, U. S. Steel submitted a supplement to the Application for Revisions to the Construction Permit/Prevention of Significant Deterioration (PSD) Approval for the 1996 Expansion of the Granite City Works. SR 0601. This submission was a supplement to the March 2020 application submitted to Illinois EPA. As such, throughout this Petition, the March 2020 application and the October 2022 supplement are collectively referred to as "the Application."

17. U. S. Steel requested in the Application several revisions to the Permit to address correction of emission data for several emissions units involved in the 1996 Project, as addressed in further detail below. SR 0608.

18. Certain emission limits in the Permit that were considered by Illinois EPA in making NNSR and PSD non-applicability determinations for the 1996 Project were the subject of

revisions requested by U. S. Steel in the Application. SR 0609. The revisions requested by U. S. Steel were necessary to correct prior determinations made by National Steel Corporation and to ensure the continued non-applicability of the NNSR program for ozone precursors and PM_{10}, and the continued non-applicability of the PSD program for emissions of PM and NO_2, to the Project. SR 0609. The Application includes revised Project emission increase calculations, discussion of compliance requirements in support of those non-applicability determinations, and updated net emissions increase analyses. SR 0609. It was U. S. Steel's intent and understanding that the requested changes in the Application would resolve the CAAPP Permit appeal filed by U. S. Steel. SR 0609.

19. The primary changes requested by U. S. Steel in the Application relating to CO emissions are: (i) increases in the permitted emissions from burning of BFG and natural gas; and (ii) inclusion of provisions to address CO emissions from the blast furnace casthouse. SR 0612; SR 0601 – 0958; SR 0961 – 1248. The emission limits established in Permit 95010001 were based on information in the initial 1995 Application submitted by National Steel Corporation, which in turn was based on published emission factors and other literature information. SR 0612. However, actual emissions testing data generated since the initial 1995 application was submitted, as well as updated literature information, indicating that corrections to the emission factors and corresponding limits are necessary and appropriate. SR 0612; SR 0601 – 0958. Because such revisions were not necessitated by or associated with any changes to emission units subsequent to the Project, the changes would be revisions to the original Permit based on better emissions information. SR 0612. The Application also requested revisions with respect to certain other permit terms to clarify compliance demonstration requirements and to improve operational flexibility. SR 0612.

20. In the Application, U. S. Steel also requested clarifications to the names of certain emission units and control devices in the Permit to more accurately reflect their functions within the process, as well as changes to the groupings of emission units. SR 0613; SR 0601 – 0958.

21. As to PM, PM_{10}, NOx, and VOM emissions from Project-affected emission units, in the Application, U. S. Steel requested that certain conditions of the Permit addressing individual emissions units or points, including both limits on annual emissions and provisions addressing emission factors, be removed or revised. SR 0613; SR 0601 – 0958. Permit 95010001 includes a number of emission limitations and other permit conditions that are not explicitly or expressly required by any regulation. SR 0613. Such emission limitations and permit conditions were included in the Permit to restrict the potential to emit of certain operations at the Facility and thereby memorialize non-applicability determinations under the PSD and NNSR permitting programs with respect to these pollutants. SR 0613; SR 1278 – 1308. Additionally, as to PM and PM_{10}, U. S. Steel requested minor revisions in the Application to the emission caps both to accommodate the revised grouping of material handling operations referenced above and to reflect updated emissions information. SR 0613; SR 0601 – 0958. For NOx and VOM, in the Application, U. S. Steel requested increases in permitted emissions from the BOF Shop Operations based upon updated emissions information that are not related to any post-1996 changes at the Facility, i.e., both baseline and post project emissions from BOF Shop Operations require correction. *Id*. In the Application, U. S. Steel also requested revision/elimination of gaseous fuel usage limits for Project-affected combustion units due to the 2015 shut down of the by-product coke oven batteries, which eliminated the ability to use coke oven gas ("COG"), and the retirement of ten of the twelve boilers that existed at the mill at the time of the Project in 1996. SR 0614; SR 0601 – 0958.

22. Furthermore, in the Application, U. S. Steel presented updated net emissions increase calculations for PM, PM_{10}, NOx, and VOM. SR 0614. Unlike the initial application submitted by National Steel Corporation in 1995, the updated calculations in the Application address all emissions from fuel burning units affected by the Project, including emissions from the burning of COG. SR 0614. As demonstrated by the updated calculations, the revisions requested by U. S. Steel in the Application will not trigger after-the-fact PSD or NNSR permitting for emissions of such pollutants under the source obligation provisions because the Project will not become a major modification for such pollutants solely by virtue of the requested changes in the Application. SR 0614 – 0615.

23. In the Application, U. S. Steel also requested the elimination of fugitive dust requirements relating to certain road segments which are not under the control of U. S. Steel and are therefore not a part of the stationary source that is the subject of the Permit. SR 0615; SR 0601 – 0958; SR 0961 – 1248. Furthermore, U. S. Steel did not acquire these segments under the Bankruptcy Order; and U. S. Steel does not and has never owned these road segments nor had control over the segments. *See* SR 0615 (". . . pollutant-emitting activities at these properties are not a part of the Granite City Works stationary source."); *see* SR 1309 - 1394.

24. The Application also included a request for Integrated Processing of revisions to Petitioner's CAAPP Permit. SR 0609. In the Application, U. S. Steel requested that Illinois EPA process the revisions to Permit 95010001 in accordance with the Integrated Processing procedures and issue the revised permit utilizing procedures and compliance requirements that are substantially equivalent to those utilized for issuance of a CAAPP permit, including a public notice period for the revised permit. SR 0609 (citing to 35 Ill. Adm. Code 270.302(e)). It was U. S. Steel's intention that the CAAPP Permit would be modified by means of the administrative

amendments process to address the revisions that would be made to the applicable requirements in Permit 95010001. SR 0609.

25. As referenced above, U. S. Steel did not propose any physical changes in conjunction with the requested revisions to Permit 95010001. SR 0609; SR 0601 – 0958; SR 0961 – 1248.

C. Petitioner's Participation in Public Comment Process

26. In July 2023, the Agency issued a Notice of Intent to Deny (SR 0571) and Draft Denial of an Application for Revisions to a Construction Permit/PSD Approval and sought public comment. SR 0522. After an extension of the comment period (SR 0520), on September 11, 2023, U. S. Steel submitted a Comment Letter to the Agency in response to the Agency's Draft Notice of Intent to Deny Application for Revision to Construction Permit/PSD Approval. SR 0480 — 0519.

27. In December 2023, the Agency issued a Notice of Intent to Deny (SR 0450) and Revised Draft Denial of an Application for Revisions to a Construction Permit/PSD Approval and sought public comment. SR 0359. On January 8, 2024, U. S. Steel submitted additional comments. SR 0320 - 0358.

28. U. S. Steel participated in the Agency public comment process by submitting the above-referenced written comments. 35 Ill. Adm. Code 105.608(b)(2). As shown below, all issues proposed for review were raised during the public comment process. 415 ILCS 5/40.3(a)(2)(ii); 35 Ill. Adm. Code 105.608(b)(4).

D. The Agency's Denial of the Permit

29. On May 8, 2024, Illinois EPA issued its Denial of an Application for Revisions to a Construction Permit/PSD Approval ("Denial Letter"). SR 0001- 0091. In the Denial Letter, the

Agency stated that the "permit application is DENIED because, if a revision to Permit 95010001 were issued as requested by this application, it might violate various Sections of the Illinois Environmental Protection Act (Act) and various provisions in Illinois' regulation pursuant to the Act." SR 0001.

30. The Denial Letter included Attachment 1, a Listing of Denial Points which discussed the specific Sections of the Act and the specific provisions of the Illinois Administrative Code that the Agency claims may not be met if Permit 95010001 were to be revised as requested, as well as a description of the information the Agency claims the Permit Application did not provide, and the specific reasons why Illinois EPA claims the Act might be violated if a revised permit were issued as requested. *Id.* The Denial Letter also had two appendices: Appendix A, which listed and discussed the various sections of the Act that are cited in Attachment 1 as the statutory basis for the Denial Letter; and Appendix B, which listed and discussed the various provisions in Subtitle B of Title 35 of the Illinois Administrative Code that are cited in Attachment 1 as the regulatory basis for the Denial Letter. SR 0001 – 0002.

31. On May 8, 2024, the Agency also issued its Responsiveness Summary for Comments on the Proposed Denial of an Application from United States Steel Corporation – Granite City Works for Revisions to a Construction Permit/PSD Approval Issued for a Production Increase Project at its Iron and Steel Mill in Granite City. SR 0095 — 0319.

E. <u>Petitioner is Aggrieved by the Agency's Denial of the Permit</u>

32. U. S. Steel's Application and the requested revisions to the Permit were denied by the Agency. SR 0001 – 0091. As explained above, in the Application, U. S. Steel requested revisions of the Permit based on updated information. The initial permitting of the Project was completed back in 1996 in an action between Illinois EPA and National Steel Corporation; and U.

S. Steel was never involved in the process. SR 1278 – 1308; SR 1942 – 2173. The initial permitting of the Project in 1996 was based on emissions information that now is in clear need of being updated and/or corrected based on recent test data and literature review. Such revisions are necessary for U. S. Steel to comply with correct limitations and requirements that are well grounded in science and law for its operations going forward. U. S. Steel has been aggrieved by the denial and its interests have been adversely affected by the permit denial. 415 ILCS 5/40.3(a)(2)(i); 35 Ill. Adm. Code 105.608(b)(3).

II. ISSUES PROPOSED FOR REVIEW

A. Standard of Review and Burden of Proof

33. When a construction permit is required by regulation, "the applicant shall apply to the Agency for such permit and *it shall be the duty of the Agency to issue such a permit* upon proof by the applicant that the facility … will not cause a violation of this Act or of regulations hereunder." 415 ILCS 5/39(a) (emphasis added). Therefore, the question before the Board is whether the information submitted by U. S. Steel in the Application sufficiently proves that issuing the requested permit will not cause a violation of the Act and Board regulations. *KCBX Terminals Co. v. IEPA*, PCB 14-110 (June 19, 2014), 2014 WL 2871721, at *44; *Alton Packaging Corp. v. Pollution Control Bd.*, 162 Ill. App. 3d 731, 737 (5th Dist. 1987).

34. In appeals of final Agency decisions under Section 40 of the Act, "the burden of proof shall be on the petitioner." 415 ILCS 5/40/(a)(1); 35 Ill. Adm. Code 105.112(a). "It is well settled that the Agency's denial letter frames the issues in a permit appeal before the Board." *KCBX*, 2014 WL 2871721, at *45. Accordingly, the petitioner has the burden to show that "it is entitled to a permit and that the Agency's reasons for denial are either insufficient or improper" or that the reasons, regulatory bases, and statutory bases for denial are inadequate to support denial.

ESG Watts, Inc. v. Pollution Control Bd., 286 Ill. App. 3d 325, 331 (3rd Dist. 1997); *KCBX*, 2014 WL 2871721, at *45.

35. The Act and Board regulations separately address review of PSD permits under Section 40.3 of the Act. 415 ILCS 5/40.3; 35 Ill. Adm. Code 105.608. In addition to discussing the Agency's final decision, participation in the public comment process, and how the petitioner is aggrieved (all discussed above), the petition must include:

- The issues proposed for review, citing to a specific permit term or condition when applicable and to the Agency record where those issues were raised, citing to any relevant page numbers in the public comments submitted to the Agency and attaching this public comment to the petition (or explaining why the issues were not required to be raised during the public comment process); and

- An explanation why the Agency's previous response to the issues proposed for review was (A) clearly erroneous; or (B) an exercise of discretion or an important policy consideration that the Board should, in its discretion, review.

415 ILCS 5/40.3(a)(2); 35 Ill. Adm. Code 105.608(b). "Any PSD permit issued by the Agency must be upheld by the Board if the technical decisions contained in the permit reflect considered judgment by the Agency." 35 Ill. Adm. Code 105.614. "Only where the record demonstrates that the permitting authority duly considered the issues raised in the comments and that the approach ultimately adopted by the permitting authority is rational, in light of all the information in the record, will the Board defer to the permitting authority's expertise." *In re: ConocoPhillips Co.*, 13 E.A.D. 768 (June 2, 2008), 2008 WL 2324133, at *15.

B. Discussion of Issues Proposed for Review and Explanation as to Why the Agency's Denial was Improper and its Previous Responses were Clearly Erroneous or an Exercise of Discretion or Important Policy Consideration that the Board Should, in its Discretion, Review

36. U. S. Steel is petitioning for review the entire permit denial, including each and every "Denial Point" identified by the Agency in its May 8, 2024 Denial Letter. The issues proposed for review are found in the Agency's May 8, 2024 Denial Letter. SR 0001 – 0091.

37. Each Denial Point identified by the Agency in its Denial Letter will be addressed in turn along with discussion of the issues underlying each point. U. S. Steel's comments and the Agency's responses to them will also be addressed for each Denial Point.

38. No violation of the Act or rules under the Act will occur if the Agency issues the requested Permit and the reasons set forth by Illinois EPA for denial of the Permit fail to demonstrate that issuing the permit would result in a violation of the Act or Board regulations. Therefore, the Agency had a duty to issue the Permit under Section 39(a) of the Act. The Agency's reasons for denial are insufficient and improper, and the reasons, statutory bases, and regulatory bases are inadequate to support denial. Further, the Agency's responses to the issues raised by U. S. Steel were either: (a) clearly erroneous considering the facts and the law; or (b) involved an exercise of discretion by the Agency that the Board, in its discretion, should review; or (c) involved an important policy consideration that the Board should, in its discretion, review. The issues sought to be reviewed are not "technical decisions" that "reflect considered judgment by the Agency" but rather are issues that involve the Agency's incorrect interpretation or application of the law, the Agency's discretionary decisions that were improper that the Board should review and reverse, or the Agency's application of important policy considerations to its decisions which the Board should review and reconsider.

39. In sum, as demonstrated below, and as will be further developed at hearing, the Agency's Denial Points are technically and legally flawed, its rationale is erroneous, its discretionary decisions in denying the Permit were improper, its claimed reasons and legal bases for denial were insufficient, improper, and inadequate, the Agency's decision was not rational in light of all the information in the record, and legal and policy considerations support finding that the Agency should have granted the Permit instead of denying it. Accordingly, U. S. Steel seeks review and reversal of each Denial Point claimed by the Agency and all issues raised under each Denial Point.

i. <u>Denial Point 1: The revised netting analysis for the Project for NOx does not fulfill relevant requirements of New Source Review ("NSR") for such analyses</u>

40. The Agency's first Denial Point claims that the Application[2] does not demonstrate that the Project would still not be a major modification for NOx emissions for purposes of NSR with the increases in NOx emissions that are requested to address errors in the initial permitting of the Project and the revised netting analysis included in the Application does not fulfill relevant requirements of NSR. SR 0003; *see* SR 0003 – 008; *see* SR 0161 – 0209.

41. According to the Agency, "the application requests an increase in the permitted NO_X emissions of the basic oxygen furnaces (BOFs) of more than 200 tons/year"; the "netting analysis for NO_x in the application . . . cannot be relied upon to show that the increases in permitted NOx emissions would not result in the Project being a major modification"; the "revised NSR applicability analysis is flawed as, contrary to applicable rules, it relies upon decreases in NOx emissions from actions that were neither contemporaneous with the Project nor creditable as they were not required

[2] Throughout the Denial Letter, the Agency refers to the 2022 supplement submittal separately from the 2020 application submittal and takes the position that the 2022 submittal was a revised application. However, as explained throughout this Petition, the 2022 submittal was a supplement to the 2020 application. U. S. Steel therefore refers to the 2020 and 2022 submittals collectively as the "Application" that is the subject of this Petition.

by Permit 95010001"; "[t]hese decreases resulted from the later shutdowns of ten older boilers at the facility and the much later shutdown of the two by-product recovery coke oven batteries at the facility, as coke oven gas (COG) ceased to be available for use in Project-affected fuel burning units"; and the "incongruous conclusion of the revised NSR applicability analysis is that the Project was accompanied by an overall decrease in the NOx emissions of Project-affected fuel burning units rather than an increase in NOx emissions as would be expected from an increase in production of iron by the blast furnaces." *Id.*

42. The Agency concluded that because the Project "would become a major modification for NOx with the requested increase in permitted NOx emissions, the Project would become subject to Nonattainment New Source Review (NaNSR) (35 IAC Part 203, Major Stationary Sources Construction and Modification (MSSCAM)) for NOx," and "would also become subject to Prevention of Significant Deterioration or PSD (35 IAC Part 204) for NOx." SR 0004. The Agency argued that, the Application, however, "does not address the substantive requirements of MSSCAM or PSD for a major modification, much less show that these requirements are fulfilled," "does not show that for the Project-affected emissions units for which the Lowest Achievable Emission Rate (LAER) and Best Available Control Technology (BACT) should have originally been required for NOx, LAER and BACT are present as required, respectively, by MSSCAM and PSD," "does not address the requirement of MSSCAM that a major project be accompanied by emission offsets to counterbalance the increase in emissions of the nonattainment pollutant from the project" (for NOx), and "does not include an analysis for the impact of the project on NO2 air quality, as required by PSD." *Id.*

43. Therefore, the Agency contends, "Section 9.1(d) of the Act and the substantive requirements of 35 IAC Part 203 and Part 204 for a major modification (the requirements for LAER,

BACT and emission offsets for NOx and an air quality impact analysis for NO2) would be violated if a revision to Permit 95010001 were issued that increased the permitted NOx emissions of the Project as requested by the 2022 application." *Id.* According to the Agency, "[t]his is because the revised NSR applicability analysis for the Project for NOx improperly relies upon decreases in NOx emissions that are neither contemporaneous nor creditable to claim that the Project would continue to not be a major modification for NOx with the increases in permitted NOx emissions that are being requested." *Id.*

44. In the Agency's "Discussion" regarding Denial Point 1, the Agency explains its position that the Permit Application was denied because it "requests that the Project be permitted for additional NOx emissions but does not show that the Project would still not be a major modification for NOx if the permit were revised as requested. As the Project would become a major modification for NOx with the requested revisions to Permit 95010001, the 2022 application must show for NOx that the relevant substantive requirements of PSD and NaNSR are fulfilled for the Project." SR 0005. Illinois EPA found that "[i]t would not be appropriate for a revised permit to be issued with increases in permitted NOx emissions as requested by the current application if this application does not also show that the applicable substantive requirements of PSD and NaNSR would be met for the Project for NOx." *Id.*

45. In discussing the netting analysis, the Agency acknowledged that, in the Application, U. S. Steel requested increases in NOx emissions for certain equipment but these increases "would be accompanied by decreases in the NOx emissions of certain other units" and "[w]ith these accompanying decreases, the net increase in NOx emissions from the Project with the requested revised permit would continue to not be significant." SR 0005. The Agency claimed, however, that U.S. Steel's "netting analysis for NOx in the 2022 application cannot be relied upon

for issuance of a revised permit for the Project as requested by U.S. Steel" because the Application "does not include relevant information showing that additional decreases in NOx emissions that would now be proposed to be relied upon would be contemporaneous and creditable for permitting of the Project" as required by 35 IAC 204.550 and 203.208. SR 0006.

46. The Agency further contended that a "revised permit cannot be issued for the Project that relies upon 'post-project' emissions decreases, which occurred after the Project, to show that the Project with the requested increases in NOx emissions of the furnaces, should still not be considered a major modification." *Id.* The Agency noted that "changes that are unrelated to the Project have occurred at certain fuel burning units after the initial issuance of" the Permit and U. S. Steel in the Permit Application "proposes to rely upon the decreases in NOx emissions due to these changes, which decreases were not and could not have been relied upon by the original permit for the Project." *Id.*

47. Illinois EPA's position is that the Application relies on emission decreases that are not contemporaneous. SR 0006. The Application "indicates baseline NOx emissions of 131.8 and 123.2 tons/year from the use of blast furnace gas (BFG) and natural gas, respectively, in Boilers 1 through 12," the twelve boilers at the source in 1996 that were addressed by the Permit. SR 0006 — 0007. Boilers 1 through 10 were shut down in 2009 and the Agency argues that the Permit Application "does not show that NOx emissions of these ten boilers, as existed in the period prior to 2009, were considered in the 'future' NOx emissions with the Project of at most 706 tons/year from the Project-affected fuel burning units." *Id.* at 0007. Boilers 11 and 12 continue in operation but flue gas recirculation systems have been installed on these boilers (to control NOx emissions) pursuant to Construction Permit 10080022, issued in January 2011, but the Agency claims that the Permit Application "does not show that the revised netting analysis for NOx does not rely on the

lower NOx emissions from Boilers 11 and 12 that are now being achieved with the new control systems, rather than their NOx emissions as previously existed with the Project in the period before these control systems were installed." *Id.*

48. The Agency also noted that the Application "indicates baseline NOx emissions of 461 tons/year from use of coke oven gas (COG) in the blast furnace stoves and Boilers 11 and 12" but in 2015, the two by-product recovery coke oven batteries at the Granite City Works were shut down. *Id.* "COG ceased to be available for use in the stoves or Boilers 11 and 12" but it "was available for use in the stoves and these boilers in 1996." *Id.* The Agency therefore claimed that the Application "does not show that the revised netting analysis for NOx would not rely upon decreases in the NOx emissions of the stoves and boilers due to the elimination of COG, which did not occur until 2015." *Id.*

49. Illinois EPA then claimed that "for purposes of applicability of NSR, the NOx emissions allowed from the Project in 1996 that would be permitted with the requested revisions to the permit *could be* substantially higher than indicated in the 2022 application." SR 0008 (emphasis added). The Agency further claimed that "it must be assumed that the 'future NOx emissions' indicated in the 2022 application reflect maximum actual NOx emissions beginning in 2023, with the requested revisions to Permit 95010001. The application does not suggest that these future NOx emissions are the emissions that should have been allowed by the permit back in 1996 when the permit was issued and the Project commenced." *Id.*

50. The Agency contends that the following Act and Board regulatory provisions may be violated as to this Denial Point if a revised permit were granted: 415 ILCS 5/9(a), 9.1(d), and 39(a)*, and 35 Ill. Adm. Code 201.160(a), 203.201, 203.203(b), 203.208**, 203.301, 203.302,

204.550**, 204.810, 204.1100(c), 204.1110, and 204.1130.[3] SR 0073. Section 9(a) of the Act contains the general prohibition against air pollution. 415 ILCS 5/9(a); SR 0078. Section 9.1(d) of the Act provides the prohibition against violations of Section 165 (PSD) and Section 173 (NNSR) of the Clean Air Act. 415 ILCS 5/9.1(d); SR 0078. Section 39(a) of the Act provides, in part, that it is the duty of Illinois EPA to issue a permit upon proof by the applicant that the facility or equipment will not cause a violation of the Act or regulations. 415 ILCS 5/39(a); SR 0078 – SR 0079. Section 201.160(a) of the Board's regulations provides that no construction permit shall be issued unless the applicant submits proof that the emission unit or air pollution control equipment will be constructed or modified to operate so as not to cause a violation of the Act or Title V, Subtitle B, Chapter I of the Board's regulations. 35 Ill. Adm. Code 201.160(a); SR 0083. Section 203.201 of the Board's regulations provides that, for a project that is major for a pollutant in a nonattainment area for that pollutant, an entity must comply with the substantive requirements of Part 203. 35 Ill. Adm. Code 203.201; SR 0084. Section 203.203(b) of the Board's regulations provides that applications for construction permits must contain sufficient information to demonstrate compliance with Part 201 and the requirements of Part 203, including Subpart C of Part 203. 35 Ill. Adm. Code 203.203(b); SR 0084.

51. Section 203.208 of the Board's regulations provide the steps to determine whether an increase or decrease in emissions in available for purposes of determining a net emissions increase; such steps provide, in part, that a decrease in actual emissions is creditable to the extent that it is federally enforceable at and after the time that actual construction on the particular change begins, and that an increase or decrease in actual emissions is contemporaneous only if it occurs

[3] Throughout the Agency's Denial Letter, the Agency cites to provisions of the Act and Board's regulations using asterisks. SR 0001 – 0091. The Agency explains the use of the asterisks in Appendices A and B to the Denial Letter. *Id*. In this Petition, when discussing the claims made in the Denial Letter, and when responding to those claims, U. S. Steel is including the asterisks as used by the Agency in the Denial Letter.

between the date that an increase from a particular change occurs and the date five years before a timely and complete application is submitted for the particular change. 35 Ill. Adm. Code 203.208; SR 0085 – 0086. Section 203.301 provides the definition of lowest achievable emission rate ("LAER"). 35 Ill. Adm. Code 203.301; SR 0086. Section 203.302 provides an owner or operator of a new major source or major modification shall provide emission offsets equal to or greater than the allowable emissions from the source or net increase in emissions from the modification sufficient to allow Illinois EPA to determine that the source or modification will not interfere with reasonable further progress. 35 Ill. Adm. Code 203.302; SR 0086 – 0087. Section 204.550 of the Board's regulations provides the definition of "net emissions increase" and provides, in part, that an increase or decrease in actual emissions is contemporaneous with the increase from the particular change only if it occurs between the date five years before construction on the particular change commences and the date that the increase from the change occurs; and a decrease in actual emissions is creditable only to the extent that it is enforceable as a practical matter at and after the time that actual construction on the particular change begins. 35 Ill. Adm. Code 204.550; SR 0088 – 0089.

52. Section 204.810 of the Board's regulations provide, in part, that a PSD permit application must include, if a determination of BACT is required, a detailed description as to what system of continuous emission reduction is planned for the source or modification, emission estimates, and any other information necessary to determine that BACT would be applied. 35 Ill. Adm. Code 204.810; SR 0089. Section 204.1100(c) of the Board's regulations provides that a major modification must apply BACT for each regulated NSR pollutant for which it would result in a significant net emissions increase at the source. 35 Ill. Adm. Code 204.1100(c); SR 0090. Section 204.1110 of the Board's regulations provides that the owner or operator of a proposed

source or modification must demonstrate that allowable emission increases from the proposed source or modification, "in conjunction with all other applicable emission increases or reductions (including secondary emissions), would not cause or contribute to air pollution in violation of: a) Any NAAQS in any air quality control region . . . ." 35 Ill. Adm. Code 204.1110; SR 0090. Section 204.1130 of the Board's regulations provide, in summary, that a permit applicant for a project that is considered major for pollutant(s) for purposes of PSD address that ambient air quality in the area that the proposed project would affect for such pollutant(s). 35 Ill. Adm. Code 204.1130; SR 0090 – 0091.

53. The issues raised by Denial Point 1 were discussed by U. S. Steel in its September 11, 2023 and January 8, 2024 written comments to the draft denials. SR 0491 – 0494; SR 0330 – 0335.

54. As explained in the comments, in its evaluation, Illinois EPA improperly considers emissions and emissions increases that were authorized by Illinois EPA at the time Permit 95010001 was issued to National Steel Corporation but will not occur in the future. SR 0030; SR 0491. The NOx emissions increase from the Project authorized by Illinois EPA prior to U. S. Steel's ownership (when National Steel Corporation owned and operated the facility) is greater than that with the revisions proposed by U. S. Steel. *Id*. Illinois EPA is attempting to shift to U. S. Steel a burden that is not U. S. Steel's. SR 0331. U. S. Steel has demonstrated in the Application that the Project would not become a major modification solely by virtue of the changes and other requested revisions. SR 0331; SR 0491. U. S. Steel has no obligation to show that the actual or potential NOx emissions of the units in the period from 1996 to the present have not exceeded the emission rates currently proposed by U. S. Steel. SR 0331.

55. Illinois EPA's position and demands place U. S. Steel in the impossible position to show that no violations would have existed for a period of 30 years – including about ten of those years in which U. S. Steel did not even own or operate the facility nor can it attest to the National Steel emissions. The Agency expects U. S. Steel to somehow show that not only every operating scenario complied with all regulations, but also that none of the regulations over 30 years would have been violated. U. S. Steel is essentially tasked with the impossible burden to demonstrate compliance with all operating scenarios and all PSD provisions over the nearly 30 years – both of which have significantly evolved over the last three decades.

56. The Agency's position regarding U. S. Steel's obligations with respect to PSD and NNSR as to NOx emissions is contrary to the law. SR 0331. In *U. S. v. Midwest Generation, LLC*, 781 F. Supp. 2d 677 (N.D. Ill. 2011), the Court held that, where a facility should have been subject to BACT and other substantive requirements of the major NSR permitting programs due to modifications implemented by a prior owner, the Act does not obligate a subsequent owner to come into compliance with those requirements. *U.S. v. Midwest Generation* involved an enforcement action under the Clean Air Act for injunctive relief and civil penalties against the owner and operator of coal-fired power plants. *Id*. at 679. The power plants were originally owned by Commonwealth Edison Co. ("ComEd"), then sold to Edison Mission Energy, Inc. ("EME"), who then transferred control to Midwest Generation. *Id*. at 680.

57. Prior to selling the plants to EME, it was alleged that ComEd modified five of its power plants between 1994 and 1999 but did not obtain permits for the modifications. *Id*. at 645. After the modifications, Commonwealth Edison sold the plants to Midwest Generation. *Id.* at 646. No one challenged the modifications until 2009, 10 years after they were completed. *Id*. The court held that any PSD claim accrued, and the statute of limitations began to run, in 1999, because the

violation would be "complete when construction commences without a permit." *Id.* at 646-47. Accordingly, any claims based on PSD violations for failing to obtain a permit were barred by the statute of limitations. *Id.* Moreover, the court held that "[t]oday's emissions cannot be called unlawful just because of acts that occurred more than five years before the suit began. Once the statute of limitations expired, Commonwealth Edison was entitled to proceed as if it possessed all required construction permits" because "enduring consequences of acts that precede the statute of limitations are not independently wrongful." *Id.*at 648.

58. *Midwest Generation* involved failure to obtain any construction permits, including PSD permits, for projects that required both. In contrast, National Steel obtained a construction permit, which permit constituted a PSD approval for two pollutants, but did not obtain PSD approval with respect to NO_X emissions. The alleged failure to obtain PSD approval with respect to NO_X emissions is essentially identical; the *Midwest Generation* principles apply to this case. This is because when the Permit was issued in 1996, Illinois did not have its own PSD program, but rather had been delegated authority by USEPA to implement and enforce the federal PSD program. *See In Re: West Suburban Recycling and Energy Center, L.P.*, 1996 WL 780306, at *3. Permits "issued by states acting with delegated authority are considered EPA-issued permits." *In Re: Christian County Generation, LLC,* 13 E.A.D. 449, 2008 WL 281839, at *11 n. 1 (E.P.A. Jan. 28, 2008). Thus, where Illinois EPA "acts as EPA's delegate in implementing" a federal program in Illinois, the permit "is considered an EPA-issued permit for purposes of federal law." *Id.* Under federal law, with respect to PSD claims, the Clean Air Act "does not provide its own statute of limitations. Therefore, the general, five-year, federal statute of limitations applies." *U.S. v. Midwest Generation, LLC*, 781 F. Supp. 2d 677, 691 (N.D. Ill. 2011).

59. In relation to the BACT requirements, the court in *Midwest Generation* explained that "[t]here is no obligation to apply 'best available control technology' in the abstract.'" *Id.* at 690. BACT requirements are not freestanding but are imposed in the pre-construction permit process. *Id.* The court explained that "[i]n the absence of such a permit, they do not exist." *Id.*

60. While the *Midwest Generation* case addressed the issues of continuing PSD violations in an enforcement context, the court's discussion of PSD and BACT requirements is relevant to the permitting context. Here, National Steel obtained a permit in 1996, but it contained certain incorrect emissions information and limits. Those errors were discovered and dealt with appropriately by U. S. Steel in applying to correct the emissions information and limits. The time for Illinois EPA to seek fulfillment of the regulatory consequences of the prior incorrect emissions information and limits has long since passed. Since National Steel could never be found liable for those errors even if it continued to own the facility, U. S. Steel likewise cannot be subject to punishment for the consequences of the incorrect permit limits. Given that Midwest Generation was not liable in the enforcement context for its predecessor's failure to get a required permit at all,[4] certainly U. S. Steel, which inherited a facially valid permit from its predecessor, should not suffer based on purported failure by the predecessor to get (and Illinois EPA to issue) the correct permit. Furthermore, the issues raised and actions demanded of U. S. Steel now were never raised when National Steel applied for the Permit in 1995. *See, generally* SR 1942 – 2173.

61. Illinois EPA's position in this matter, while not in the enforcement context, essentially holds U. S. Steel liable for National Steel's conduct. The Agency disregards *Midwest Generation* and attempts to circumvent its limitations imposed by that decision. U. S. Steel's

[4] Subsequent to the *Midwest Generation* decisions, the Agency has issued several construction permits to Midwest Generation for the same emissions units that were the subject of the decisions, and those permits authorized operation of the modified units without imposing BACT or other major NSR obligations. SR 0331 n. 16.

Application merely seeks to correct the incorrect emissions limits and move forward in light of the current status of the facility. Moreover, Illinois EPA takes the position that permit terms and conditions that the Agency itself issued (which it could only do upon a finding that no violation would occur) cannot be relied upon even where no change is requested to those terms and conditions. The Agency's position is one that places an unlawful, impracticable, if not impossible, burden on U. S. Steel. Furthermore, the burden that the Agency is placing on U. S. Steel is not only contrary to *Midwest Generation*, but inconsistent with the Order issued by the United States Bankruptcy Court for the Northern District of Illinois (Case Nos. 02-08697 – 02-08738). *See*, *generally* SR 1309 – 1394.

62. Instead of appropriately considering the situation in a prospective, forward-looking, and realistic manner that reflects the current conditions and future operations at the Facility, and accepting the provisions of the Permit that U. S. Steel does not seek to change, Illinois EPA takes the position that U. S. Steel must assess the details of operating scenarios that may have existed nearly 30 years ago when the Permit was issued and before U. S. Steel's ownership. Illinois EPA's position is based on retrospectively looking back to the time the Permit was issued in 1996 and revised in 1998 and speculating about what operations may have been like at that time instead of concentrating on what the actual consequences of its permitting decision would be in a practical sense. In addition, U. S. Steel cannot speak to or verify on how National Steel operated nor can it attest to its emissions.

63. This is also true of the concerns raised by Illinois EPA pursuant to the non-attainment area portion of the New Source Review program in 35 Ill. Admin. Code 203 (NNSR). Illinois has had its own program under Part 203 for a long time, and the statute of limitations situation is not the same as in the PSD context. However, the reality of Illinois EPA's position in

the Part 203 context is that it would be impossible for U. S. Steel to meet Illinois EPA's demands. Illinois EPA cites Section 203.302 for emissions offsets, requiring an owner or operator of a major modification to provide emission offsets equal to or greater than the allowable emissions from the net increase in emissions from the modification. There are regulatory requirements for determining emission offsets, including Sections 203.302 and 203.303. One of those requirements is that emission offsets must be effective prior to start-up of the modified source. It is not clear how U. S. Steel could be expected to obtain such emission offsets now, for a project that started up decades ago. Thus, the Agency appears to instill an impossibility in its permit denial. If the Board agrees with the Agency's approach, U. S. Steel may never be able to obtain a corrected permit. This cannot be a rational result.

64. U. S. Steel explained as follows in its written comment:

> Under the PSD and NNSR programs as in effect at the time of the Production Increase Project, where the project involved changes to existing emissions units that are so significant that the emissions unit was deemed not to have begun normal operation, the post-change actual emissions of that unit are assumed equal to its potential to emit. 40 CFR § 52.21(b)(21). The major modification applicability test was therefore based on a comparison of the pre-project actual emissions and the post-project potential to emit of the emissions unit or group of units. 40 CFR §§ 52.21(b)(2)-(3). An emissions unit's potential to emit is its maximum capacity to emit a pollutant under its physical and operational design. 40 CFR § 52.21(b)(4). Limitations on the capacity to emit a pollutant are treated as part of the design of an emissions unit or group of units if the limitation or the effect it would have on emissions is legally enforceable and enforceable as a practical matter. Where the potential to emit of a unit or group of units is governed by enforceable limitations rather than by the unrestricted physical capacity of that unit or those units, and where those limitations were necessary to a determination that a project was not a major modification, the term "synthetic minor" is commonly used to describe the project and the associated limitations.

SR 0331 – 0332.

65. The source obligation provisions effectively require updated PSD and NNSR applicability analysis in situations where the permit applicant proposes to relax a synthetic minor

limitation in a permit. SR 0332. Applicability analyses performed to determine whether the source obligation provisions apply are prospective, not retrospective as Illinois EPA claims. *Id.* U. S. Steel's prospective calculation of potential NOx emissions from specific fuel combustion units affected by the Project include zero emissions from Boilers 1 – 10 (which no longer exist); does not include the greater NOx emission rates of Boilers 11 and 12 prior to required retrofit of flue gas recirculation in those boilers; and includes zero emission from combustion of coke oven gas as fuel (since coke oven gas is no longer available). *Id.* The Application demonstrates that the Project will not become a major modification solely due to the requested relaxations. *Id.*

66. As demonstrated by the Application, NOx emissions associated with a facility configuration that is no longer authorized, or that are under a counterfactual hypothetical, are immaterial to the source obligation demonstration. SR 0333. The Application reflects the prospective reality for the fuel combustion units at the facility. *Id.*

67. Further, Illinois EPA argues, as to Project emission increases and net emission increases, that additional decreases in NOx emissions that U. S. Steel proposes to rely upon are not contemporaneous and otherwise creditable as required by the NSR regulations. SR 0333. However, the Agency's analysis includes separate calculations of increases and decreases based on specific fuels and changes in fuels, which is inconsistent with the PSD and NNSR rule requirements. *Id.* For certain Project-affected fuel combustion units, the change in actual NOx emissions is properly calculated as the total post-project actual NOx emissions (regardless of the fuel or fuels being burned to generate those emissions) minus the total pre-project actual NOx emissions (regardless of the fuel or fuels that were burned to generate those emissions). SR 0333; SR 0601 – 0958. Further, it was appropriate to include the emission changes at the certain Project-affected fuel combustion units in the updated calculation of the NOx emissions increase from the

Project as calculated in the Application. SR 0334; SR 0601 – 0958. Emissions changes at these emission units must be included in the calculation of the emissions increase that will occur as a result of the project, under the first clause in the definition of the term "net emissions increase." SR 0333 – 0334. Lastly, as explained in written comments, "even if the contribution of the certain fuel combustion units affected by the Production Increase Project were properly considered as among the other decreases under the second clause of the definition rather than a contribution to the emissions increase from the project under the first clause of the definition, it is not relied upon for the non-applicability determination." SR 0334. The net NOx emissions increase from the Project as presented in the Application is -237.3 tons per year; even if the decrease of 250.3 tons per year as calculated by the Agency is omitted from the calculation, the net emissions increase is 13 tons per year, which is less than the significant level of 40 tons per year and demonstrates that the Project would not become a major modification solely by virtue of the relaxations requested by U. S. Steel. SR 0334 – 0335.

68. The updated NOx emission increase calculations presented in the Application fully conform to and satisfy the source obligation provisions of the PSD and NNSR rules. SR 0335. Because the Project would not become a major modification with respect to NOx emissions solely by virtue of the requested relaxations, the substantive requirements of PSD and NNSR programs are not required elements of the Application. SR 0335.

69. As noted above, U. S. Steel advocates that the PSD Program is forward-looking and prospective. Illinois EPA, on the other hand, claims that "the PSD program is not actually forward looking." SR 0114. The Agency's position is again contrary to the law. One purpose of the PSD program is "to assure that any decision to permit increased air pollution in any area to which this section applies is made only after careful evaluation of all the *consequences* of such a

decision." 42 U.S.C. § 7470(5) (emphasis added). Therefore, "the PSD program is forward-looking," and the "PSD requirements are forward-looking." *United States v. Louisiana Generating, LLC,* 929 F. Supp. 2d 591, 593 (M.D. La. 2012); *United States v. EME Homer City Generation L.P.*, 823 F. Supp. 2d 274, 281 (W.D. Pa. 2011), *aff'd*, 727 F.3d 274 (3d Cir. 2013). Therefore, Illinois EPA's position that the PSD Program is not forward looking is without merit.

70. The Agency claimed that the Bombardier letter by USEPA supported its position. SR 0183 – 0184; SR 0308 – 0311. Bombardier involved a higher threshold for major source/modification due to a change in the area designation. SR 0183 – 0184. Here, however, U. S. Steel is not seeking a change in the major source/modification threshold. It is simply updating the emissions information to show that the original major modification threshold is not exceeded, and U. S. Steel's netting analysis demonstrates that this was not a major modification. Accordingly, the Bombardier letter does not support the Agency's position.

71. The Agency also claimed that the PSE & G Determination supported its position. SR 0184 – 0185; SR 0312 – 0315. PSE & G states that any relaxation of an established limit that would make the project "major" would at that point in time make PSD applicable. SR 0314. Here, however, the updated emissions information provided in the application does not make the project major. Thus, the PSE & G Determination does not support the Agency's position.

72. The Agency presented its own NO_X netting analysis in the Responsiveness Summary. SR 0300 – 0306. This analysis included one simple and glaring error; mere correction of that error makes clear that the Project would not become a major modification with respect to NO_X emissions as a result of the revisions requested in the Application. The Agency's analysis shows that the net NO_X emissions increase is less than the significant level of 40 tons per year, provided that the future total NO_X emissions from the affected fuel-burning units are less than

983.2 tons per year. *Id*. The Agency provided a speculative and strained analysis suggesting that the total future NO_X emissions from the affected fuel-burning units might reasonably be assumed to exceed this value. This speculation is preposterous. In the Application submitted in March 2020, U. S. Steel proposed to accept a NO_X emission cap of 632.5 tons per year over the affected fuel-burning units. SR 0961 – 1248. In the Supplement submitted in October 2022, at the direction of the Agency, U. S. Steel proposed no enforceable emission cap because such cap would be superfluous: (i) The currently effective emission cap of 706 tons per year covering all affected fuel-burning units in Permit No. 95010001 significantly overstates the maximum anticipated NOx emissions from these units; and (ii) Any future total NO_X emission rate from these units less than 956 tons per year, including any rate in the range 706 tons per year to 956 tons per year, will result in a calculated net NO_X emissions increase of 13.1 tons per year. SR 0601 – 0958. (In other words, for any such value, the "p" variable in the Agency's speculative analysis is zero.) The Agency is aware that future total NO_X emissions from the affected fuel-burning units will be less than 983.2 tons per year. SR 0119 – 0120, fn. 21 (". . .the Application requests future permitted annual NO_X emissions for the . . . Project-affected fuel burning units of . . .706 tons/year . . ."). If, contrary to the direction given to U. S. Steel by the Agency in 2022, the Agency determined that it was necessary to impose an enforceable limit on total NO_X emissions from the affected fuel-burning units, the appropriate path forward was for the Agency to exercise its discretion and authority to impose such limit, not to deny the Application merely because U. S. Steel had not proposed such a limit in its Application. 35 Ill. Adm. Code Section 201.156 ("The Agency may impose such conditions in a construction permit as may be necessary to accomplish the purposes of the Act, and as are not inconsistent with the regulations promulgated by the Board thereunder.").

73. Based on all the above, the provisions of the Act and Board regulations referenced

by the Agency will not be violated if a revised permit were granted as requested by U. S. Steel. The Project would not become a major modification with respect to NOx emissions, so the substantive requirements of PSD and NNSR programs are not required elements of the Application.

74. Therefore, the Agency's final decision to deny the Application based upon this Denial Point was clearly erroneous considering the facts and the law. The Agency's reasons, statutory bases, and regulatory bases are insufficient, improper, and inadequate to support denial. Additionally, the Agency's decision involved a discretionary decision and an important policy consideration that the Board should review and reverse.

ii. Denial Point 2: The determination of baseline NOx emissions in the revised netting analysis cannot be independently confirmed

75. The Agency's second Denial Point claims that the determination of baseline NOx emissions in the revised netting analysis cannot be independently confirmed. SR 0009; *see* SR 0009 – 0012; *see* SR 0209 – 0218.

76. The Agency stated that the Permit Application "does not include data and information supporting the determinations of baseline NOx emissions for certain emissions units in the revised NSR applicability analysis for NOx." SR. 0009. The Agency contended that the revised NSR applicability analysis not only sought increases in permitted NOx emissions of the blast furnace casthouse and BOFs to correct errors in the original application for the Production Increase Project, but also now addressed NOx emissions from burning coke oven gas ("COG") in Project-affected units, which the Illinois EPA did not require be addressed in 1996. *Id.* With respect to continuous casting operations, the Agency stated that the analysis took a different approach with use of natural gas and associated NOx emissions. *Id.* Finally, the Agency contended that the revised NSR applicability analysis did not reflect a reevaluation of the NOx

emission factor used for ladle preheaters and, for these units, an emissions factor for use of natural gas in boilers continues to be used, which the Agency claims "likely is not appropriate for the simpler burner systems in preheaters." *Id.*

77. Illinois EPA took the position that because of claimed "deficiencies in the data and information" provided for the baseline NOx emissions of fuel burning units, "the revised NSR applicability analysis cannot be relied upon," and the analysis "cannot serve as proof that the Production Increase Project would not become a major modification for NOx under NSR with the increases in permitted NOx emissions" that were requested. SR 0009. The Agency stated that "[l]ikely or possible deficiencies in the emission data in the revised NSR applicability analysis for NOx in the application need to be resolved or corrected before any revised version of" the Permit could be issued based on the revised NSR applicability analysis. *Id.*

78. In the Agency's "Discussion" regarding Denial Point 2, the Agency asserts that the Permit Application "does not show that all Project-affected fuel burning units have been addressed" and, for "units that are addressed, the application does not show that appropriate emission factors and operating data have been used to estimate emissions." SR 0010. Given that "specific concerns exist with the determination of baseline NOx emissions for certain emission units," the Agency claimed that "concerns exist with the determination of the overall baseline NOx emissions for the Project." *Id.* The discussion included the baseline usage of COG, the emission factor for use of COG in Boilers 11 and 12, the emission factor for use of natural gas in ladle preheaters, and emissions from use of natural gas on the continuous casting lines. SR 0010 – 0012.

79. The Agency contended that the following Act and Board regulatory provisions may be violated as to this Denial Point if a revised permit were granted: 415 ILCS 5/9(a), 9.1(d) and 39(a)*, and 35 Ill. Adm. Code 201.152**, 201.152*** and 201.160(a). Section 9(a) of the Act

contains the general prohibition against air pollution. 415 ILCS 5/9(a); SR 0078. Section 9.1(d) of the Act provides the prohibition against violations of Section 165 (PSD) and Section 173 (NNSR) of the Clean Air Act. 415 ILCS 5/9.1(d); SR 0078. Section 39(a) of the Act provides that it is the duty of Illinois EPA to issue a permit upon proof by the applicant that the facility or equipment will not cause a violation of the Act or regulations; and the Agency may impose such other conditions as may be necessary to accomplish the purposes of the Act. 415 ILCS 5/39(a); SR 0078 – SR 0079. Section 201.152 of the Board's regulations provide, in part, that construction permit applications must include information regarding the quantities and types of raw materials to be used in the emission source or air pollution equipment, and must include information concerning the nature, points of emissions, and quantities of emissions (uncontrolled and controlled) at the source. 35 Ill. Adm. Code 201.152; SR 0082. Section 201.160(a) of the Board's regulations provides that no construction permit shall be issued unless the applicant submits proof that the emission unit or air pollution control equipment will be constructed or modified to operate so as not to cause a violation of the Act or Title V, Subtitle B, Chapter I of the Board's regulations. 35 Ill. Adm. Code 201.160(a); SR 0083.

80. The issues raised by Denial Point 2 were discussed by U. S. Steel in its September 11, 2023 and January 8, 2024 written comments to the draft denials. SR 0494 – 0497; SR 0336 – 0339.

81. As explained in the written comments, Illinois EPA's claim that U. S. Steel did not provide sufficient information for the PSD/NNSR non-applicability determination is without merit. SR 0336. With respect to the baseline usage of COG, the permit application includes extensive discussion of the use of coke oven gas as fuel during the pre-project baseline period. *Id.* The Agency's position was, in part, based on the fact that "National Steel did not provide data for

usage of COG." SR 0210. As discussed above, however, U. S. Steel cannot be liable for National Steel's conduct; and this is a question that Illinois EPA should have requested from National Steel – not U. S. Steel. U. S. Steel cannot attest to the accuracy or veracity to National Steel's submittals and emissions nor is it required to do so.

82. With respect to the emission factor for use of COG in Boilers 11 and 12, the emission factor listed in the Permit Application was "a scrivener's error" and the factor used is actually based on emission testing performed at Boiler 12, which was discussed with Illinois EPA. SR 0336 - 0337. As to the emission factor for use of natural gas in ladle preheaters, this emission factor "has been used consistently for all purposes pertaining to the permitting of the Production Increase Project and has been both accepted and prescribed by Illinois EPA for that purpose." SR 0337. Given that Illinois EPA repeatedly accepted and relied upon this emission factor for calculating NO_X emissions from combustion of natural gas in ladle preheaters in numerous permitting actions over the course of nearly thirty years, no further justification was needed. *Id.* USEPA regularly accepts the use of emission factors from one source to apply to another type of source using the same fuel. For example, in the IIS MACT RTR, USEPA allowed U. S. Steel to test a boiler burning BFG to develop emission factors for blast furnace stoves using the same fuel. Cross utilization of emission factors across different types of units is commonly accepted by USEPA. *See* SR 2502 – 2512. Furthermore, a ladle preheater cannot be tested and there are no published emission factors for ladle preheaters.

83. Concerning emissions from use of natural gas on the continuous casting lines, because "there is no NOx formation from the continuous casting operation other than from combustion of natural gas" and "all natural gas consumption in the continuous casting operation is accounted for elsewhere, U. S. Steel did not account for any additional pre-project actual NO_X

emissions from the continuous casting operation." *Id.* U. S. Steel further clarified in its comments, however, that "emissions associated with natural gas combustion in this operation were properly accounted for both in pre-project baseline and the post project emission for the project affected units." SR 0037 — 0039.

84. As such, the provisions of the Act and Board regulations referenced by the Agency will not be violated if a revised permit were granted as requested by U. S. Steel. Again, the Application shows that the Project would not become a major modification.

85. Therefore, the Agency's final decision to deny the Application based upon this Denial Point was clearly erroneous considering the facts and the law. Additionally, the Agency's reasons, statutory bases, and regulatory bases are insufficient, improper, and inadequate to support denial. Moreover, this is an important policy consideration that the Board should review and reverse Illinois EPA's decision.

iii. Denial Point 3: The Application lacks information for the actual NOx emissions of Project-affected fuel burning units (lack of information relevant to netting)

86. The Agency's third Denial Point claims that the Permit Application lacks information for the actual NOx emissions of project-affected fuel burning units, specifically, that the revised netting analysis for NOx does not show that the value for the maximum future NOx emissions from certain fuel burning units (706 tons/year), in aggregate, is appropriate. SR 0013.

87. The Agency contended that the Permit Application "does not show that 706 tons/year represents the post-project NOx emissions of these units as could have been addressed when Permit 95010001 was originally issued in 1996 if emissions from burning of COG in these units when operating at the levels of iron and steel production that were permitted had been considered." SR 0013. Further, according to the Agency, the Permit Application "also does not

show that the actual NOx emissions of the subject units in the period from 1996 to the present have not exceeded 706 tons/year." *Id.* The Agency's position is that U. S. Steel needed to "show that a value for future NOx emissions of the subject units of 706 tons/year does not really represent 'future' emissions beginning at the present time" because, otherwise, "the value for future NOx emissions in the application improperly takes credit for reductions in the NOx emissions of the Production Increase Project (Project) that were not originally part of the Project." *Id.*

88. Illinois EPA concluded that although only two of 12 boilers that were in operation in 1996 remain in operation currently, "it is not appropriate to only address the potential NOx emissions of the two boilers that now remain," and although COG is no longer being produced due to shutdown of other units, "when revaluating applicability of NSR for the Project for NOx with the increases in permitted emissions now requested, it is not appropriate to evaluate the NOx emissions of the units that formerly used COG as they now exist and to ignore the fact that in 1996 these units did use COG and their potential NOx emissions were higher." *Id.* The Agency stated that the "difficulty is that the revised NSR applicability analysis for NOx in the 2022 application attempts to rely on this 'post-project' reduction in the NOx emissions of these units to make up for the increases in permitted NOx emissions of the blast furnace casthouse and BOFs that are requested." SR 0014. Therefore, Illinois EPA claims it would have been improper to issue a revised permit "that reflects current circumstances for the subject units if this reflects NOx emissions that are lower than could have properly been allowed in 1996." *Id.*

89. The Agency contended that the following Act and Board regulatory provisions may be violated as to this Denial Point if a revised permit were granted: Sections 9(a), 9.1(d), 39(a)*, 39(a)** and 39(a)***, and 35 IAC 201.152***, 201.160(a), 203.123, 203.128, 203.208*, 204.400, 204.550* and 204.560. Section 9(a) of the Act contains the general prohibition against air

pollution. 415 ILCS 5/9(a); SR 0078. Section 9.1(d) of the Act provides the prohibition against violations of Section 165 (PSD) and Section 173 (NNSR) of the Clean Air Act. 415 ILCS 5/9.1(d); SR 0078. Section 39(a) of the Act provides that it is the duty of Illinois EPA to issue a permit upon proof by the applicant that the facility or equipment will not cause a violation of the Act or regulations; the Agency may impose such other conditions as may be necessary to accomplish the purposes of the Act; and the Agency may impose reasonable conditions in a permit specifically relating to an applicant's past compliance history. 415 ILCS 5/39(a); SR 0078 – 0079. Section 201.152 of the Board's regulations provide, in part, that construction permit applications must include information regarding the quantities and types of raw materials to be used in the emission source or air pollution equipment, and must include information concerning the nature, points of emissions, and quantities of emissions (uncontrolled and controlled) at the source. 35 Ill. Adm. Code 201.152; SR 0082. Section 201.160(a) of the Board's regulations provides that no construction permit shall be issued unless the applicant submits proof that the emission unit or air pollution control equipment will be constructed or modified to operate so as not to cause a violation of the Act or Title V, Subtitle B, Chapter I of the Board's regulations. 35 Ill. Adm. Code 201.160(a); SR 0083. Section 203.123 and Section 204.400 of the Board's regulations provide the definition of "Federally Enforceable" including that emissions limitations are enforceable as a practical matter. SR 0083; SR 0087 – 0088. Section 203.128 and Section 204.560 of the Board's regulations provide the definition of "potential to emit" including that emissions are practically enforceable. SR 0083; SR 0089. Section 203.208 and Section 204.550 of the Board's regulations provide the definition of Net Emissions Determination including the process to show a project would not be a major modification. SR 0084; SR 0088.

90. The issues raised by Denial Point 3 were discussed by U. S. Steel in its September 11, 2023 and January 8, 2024 written comments to the draft denials. SR 0494 – 0497, SR 508; SR 0336 – 0339, SR 0350.

91. As explained in the written comments, the Permit Application provided a basis for the proposed maximum future NOx emissions of 706 tons per year from certain fuel combustion units. SR 0339. The Permit Application did not request a change in the maximum NOx emissions from the fuel combustion units; instead, U. S. Steel requested continued use of the limit of 706 tons of NOx emissions from the fuel combustion units that had been in place in the existing permit since 1999. *Id.* As discussed above, the Agency should accept its previously issued permit terms that U. S. Steel does not seek to change.

92. As such, the provisions of the Act and Board regulations referenced by the Agency will not be violated if a revised permit were granted as requested by U. S. Steel.

93. Therefore, the Agency's final decision to deny the Application based upon this Denial Point was clearly erroneous considering the facts and the law. Additionally, the Agency's reasons, statutory bases, and regulatory bases are insufficient, improper, and inadequate to support denial. Moreover, this is an important policy consideration in which the Board should review and reverse the Illinois EPA's determination.

iii(a). <u>Denial Point 3A: The Application lacks information for the actual NOx emissions of Project-affected fuel burning units (lack of supporting information)</u>

94. The Agency's Denial Point 3A claims that the Permit Application lacks supporting information regarding the amount of maximum future NOx emissions from certain fuel burning units, 706 tons/year. SR 0015.

95. The Agency argues that the Permit Application does not list specific units whose NOx emissions are being addressed and describe the nature of the various units relative to the emissions of NOx from burning fuel. *Id.* Illinois EPA states that data was not provided for the maximum annual amounts of fuels burned. Moreover, the Agency states that data was not provided "for the emission factors used to calculate annual emissions, the sources or basis of those factors, and why those factors should be considered representative of the NOx emissions of the various types of units that are being addressed." *Id.* The Agency contended that without this information, the Permit Application "does not include information that is necessary to allow the Illinois EPA to rely upon the future maximum NOx emissions of the subject units, presumably the fuel burning units affected by the Production Increase Project, being no more than the stated amount, or issue a revised permit that limits NOx emissions to the stated amount." *Id.*

96. The Agency contended that the following Act and Board regulatory provisions may be violated as to this Denial Point if a revised permit were granted: Sections 9(a), 9.1(d), 39(a)*, and 39(a)**, and 35 IAC 201.152**, 201.152***, 201.160(a), 203.123, 203.128, 204.400, and 204.560. Section 9(a) of the Act contains the general prohibition against air pollution. 415 ILCS 5/9(a); SR 0078. Section 9.1(d) of the Act provides the prohibition against violations of Section 165 (PSD) and Section 173 (NNSR) of the Clean Air Act. 415 ILCS 5/9.1(d); SR 0078. Section 39(a) of the Act provides that it is the duty of Illinois EPA to issue a permit upon proof by the applicant that the facility or equipment will not cause a violation of the Act or regulations; the Agency may impose such other conditions as may be necessary to accomplish the purposes of the Act; and the Agency may impose reasonable conditions in a permit specifically relating to an applicant's past compliance history. 415 ILCS 5/39(a); SR 0078 – 0079. Section 201.152 of the Board's regulations provides, in part, that construction permit applications must include

information regarding the quantities and types of raw materials to be used in the emission source or air pollution equipment, and must include information concerning the nature, points of emissions, and quantities of emissions (uncontrolled and controlled) at the source. 35 Ill. Adm. Code 201.152; SR 0082. Section 201.160(a) of the Board's regulations provides that no construction permit shall be issued unless the applicant submits proof that the emission unit or air pollution control equipment will be constructed or modified to operate so as not to cause a violation of the Act or Title V, Subtitle B, Chapter I of the Board's regulations. 35 Ill. Adm. Code 201.160(a); SR 0083. Section 203.123 and Section 204.400 of the Board's regulations provide the definition of "Federally Enforceable" including that emissions limitations are enforceable as a practical matter. SR 0083, 0087. Section 203.128 and Section 204.560 of the Board's regulations provide the definition of "potential to emit" including that emissions are practically enforceable. SR 0083; 0089.

97. The Agency did not include Denial Point 3A in its Initial Draft Denial Letter. SR 0016. The issues raised by Denial Point 3A were discussed by U. S. Steel in its September 11, 2023 and January 8, 2024 written comments to the draft denials. SR 0494 – 0497 and 0507 – 0509; SR 0336 – SR 0339 and 0349 – 0351.

98. As explained in the written comments, the Permit Application provided a basis for the proposed maximum future NOx emissions of 706 tons per year from certain fuel combustion units. SR 0339. The Permit Application did not request a change in the maximum NOx emissions from the fuel combustion units; instead, U. S. Steel requested continued use of the limit of 706 tons of NOx emissions from the fuel combustion units that had been in place in the existing permit since 1999. *Id.* As discussed above, the Agency has no basis to not accept its previously issued permit terms that U. S. Steel does not seek to change.

99. As such, the provisions of the Act and Board regulations referenced by the Agency will not be violated if a revised permit were granted as requested by U. S. Steel.

100. Therefore, the Agency's final decision to deny the Application based upon this Denial Point was clearly erroneous considering the facts. The Agency's reasons, statutory bases, and regulatory bases are insufficient, improper, and inadequate to support denial. Additionally, the Agency's position that U. S. Steel could not rely upon an existing emission limit which had already been approved by the Agency involves a discretionary decision and an important policy consideration that the Board should review and reverse.

iv. Denial Point 4: For the basic oxygen furnaces, the 2022 Application does not address the potential for uncaptured emissions of NOx, VOM, and CO through the roof monitor of these furnaces

101. The Agency's fourth Denial Point claims that the Permit Application does not include information regarding uncaptured emissions of NOx, VOM, and CO for the BOFs that occur through the room monitor on the building in which the BOFs are located, the BOF shop. SR 0017.

102. Illinois EPA stated that stack testing of the control systems for the particulate system for the BOFs and the baghouse installed in the last 10 years. SR 0017. The Agency claimed that "[t]hese control systems may capture most of the emissions of the BOFs, achieving overall capture efficiencies that engineering design suggests may approach 100 percent." *Id.* The Agency claimed that the Application, however, "does not contain technical or engineering information showing that all emissions of the BOFs are now being captured and no emissions occur through the roof monitor or other openings in the BOF shop." *Id.* The Agency concluded that "[a]bsent information addressing uncaptured emissions of NOx, VOM and CO from the

BOFs, the 2022 application would not provide complete information about the emissions of the BOFs." *Id.*

103. The Agency contended that the following Act and Board regulatory provisions may be violated as to this Denial Point if a revised permit were granted: 415 ILCS 5/9(a), 9.1(d), 39(a)*, and 39(a)**, and 35 Ill. Adm. Code 201.152***, and 201.160(a). Section 9(a) of the Act contains the general prohibition against air pollution. 415 ILCS 5/9(a); SR 0078. Section 9.1(d) of the Act provides the prohibition against violations of Section 165 (PSD) and Section 173 (NNSR) of the Clean Air Act. 415 ILCS 5/9.1(d); SR 0078. Section 39(a) of the Act provides that it is the duty of Illinois EPA to issue a permit upon proof by the applicant that the facility or equipment will not cause a violation of the Act or regulations; and the Agency may impose such other conditions as may be necessary to accomplish the purposes of the Act. 415 ILCS 5/39(a); SR 0078 – 0079. Section 201.152 of the Board's regulations provides, in part, that construction permit applications must include information regarding the nature, points of emissions, and quantities of emissions (uncontrolled and controlled) at the source. 35 Ill. Adm. Code 201.152; SR 0082. Section 201.160(a) of the Board's regulations provides that no construction permit shall be issued unless the applicant submits proof that the emission unit or air pollution control equipment will be constructed or modified to operate so as not to cause a violation of the Act or Title V, Subtitle B, Chapter I of the Board's regulations. 35 Ill. Adm. Code 201.160(a); SR 0083.

104. The issues raised by Denial Point 4 were discussed by U. S. Steel in its September 11, 2023 and January 8, 2024 written comments to the draft denials. SR 0497 — 0498; SR 0339 — 0340.

105. As explained in the written comments, contrary to the Agency's position, the Permit Application "does not reflect an assumption that there are zero uncaptured emissions" from the

basic oxygen furnaces but instead reflects the conclusion that, "if there are any such uncaptured emissions, those emissions are fugitive emissions and are not quantifiable." SR 0339 – 0340. "Fugitive emissions are counted for purposes of PSD and NNSR applicability determinations only to the extent that such emissions are quantifiable." SR 0340. Illinois EPA's speculation regarding possible fugitive emissions from the basic oxygen furnaces is not a sufficient basis to determine that the emissions actually exist and are quantifiable. *Id.* U. S. Steel should not be held accountable for inclusion of such emissions when the Agency did not consider these emissions when issuing the Permit to National Steel in 1996. Moreover, the "primary mechanism for formation of particulate matter during charging and tapping is the oxidation of molten metal" and this "formation mechanism cannot be expected to result in the formation of NOX or VOM." *Id.*

106. The Agency contended that U. S. Steel did not address this Denial Point with respect to uncaptured emissions of CO through the roof monitor, but then conceded that U. S. Steel addressed this issue in a different comment. SR 0221 fn. 149. Indeed, U. S. Steel specifically noted that the Agency previously presumed that there are no CO emissions from this emission point, and "U. S. Steel did not request any changes to existing permit terms relating to this emission point." SR 0326. Thus, U. S. Steel had no reason to believe that the Agency had reconsidered its prior determination relating to CO emissions from the roof monitor. *Id.*

107. As such, the provisions of the Act and Board regulations referenced by the Agency will not be violated if a revised permit were granted as requested by U. S. Steel.

108. Therefore, the Agency's final decision to deny the Application based upon this Denial Point was clearly erroneous considering the facts and the law. The Agency's reasons, statutory bases, and regulatory bases are insufficient, improper, and inadequate to support denial.

Additionally, the Agency's decision involved a discretionary decision and an important policy consideration that the Board should review and reverse.

v. Denial Point 5: The emission inventory for the source used in the air quality analysis for CO omits certain CO emissions

109. The Agency's fifth Denial Point claims that the Air Quality Modeling Report, which provides the Source Impact Analysis, in the Application is deficient because it does not address certain CO emissions of units that are at, or were at, the facility. SR 0023; *see* SR 0023 – 0025; *see* SR 0131 – 0144.

110. The Project permitted under Permit 95010001 was a major modification under PSD because it involved physical and operational changes that would result in a significant net increase in emissions of CO. SR 0486; SR 0325; SR 0601 – 0958. As to the PSD permit application that National Steel Corporation submitted for the Project in 1995, Illinois EPA determined that the application included all necessary information, including the air quality impact analysis, and granted PSD approval for the project in conjunction with issuance of the permit. *Id*. The Application that is the issue of this Petition includes corrective updates to some of the emissions data relied upon by Illinois EPA in issuing Permit 95010001 in 1996. *Id*. As explained in the Application, recent information suggests that some of the emission data relied upon by the Agency in issuing the Permit in 1996 are not representative. SR 0325. U. S. Steel and the Agency agreed that corrective updates to these data and to CO air quality impact analysis are appropriate. *Id*. The Application includes an updated analysis.

111. However, in the Denial Letter, the Agency contended that the air quality analysis does not address: (i) uncaptured CO emission of the blast furnace casthouse and the basic oxygen furnaces (emissions that occur from roof monitors and other openings); and (2) CO emissions of the two by-product recovery coke oven batteries that were in operation in 1996. SR 0023 – 0026.

112. The Agency claimed that, by not addressing these emissions, the source impact analysis does not fully address the impact of the Project on ambient air quality for CO, both with increases in permitted CO emissions as now requested and as would have been determined in 1996 is the Project had been permitted for more CO emissions as is now being requested. *Id.* The Agency also contends that the source impact analysis does not explain why the CO emissions of certain units need not be considered. SR 0023.

113. As to the uncaptured emissions from the casthouse on the blast furnaces, the Agency contended that the analysis does not address these uncaptured emissions. SR 0024. The Agency stated that the Application indicates potential CO emissions of 13.6 tons/year from the roof monitor on the casthouse on the blast furnaces and that these uncaptured CO emissions must be addressed in the air quality analysis. SR 0024.

114. As to the uncaptured emissions from the basic oxygen furnaces, the Agency contended that the analysis does not address these uncaptured emissions. SR 0024. The Agency states that the Application also does not explain why uncaptured emissions would not be present since the Application does not show 100% capture of emissions from furnaces by the control systems. *Id*.

115. As to the by-product coke oven batteries, the Agency contended that the Application did not explain why the analysis should not consider the CO emission of the former by-product coke oven batteries. SR 0024. The Agency stated that the "analysis does not address CO ambient air quality with the Project as would have been predicted by the original air quality analysis for the Project if it had addressed the additional CO emissions now being requested for the Project." SR 0023.

116. The Agency contended that the following Act and Board regulatory provisions may be violated as to this Denial Point if a revised permit were granted: 415 ILCS 5/9(a), 9.1(d), 39(a)*, and 39(a)**, and 35 Ill. Adm. Code 201.152***, 201.160(a), 204.330, 204.1110, and 204.1130. SR 0073. Section 9(a) of the Act contains the general prohibition against air pollution. 415 ILCS 5/9(a); SR 0078. Section 9.1(d) of the Act provides the prohibition against violations of Section 165 (PSD) and Section 173 (NNSR) of the Clean Air Act. 415 ILCS 5/9.1(d); SR 0078. Section 39(a) of the Act provides that it is the duty of Illinois EPA to issue a permit upon proof by the applicant that the facility or equipment will not cause a violation of the Act or regulations; and the Agency may impose such other conditions as may be necessary to accomplish the purposes of the Act. 415 ILCS 5/39(a); SR 0078 – 0079. Section 201.152 of the Board's regulations provides, in part, that construction permit applications must include information concerning the nature, points of emissions, and quantities of emissions (uncontrolled and controlled) at the source. 35 Ill. Adm. Code 201.152; SR 0082. Section 201.160(a) of the Board's regulations provides that no construction permit shall be issued unless the applicant submits proof that the emission unit or air pollution control equipment will be constructed or modified to operate so as not to cause a violation of the Act or Title V, Subtitle B, Chapter I of the Board's regulations. 35 Ill. Adm. Code 201.160(a); SR 0083. Section 204.330 of the Board's regulations provides the definition of "complete." 35 Ill. Adm. Code 204.330; SR 0087. Section 204.1110 of the Board's regulations provides that the owner or operator of a proposed source or modification must demonstrate that allowable emission increases from the proposed source or modification, "in conjunction with all other applicable emission increases or reductions (including secondary emissions), would not cause or contribute to air pollution in violation of: a) Any NAAQS in any air quality control region . . . ." 35 Ill. Adm. Code 204.1110; SR 0090. Section 204.1130 of the Board's regulations provide,

in summary, that a permit applicant for a project that is considered major for pollutant(s) for purposes of PSD address that ambient air quality in the area that the proposed project would affect for such pollutant(s). 35 Ill. Adm. Code 204.1130; SR 0090 – 0091.

117. The issues raised by Denial Point 5 were discussed by U. S. Steel in its September 11, 2023 and January 8, 2024 written comments to the draft denials. SR 0386 – 0487; SR 0325 – 0327.

118. The Act or Board regulations do not require that a request for revision of a PSD approval include any of the information listed by the Agency. SR 0326. As such, none of the concerns raised by the Agency are deficiencies warranting denial of the permit application. *Id.*

119. Relating to the possibility of CO emissions from the BOF shop roof monitor, the Agency's prior determination that the Project would not cause or contribute to a violation of the CO NAAQS was based on the Agency's assumption that there were no CO emissions from the basic oxygen furnace shop roof monitor. SR 0326. U. S. Steel is not requesting in the Application any changes to the existing permit terms relating to this emission point. *Id.*; *see* SR 0601 – 0958. The Agency did not request that the updated analysis include any emissions from this emission point. *Id.* As explained by the Agency, "[i]t is well established that an air quality impact analysis required under the PSD program must be based on accurate information for the emissions of relevant units for their emissions of the pollutant whose impacts are being analyzed." SR 0134. It was reasonable for U. S. Steel to conclude that its updated CO air quality impacts analysis, which addressed revisions to the CO emission rates only for those emission points where both U. S. Steel and Illinois EPA agreed that National Steel's modeled rates should be corrected, was sufficient for the purpose of requesting revisions to the permitted CO emission from certain combustion units

burning blast furnace gas and/or natural gas and affected by the Project. *Id*. U.S. Steel should not be held accountable for such an issue that was not previously raised by Illinois EPA.

120. In relation to the historical CO emissions from the by-product coke oven batteries operated by National Steel Corporation at the time Permit 95010001 was issued in 1996, it is unclear whether the Agency's contentions relate to the demonstration the Agency approved in 1996 or the current Application. *Id*. If the concerns relate to the demonstration approved in 1996, those emissions were indeed included. *Id*.; SR 2287 – 2286 (Table 5-8); *see, generally* SR 1278 – 1308. If the concerns relate to the demonstration in the current Application, U. S. Steel is not requesting PSD approval for CO emissions from by-product coke oven batteries. *Id*.; *see* SR 0601 – SR 0958. The requested PSD approval is forward-looking – it is based on the applicable regulations and other circumstances as they exist or will exist at the time of permit issuance. SR 0327, fn. 4 (citing 42 U. S.C. 7410(k); *United States v. EME Homer City Generation, L.P.*, 727 F. 3d 274 (3d Cir. 2013)). As such, there is no basis for considering emissions under such scenario in evaluation whether a requested change will cause or contribute to a violation of any NAAQS. *Id*.

121. As such, the provisions of the Act and Board regulations referenced by the Agency will not be violated if a revised permit were granted as requested by U. S. Steel.

122. Therefore, the Agency's final decision to deny the Application based upon this Denial Point was clearly erroneous considering the facts. The Agency's reasons, statutory bases, and regulatory bases are insufficient, improper, and inadequate to support denial.

v(a). <u>Denial Point 5A: Issues with the background air quality used in the air quality analysis the emission inventory for the source</u>

123. The Agency's Denial Point 5A claims that, as related to baseline ambient air quality for CO, the Air Quality Modeling Report, which includes the air quality analysis, included in the

Application is deficient in that it does not address baseline ambient air quality as existed at the time that the Project was initially permitted or as it presently exists. SR 0026; *see* SR 0026 – SR 0027; SR 0131 – SR 0144.

124. The Agency stated that the value for background air quality from ambient monitoring conducted in 2016 – 2018 that is used in the analysis is not representative of air quality in the period before the Project was initially permitted or air quality at the present time. R 0026. The Agency contended that the Application did not justify use of the background value that is not representative of the period when the Project was initially permitted. *Id.* The Agency stated that, even if that can be justified, the Application did not explain why it is appropriate to use a background value taken from ambient monitoring conducted over five years ago. *Id.*

125. The Agency contended that it would not be proper to rely on the results if the Air Quality Modeling Report to issue a revised Permit that would provide for increases in permitted CO emissions as requested. *Id.*

126. The Agency contended that the following Act and Board regulatory provisions may be violated as to this Denial Point if a revised permit were granted: 415 ILCS 5/9(a), 9.1(d), 39(a)*, and 39(a)**, and 35 Ill. Adm. Code 201.160(a), 204.330, 204.1110, and 204.1130. SR 0073. Section 9(a) of the Act contains the general prohibition against air pollution. 415 ILCS 5/9(a); SR 0078. Section 9.1(d) of the Act provides the prohibition against violations of Section 165 (PSD) and Section 173 (NNSR) of the Clean Air Act. 415 ILCS 5/9.1(d); SR 0078. Section 39(a) of the Act provides that it is the duty of Illinois EPA to issue a permit upon proof by the applicant that the facility or equipment will not cause a violation of the Act or regulations; and the Agency may impose such other conditions as may be necessary to accomplish the purposes of the Act. 415 ILCS 5/39(a); SR 0078 – 0079. Section 201.160(a) of the Board's regulations provides that no

construction permit shall be issued unless the applicant submits proof that the emission unit or air pollution control equipment will be constructed or modified to operate so as not to cause a violation of the Act or Title V, Subtitle B, Chapter I of the Board's regulations. 35 Ill. Adm. Code 201.160(a); SR 0083. Section 204.330 of the Board's regulations provides the definition of "complete." 35 Ill. Adm. Code 204.330; SR 0087. Section 204.1110 of the Board's regulations provides that the owner or operator of a proposed source or modification must demonstrate that allowable emission increases from the proposed source or modification, "in conjunction with all other applicable emission increases or reductions (including secondary emissions), would not cause or contribute to air pollution in violation of: a) Any NAAQS in any air quality control region . . . ." 35 Ill. Adm. Code 204.1110; SR 0090. Section 204.1130 of the Board's regulations provides, in summary, that a permit applicant for a project that is considered major for pollutant(s) for purposes of PSD address that ambient air quality in the area that the proposed project would affect for such pollutant(s). 35 Ill. Adm. Code 204.1130; SR 0090 – 0091.

127. The issues raised by Denial Point 5A were discussed by U. S. Steel in its September 11, 2023 and January 8, 2024 written comments to the draft denials. SR 0324; SR 0485.

128. In relation to the Agency's concerns regarding the use of background CO concentration data from 2016 – 2018, such data was the most current quality-assured data available at the time of U. S. Steel's submittal of the Application in March 2020. *Id*. Use of such data was approved by Illinois EPA following its review of U. S. Steel's dispersion modeling protocol in February 2020. *Id*.

129. While the 2016 – 2018 background CO concentration data is less current now than it was at the time of the Application submittal, currentness of air quality data is one aspect of the permit application review process that is ensured by compliance with the procedural requirements

relating to timely processing of permit applications. SR 0327; SR 0487. These requirements include Section 201.158 of the Board's regulations, which provides that a permit application shall be deemed to have been filed 30 days after submittal if Illinois EPA has not notified the applicant that it is incomplete. 35 Ill. Adm. Code 201.158; SR 0327 fn. 5; SR 0487 fn. 4. Additionally, the Clean Air Act requires that final action on a PSD permit application be taken no later than one year after filing. 42 U. S.C. 7475(c); SR 0327 fn. 5; SR 0487 fn. 4. Furthermore, it would be impracticable, if not impossible, to compile all of the required data to perform the analyses from 30 years ago.

130. As such, the provisions of the Act and Board regulations referenced by the Agency will not be violated if a revised permit were granted as requested by U. S. Steel.

131. Therefore, the Agency's final decision to deny the Application based upon this Denial Point was clearly erroneous considering the facts and the law. The Agency's reasons, statutory bases, and regulatory bases are insufficient, improper, and inadequate to support denial.

vi. Denial Point 6: Scope of proposed group emission limits

132. The Agency's sixth Denial Point claims that the Permit Application does not show that proposed collections of emission units for "group limits" of annual emissions of particulate, NOx, and VOM are appropriate. SR 0028.

133. The Agency stated that the Permit Application did not "propose limitations that would only apply to the annual emissions of particulate of the casthouse for the two blast furnaces" or to the "annual particulate emissions of the two BOFs" which are "principal emission units at the Granite City Works." SR 00028. Further, according to the Agency, the Permit Application does not show that it would be unreasonable for the casthouse and BOFs to continue to have

limitations for annual emissions of particulate that are directly enforceable, independent of emissions of the other, lesser units. *Id.*

134. The Agency concluded that if a revision to the Permit "were issued without limits that independently apply to the emissions of the blast furnaces casthouse and to the emissions of the two BOFs," then the Permit Application "would not show the limits on annual emissions established in such revised permit would serve to restrict the emissions of the casthouse and the two BOFs as a practical matter." SR 0028.

135. The Agency contended that the following Act and Board regulatory provisions may be violated as to this Denial Point if a revised permit were granted: 415 ILCS 5/9(a), 9.1(d), 39(a)*, and 39(a)**, and 35 Ill. Adm. Code 201.160(a), 203.123, 203.128, 204.400, and 204.560. Section 9(a) of the Act contains the general prohibition against air pollution. 415 ILCS 5/9(a); SR 0078. Section 9.1(d) of the Act provides the prohibition against violations of Section 165 (PSD) and Section 173 (NNSR) of the Clean Air Act. 415 ILCS 5/9.1(d); SR 0078. Section 39(a) of the Act provides that it is the duty of Illinois EPA to issue a permit upon proof by the applicant that the facility or equipment will not cause a violation of the Act or regulations; and the Agency may impose such other conditions as may be necessary to accomplish the purposes of the Act. 415 ILCS 5/39(a); SR 0078 – 0079. Section 201.160(a) of the Board's regulations provides that no construction permit shall be issued unless the applicant submits proof that the emission unit or air pollution control equipment will be constructed or modified to operate so as not to cause a violation of the Act or Title V, Subtitle B, Chapter I of the Board's regulations. 35 Ill. Adm. Code 201.160(a); SR 0083. Section 203.123 and Section 204.400 of the Board's regulations provide the definition of "Federally Enforceable" including that emissions limitations are enforceable as a practical matter. SR 0083; 0087 – 0088. Section 203.128 and Section 204.560 of the Board's

regulations provide the definition of "potential to emit" including that emissions are practically enforceable. SR 0083; SR 0089.

136. The issues raised by Denial Point 6 were discussed by U. S. Steel in its September 11, 2023 and January 8, 2024 written comments to the draft denials. SR 0499 – 0500; SR 0341 – 0342.

137. As U. S. Steel discussed in its comments, the Application proposes that PM, PM_{10}, NO_X, and VOM emissions be subject to annual emission caps covering groups of related emissions units and emission points. SR 0341. With respect to the blast furnace operations and the BOF shop, "the proposed groupings include emission points with significant emissions, such as the BOF electrostatic precipitator stack, and minor emission points such as the iron spout baghouse stack." *Id.* Further, the Application proposed approaches that would make these emissions limits enforceable as a practical matter. *Id.* The fact that there may be alternative potentially suitable groupings of emissions units is not a valid basis for denial. SR 0342. Further, other permits in Region V have allowed groupings of emissions units in a manner similar to that proposed by U. S. Steel. *See* SR 0150; SR 0621 (citing and linking to Severstal permit); *see also* Permit to Install 182-05C issued to Severstal Dearborn Inc., p. 5, 65-68 (discussion grouping of emission units in Severstal permit).[5]

138. As such, the provisions of the Act and Board regulations referenced by the Agency will not be violated if a revised permit were granted as requested by U. S. Steel.

139. Therefore, the Agency's final decision to deny the Application based upon this Denial Point was clearly erroneous considering the facts and the law. The Agency's reasons, statutory bases, and regulatory bases are insufficient, improper, and inadequate to support denial.

[5] Publicly available at https://www.deq.state.mi.us/aps/downloads/permits/finpticon/2005/182-05C.pdf.

Additionally, the Agency's decision involved a discretionary determination that the Board should review and reverse.

vii. Denial Point 7: Inadequate justification for elimination or revision of current limits for Project-affected fuel burning limits

140. The Agency's seventh Denial Point claimed that the Permit Application did not contain information supporting revisions to the Permit to revise or eliminate existing limitations for usage of fuels by Project-affected fuel burning units. SR 0034.

141. The Agency claimed that the Application "does not quantitatively demonstrate that this would not result in an increase in the potential emissions of the subject units." SR 0034. Further, the Agency stated that the existing Permit did not limit the usage of COG because that usage "was not quantitatively addressed in 1996 during the initial permitting of the Production Increase Project." *Id.* In addition, the shutdown of two coke oven batteries in 2015 and resulting decrease in COG usage also resulted in more natural gas to be used in other units such as blast furnace stoves. *Id.* The Agency's position is that the Permit Application did not include the information necessary for it to set values for revised limitations that would be appropriate. *Id.* Consequently, the Agency contended that the Permit Application contained insufficient information to eliminate the limitations in the current Permit for usage of fuel by Project-affected fuel burning units. *Id.*

142. Illinois EPA confirmed that "the limits for fuel usage and emissions currently in Permit 95010001 may no longer be relevant" but nonetheless other limits for fuel usage and emissions may be appropriate, including addressing fuel burning units other than the Project-affected units. SR 0034 — 0035. While the "limits for usage of fuels and emissions should not extend to Boilers 1 through 10, as they are no longer in operation," the Agency claimed new fuel usage limits may be needed for certain units, such as the four slab reheat furnaces affected by the

elimination of COG, and the cogeneration boiler which began operation several years before the by-product coke oven batteries at the facility were shutdown." SR 0035.

143. The Agency contended that the following Act and Board regulatory provisions may be violated as to this Denial Point if a revised permit were granted: 415 ILCS 5/9(a), 9.1(d), 39(a)*, and 39(a)**, and 35 Ill. Adm. Code 201.160(a), 203.123, 203.128, 204.400, and 204.560. Section 9(a) of the Act contains the general prohibition against air pollution. 415 ILCS 5/9(a); SR 0078. Section 9.1(d) of the Act provides the prohibition against violations of Section 165 (PSD) and Section 173 (NNSR) of the Clean Air Act. 415 ILCS 5/9.1(d); SR 0078. Section 39(a) of the Act provides that it is the duty of Illinois EPA to issue a permit upon proof by the applicant that the facility or equipment will not cause a violation of the Act or regulations; and the Agency may impose such other conditions as may be necessary to accomplish the purposes of the Act. 415 ILCS 5/39(a); SR 0078 – 0079. Section 201.160(a) of the Board's regulations provides that no construction permit shall be issued unless the applicant submits proof that the emission unit or air pollution control equipment will be constructed or modified to operate so as not to cause a violation of the Act or Title V, Subtitle B, Chapter I of the Board's regulations. 35 Ill. Adm. Code 201.160(a); SR 0083. Section 203.123 and Section 204.400 of the Board's regulations provide the definition of "Federally Enforceable" including that emissions limitations are enforceable as a practical matter. SR 0083; 0087 – 0088. Section 203.128 and Section 204.560 of the Board's regulations provide the definition of "potential to emit" including that emissions are practically enforceable. SR 0083; SR 0089.

144. The issues raised by Denial Point 7 were discussed by U. S. Steel in its September 11, 2023 and January 8, 2024 written comments to the draft denials. SR 0508 – 0509; SR 0350 – 0351.

145. As U. S. Steel discussed in its comments, it initially specifically requested "enforceable emission caps for emissions of NOx and other pollutants from the fuel combustion units affected by the Production Increase Project and provided emission calculations supporting these proposed emission caps." SR 0350. Illinois EPA then informally and correctly noted that "enforceable emission caps are superfluous and unnecessary where the maximum potential emissions of the affected unit or units is less than or equal to the emission caps under consideration." *Id.* Based on this position, the Permit Application did not include an express request for enforceable emission caps for the affected fuel combustion units. *Id.* As to the claim that fuel burning units other than Project-affected units need to be addressed, such as the slab reheat furnaces and cogeneration boiler, limits on these units would not be appropriate because these emissions units were not among the units affected by the Production Increase Project and are therefore irrelevant. *Id.* at 0350—0351.

146. As such, the provisions of the Act and Board regulations referenced by the Agency will not be violated if a revised permit were granted as requested by U. S. Steel.

147. Therefore, the Agency's final decision to deny the Application based upon this Denial Point was clearly erroneous considering the facts and the law. The Agency's reasons, statutory bases, and regulatory bases are insufficient, improper, and inadequate to support denial. Additionally, the Agency's decision involved a discretionary decision and an important policy consideration that the Board should review and reverse.

viii. Denial Point 8: The application does not show that emission factors that are proposed as prescribed factors for certain units would be representative

148. The Agency's eighth Denial Point claims that the Permit Application does not include information justifying the future use of "prescribed emissions factors" for certain units for

the purpose of determining compliance with the requested revised limitations for the emissions of the project. SR 0036.

149. Illinois EPA contended that U. S. Steel did not show "that the proposed factors should be considered representative, accurate and appropriate." SR 0036. For example, the Agency claimed that the Permit Application did not include an explanation for the proposed prescribed emissions factors for the uncaptured emissions of particulate of the BOFs, which are lower than the factors used for baseline emissions. *Id.* The Agency agreed that this was "generally reasonable" in light of improvements that have been made to improve "capture and control of the particulate emissions of the BOFs and should lower uncaptured emissions." *Id.* Nonetheless, the Agency argued, the Permit Application did not explain how the proposed emissions factors were developed and did not address practices for control of particulate emissions of the BOFs that would accompany the proposed factors. *Id.* The Agency concluded that the Permit Application "does not show that the proposed prescribed factors would appropriately be relied upon for the purpose of enforceably limiting the future emissions of the emission units and emission points for which they are proposed." *Id.*

150. The Agency identified three separate emissions units in this Denial Point for which it claimed U. S. Steel did not provide support for prescribed emissions factors or show that they are representative: (1) the roof monitor on the basic oxygen furnace shop (uncaptured emissions from the furnaces); (2) the caster mold, slab cutoff, and slab ripping processes on the continuous casting lines; and (3) the Mag-Lime Silo. SR 0038 — 0040.

151. The Agency contended that the following Act and Board regulatory provisions may be violated as to this Denial Point if a revised permit were granted: 415 ILCS 5/9(a), 9.1(d), 39(a)* 39(a)**, 39.5(5)(i), 39.5(7)(a), 39.5(10(a)(iv), and 39.5(13)(c)(v) and 35 Ill. Adm. Code

201.160(a), 203.123, 203.128, 204.400, and 204.560. SR 0036. Section 9(a) of the Act contains the general prohibition against air pollution. 415 ILCS 5/9(a); SR 0078. Section 9.1(d) of the Act provides the prohibition against violations of Section 165 (PSD) and Section 173 (NNSR) of the Clean Air Act. 415 ILCS 5/9.1(d); SR 0078. Section 39(a) of the Act provides that it is the duty of Illinois EPA to issue a permit upon proof by the applicant that the facility or equipment will not cause a violation of the Act or regulations; the Agency may impose such other conditions as may be necessary to accomplish the purposes of the Act; and the Agency may impose reasonable conditions in a permit specifically relating to an applicant's past compliance history. 415 ILCS 5/39(a); SR 0078 – 0079. Section 39.5(5)(i) of the Act provides that an applicant who fails to submit any relevant facts necessary to evaluate the subject source and its CAAPP application or has submitted incorrect information in an application for a CAAPP permit shall, upon becoming aware of such failure or incorrect submittal, submit supplementary facts or correct information. 415 ILCS 39.5(5)(i); SR 0079. Section 39.5(7)(a) of the Act provides that all CAAPP permits must contain limitations and conditions and other enforceable terms which are or will be required to accomplish the purposes and provisions of the Act and to assure compliance with all applicable requirements. 415 ILCS 5/39.5(7)(a); SR 0080. Section 39.5(10)(a)(iv) of the Act provides that the Agency shall issue a CAAPP permit, modification, or renewal if all the referenced conditions are met, including that the Agency has received a complete application and, if necessary, has requested and received additional information. 415 ILCS 39.5(10)(a)(iv); SR 0080 – SR 0081. Section 39.5(13)(c)(v) of the Act provides the definition of "administrative amendment." 415 ILCS 5/39.5(13)(c)(v); SR 0081. Section 201.160(a) of the Board's regulations provides that no construction permit shall be issued unless the applicant submits proof that the emission unit or air pollution control equipment will be constructed or modified to operate so as not to cause a violation

of the Act or Title V, Subtitle B, Chapter I of the Board's regulations. 35 Ill. Adm. Code 201.160(a); SR 0083. Section 203.123 and Section 204.400 of the Board's regulations provide the definition of "Federally Enforceable" including that emissions limitations are enforceable as a practical matter. SR 0083; SR 0087 – 0088. Section 203.128 and Section 204.560 of the Board's regulations provide the definition of "potential to emit" including that emissions are practically enforceable. SR 0083; SR 0089.

152. The issues raised by Denial Point 8 were discussed by U. S. Steel in its September 11, 2023 and January 8, 2024 written comments to the draft denials. SR 0504 – 0507; SR 0346 – 0349.

153. As discussed in U. S. Steel's comments, the Application includes all required supporting information regarding the emission factors and, in fact, provide more extensive information "than the documentation provided in the permit application submitted by National Steel Corporation in 1995 and accepted by Illinois EPA when issuing Permit No. 95010001 in 1996." SR 0347. With respect to the roof monitor on the basic oxygen furnace shop (uncaptured emissions from the furnaces), Illinois EPA acknowledged that the emission factors proposed by U. S. Steel were representative of the current configuration, but then incorrectly claimed that the emissions factors should reflect particulate emissions in 1996, which are not relevant here because "these analyses are prospective, not retrospective; there is no consideration of facts as they may have existed at some prior point in time and no "mixing" of facts from different points in time." SR 0349. As stated elsewhere, U. S. Steel cannot determine all operating scenarios and emissions under National Steel's ownership, nor is U. S. Steel required to do so. *See, e.g., Midwest Generation* and the Order issued by the United States Bankruptcy Court for the Northern District of Illinois, Eastern Division (Case Nos. 02-08697 – 02-08738), as discussed *supra*. *See* SR 1309

– 1394. With respect to the caster mold, slab ripping, and slab ripping processes on the continuous casting lines, no further justification was required because the "PM/PM10 emission factors for the continuous casting operation at Granite City Works have been consistently prescribed by Illinois EPA for this purpose for many years." SR 0347. With respect to the Mag-Lime Silo, U. S. Steel voluntarily proposed that emissions be subject to limits where it had no obligation to do so, and provided all required information. SR 0348.

154. As such, the provisions of the Act and Board regulations referenced by the Agency will not be violated if a revised permit were granted as requested by U. S. Steel.

155. Therefore, the Agency's final decision to deny the Application based upon this Denial Point was clearly erroneous considering the facts and the law. The Agency's reasons, statutory bases, and regulatory bases are insufficient, improper, and inadequate to support denial. Additionally, the Agency's decision involved a discretionary decision and an important policy consideration that the Board should review and reverse.

ix. Denial Point 9: For the roof monitor of the casthouse, the Application does not show that the methodology that is proposed to be prescribed for the determination of NOx and VOM emissions would be representative

156. The Agency's ninth Denial Point claims that the Permit Application did not include information justifying the use of the requested "prescribed emission determination methodology" for the uncaptured NOx and VOM emissions of the blast furnace casthouse. SR 0041.

157. The Agency claimed that the Permit Application "does not include information showing that the proposed methodology should be considered representative, accurate and appropriate." SR 0041. The Agency argued that it was not shown "that changes in the levels of captured NOx and VOM emissions, as measured by emission testing, would be due to actual changes in the overall level of NOx emissions from the casthouse rather than other causes," such

as changes in operations, the existence of the baghouse control systems, or variation in results of emission testing. *Id.* The Agency concluded that the Permit Application "does not show that the proposed prescribed methodology would appropriately be relied upon for the purpose of addressing the future uncaptured NOx and VOM emissions of the blast furnace casthouse." *Id.*

158. The Agency further stated that the proposed emission calculation methodology assumed capture efficient of 95 percent but the Permit Application did not show that the proposed methodology would result in "emission rates for the roof monitor that would be representative." SR 0042. This is because, the Agency contended, that the resulting emission rates would be directly related to the measured emissions of the main baghouse of the casthouse, which could fluctuate if the capture efficiency is lower during testing. *Id.* Thus, the Agency argued, "unlike specific emission rates for NOx and VOM that would be prescribed in a revised permit, the 'proposed methodology' would not address the NOx and VOM emissions from the roof monitor in a way that can reasonably be considered to be representative on an ongoing basis." *Id.*

159. The Agency contended that the following Act and Board regulatory provisions may be violated as to this Denial Point if a revised permit were granted: 415 ILCS 5/9(a), 9.1(d), 39(a)*, 39(a)**, 39(a)***, 39.5(5)(i), 39.5(7)(a), 39.5(10)(a)(iv), and 39.5(13)(c)(v), and 35 Ill. Adm. Code 201.160(a), 203.123, 203.128, 204.400, and 204.560. SR 0042. Section 9(a) of the Act contains the general prohibition against air pollution. 415 ILCS 5/9(a); SR 0078. Section 9.1(d) of the Act provides the prohibition against violations of Section 165 (PSD) and Section 173 (NNSR) of the Clean Air Act. 415 ILCS 5/9.1(d); SR 0078. Section 39(a) of the Act provides that it is the duty of Illinois EPA to issue a permit upon proof by the applicant that the facility or equipment will not cause a violation of the Act or regulations; the Agency may impose such other conditions as may be necessary to accomplish the purposes of the Act; and the Agency may impose

reasonable conditions in a permit specifically relating to an applicant's past compliance history. 415 ILCS 5/39(a); SR 0078 – 0079. Section 39.5(5)(i) of the Act provides that an applicant who fails to submit any relevant facts necessary to evaluate the subject source and its CAAPP application or has submitted incorrect information in an application for a CAAPP permit shall, upon becoming aware of such failure or incorrect submittal, submit supplementary facts or correct information. 415 ILCS 39.5(5)(i); SR 0079. Section 39.5(7)(a) of the Act provides that all CAAPP permits must contain limitations and conditions and other enforceable terms which are or will be required to accomplish the purposes and provisions of the Act and to assure compliance with all applicable requirements. 415 ILCS 5/39.5(7)(a); SR 0080. Section 39.5(10)(a)(iv) of the Act provides that the Agency shall issue a CAAPP permit, modification, or renewal if all the referenced conditions are met, including that the Agency has received a complete application and, if necessary, has requested and received additional information. 415 ILCS 39.5(10)(a)(iv); SR 0080 – 0081. Section 39.5(13)(c)(v) of the Act provides the definition of "administrative amendment." 415 ILCS 5/39.5(13)(c)(v); SR 0081. Section 201.160(a) of the Board's regulations provides that no construction permit shall be issued unless the applicant submits proof that the emission unit or air pollution control equipment will be constructed or modified to operate so as not to cause a violation of the Act or Title V, Subtitle B, Chapter I of the Board's regulations. 35 Ill. Adm. Code 201.160(a); SR 0083. Section 203.123 and Section 204.400 of the Board's regulations provide the definition of "Federally Enforceable" including that emissions limitations are enforceable as a practical matter. SR 0083; SR 0087 - 0088. Section 203.128 and Section 204.560 of the Board's regulations provide the definition of "potential to emit" including that emissions are practically enforceable. SR 0083; SR 0089.

160. The issues raised by Denial Point 9 were discussed by U. S. Steel in its September 11, 2023 and January 8, 2024 written comments to the draft denials. SR 0501; SR 0343.

161. As discussed in the written comments, U. S. Steel agrees that the issue that actual capture efficiency of less than 95% would not be reflected in the calculation methodology proposed by U. S. Steel "exists as a theoretical matter." SR 0343. This scenario, however, "is effectively prohibited, as operation of the blast furnace casthouse capture system is subject to stringent requirements under 40 CFR part 63, subpart FFFFF, particularly § 63.7790(b)." *Id.* Indeed, USEPA used 95% capture and control efficiency from blast furnace casthouse fugitives in its residual risk and technology review of the Integrated Iron and Steel MACT rule. *See* 89 Fed. Reg. 23294 (April 3, 2024); USEPA Docket EPA-HQ-OAR-2002-0083, "Technology Review for the Integrated Iron and Steel NESHAP - (Update) Final Rule (03/01/2020)."[6] Accordingly, the proposed approach is an appropriate compliance demonstration method for inclusion in the revised construction permit and Illinois EPA should have allowed it in its discretion. *Id.*

162. As such, the provisions of the Act and Board regulations referenced by the Agency will not be violated if a revised permit were granted as requested by U. S. Steel.

163. Therefore, the Agency's final decision to deny the Application based upon this Denial Point was clearly erroneous considering the facts and the law. The Agency's reasons, statutory bases, and regulatory bases are insufficient, improper, and inadequate to support denial. Additionally, the Agency's decision involved a discretionary decision and an important policy consideration that the Board should review and reverse.

[6] Publicly available at https://www.regulations.gov/document/EPA-HQ-OAR-2002-0083-1085.

x. Denial Point 10: The Application does not include necessary support for the emission factors that are proposed as prescribed factors for certain units

164. The Agency's tenth Denial Point claims that the Permit Application does not include information justifying the future use of the proposed "prescribed emission factors" for the purpose of determining compliance with the requested revised limitations for the emissions of the Project-affected units. SR 0043.

165. The Agency claimed that although "the proposed factors are derived from emissions factors developed by USEPA," the Application did not include information showing that the factors should be considered representative, accurate and appropriate. SR 0043. The Agency identified three separate emission units in this Denial Point for which it claimed U. S. Steel did not provide support for emissions factors: (1) the blast furnace casthouse roof monitor; (2) the slag pits; and (3) the iron pellet screen. SR 0044. The Agency concluded that the Permit Application "does not show that the proposed prescribed factors would appropriately be relied upon for the purpose of enforceably limiting the future emissions of the emission units and emission points for which they are proposed." *Id.*

166. The Agency contended that the following Act and Board regulatory provisions may be violated as to this Denial Point if a revised permit were granted: 415 ILCS 5/9(a), 9.1(d), 39(a)*, 39(a)**, 39.5(5)(i), 39.5(7)(a), 39.5(10)(a)(iv), and 39.5(13)(c)(v), and 35 Ill. Adm. Code 201.160(a), 203.123, 203.128, 204.400, and 204.560. SR 0044. Section 9(a) of the Act contains the general prohibition against air pollution. 415 ILCS 5/9(a); SR 0078. Section 9.1(d) of the Act provides the prohibition against violations of Section 165 (PSD) and Section 173 (NNSR) of the Clean Air Act. 415 ILCS 5/9.1(d); SR 0078. Section 39(a) of the Act provides that it is the duty of Illinois EPA to issue a permit upon proof by the applicant that the facility or equipment will not

cause a violation of the Act or regulations; and the Agency may impose such other conditions as may be necessary to accomplish the purposes of the Act. 415 ILCS 5/39(a); SR 0078 – 0079. Section 39.5(5)(i) of the Act provides that an applicant who fails to submit any relevant facts necessary to evaluate the subject source and its CAAPP application or has submitted incorrect information in an application for a CAAPP permit shall, upon becoming aware of such failure or incorrect submittal, submit supplementary facts or correct information. 415 ILCS 39.5(5)(i); SR 0079. Section 39.5(7)(a) of the Act provides that all CAAPP permits must contain limitations and conditions and other enforceable terms which are or will be required to accomplish the purposes and provisions of the Act and to assure compliance with all applicable requirements. 415 ILCS 5/39.5(7)(a); SR 0080. Section 39.5(10)(a)(iv) of the Act provides that the Agency shall issue a CAAPP permit, modification, or renewal if all the referenced conditions are met, including that the Agency has received a complete application and, if necessary, has requested and received additional information. 415 ILCS 39.5(10)(a)(iv); SR 0080 – SR 0081. Section 39.5(13)(c)(v) of the Act provides the definition of "administrative amendment." 415 ILCS 5/39.5(13)(c)(v); SR 0081. Section 201.160(a) of the Board's regulations provides that no construction permit shall be issued unless the applicant submits proof that the emission unit or air pollution control equipment will be constructed or modified to operate so as not to cause a violation of the Act or Title V, Subtitle B, Chapter I of the Board's regulations. 35 Ill. Adm. Code 201.160(a); SR 0083. Section 203.123 and Section 204.400 of the Board's regulations provide the definition of "Federally Enforceable" including that emissions limitations are enforceable as a practical matter. SR 0083; SR 0087 – 0088. Section 203.128 and Section 204.560 of the Board's regulations provide the definition of "potential to emit" including that emissions are practically enforceable. SR 0083; SR 0089.

167. The issues raised by Denial Point 10 were discussed by U. S. Steel in its September 11, 2023 and January 8, 2024 written comments to the draft denials. SR 0501 – 0506; SR 0343 — 0348.

168. With respect to the blast furnace casthouse roof monitor, U. S. Steel explained that the proposed emissions factors were derived from the pre-control PM emission factor for iron published by U.S. EPA and based on data published by U.S. EPA. SR 0343 —0344. Further, more extensive information regarding the emission factors was provided in the Permit Application than was provided prior to issuance of the Permit in 1996. SR 0344. Additionally, the assumption of 95% capture efficiency for the blast furnace casthouse has been consistently applied by Illinois EPA for many years. *Id.* U. S. Steel initially proposed PM and PM_{10} emission factors of 0.031 lb per ton of iron and 0.0155 lb per ton of iron, respectively, which "have been prescribed by Illinois EPA for this purpose for decades." *Id.* Illinois EPA informally commented that "these historically assumed emission factors are slightly higher than the values that would result from correctly calculating the emission factors using Illinois EPA's historic assumptions" and suggested that U. S. Steel use the revised and corrected emission factors, which were used in the Permit Application. *Id.* In light of Illinois EPA's repeated acceptance of and reliance on the assumption of 95% capture efficiency in numerous permitting actions over a period of nearly thirty years, and in light U. S. Steel's implementation of the informal suggestion by Illinois EPA to correct the emission factor calculations no further justification was needed. *Id.*

169. With respect to the slag pits, the emission factor proposed by U. S. Steel "has been consistently applied by Illinois EPA for decades" and the summary of the derivation of that factor in the Permit Application was merely a paraphrasing of Illinois EPA's description. SR 0346. In light of Illinois EPA's repeated acceptance of and reliance on this emission factor in numerous

permitting actions over a period of nearly thirty years, no further justification was needed. *Id.* As to the iron pellet screen, the Permit Application explained that the proposed emission factor was derived from the PM_{10} emission factor published by U. S. EPA for crushed stone screening, and the PM emission factor was based on an assumed 95% capture efficiency. SR 0347.

170. As such, the provisions of the Act and Board regulations referenced by the Agency will not be violated if a revised permit were granted as requested by U. S. Steel.

171. Therefore, the Agency's final decision to deny the Application based upon this Denial Point was clearly erroneous considering the facts and the law. The Agency's reasons, statutory bases, and regulatory bases are insufficient, improper, and inadequate to support denial. Additionally, the Agency's decision involved a discretionary decision and an important policy consideration that the Board should review and reverse.

xi. Denial Point 11: The determination of particulate emissions from handling of coke, iron pellets and limestone are not supported and cannot be confirmed

172. The Agency's eleventh Denial Point claims that the Permit Application did not provide supporting information for the baseline emissions from handling coke, iron pellets, and limestone. SR 0045.

173. The Agency argued that the Permit Application did not "explicitly list the various units whose emissions are being addressed and describe the nature of the various units relative to their emissions of PM and PM-10." SR 0045. Illinois EPA asserted that data was not provided for the annual amounts of various materials that were handled by these units or for "the emission factors used to calculate annual emissions, the sources or basis of those factors, and why those factors should be considered representative of the emissions of the various types of units being addressed." *Id.* The Agency concluded that the "issuance of a revised permit with limitations for

the future emissions of these units that are practically enforceable necessarily requires that the application include supporting information." *Id.*

174. The Agency further stated that as to baseline particulate emissions, "the determination of baseline emissions from handling of coke, iron pellets and limestone provided in the revised netting analysis cannot be independently confirmed." SR 0045. The Agency contended that the Permit Application did not provide support for "corrected" determinations of baseline particulate emissions, according to the Agency, because it did not provide "detailed calculations for the emissions from handling each material." SR 0045 - 0046. Illinois EPA further noted that the Permit Application did "not include information for particulate emissions from handling of coke, iron pellets and limestone" but emissions information is needed for the period of operation before the coke oven batteries were shut down in 2015 and "to address handling of coke before U. S. Steel constructed the conveyor system to receive coke directly from the heat recovery coke production facility built by Gateway." SR 0046.

175. The Agency contended that the following Act and Board regulatory provisions may be violated as to this Denial Point if a revised permit were granted: 415 ILCS 5/9(a), 9.1(d), 39(a)*, 39(a)**, 39(a)***, and 35 Ill. Adm. Code 201.152* and 201.160(a). SR 0045. Section 9(a) of the Act contains the general prohibition against air pollution. 415 ILCS 5/9(a); SR 0078. Section 9.1(d) of the Act provides the prohibition against violations of Section 165 (PSD) and Section 173 (NNSR) of the Clean Air Act. 415 ILCS 5/9.1(d); SR 0078. Section 39(a) of the Act provides that it is the duty of Illinois EPA to issue a permit upon proof by the applicant that the facility or equipment will not cause a violation of the Act or regulations; the Agency may impose such other conditions as may be necessary to accomplish the purposes of the Act; and the Agency may impose reasonable conditions in a permit specifically relating to an applicant's past

compliance history. 415 ILCS 5/39(a); SR 0078 – SR 0079. Section 201.152 of the Board's regulations provides, in part, that construction permit applications must include information concerning processes to which the emission unit or air pollution control equipment is related. 35 Ill. Adm. Code 201.152; SR 0082. Section 201.160(a) of the Board's regulations provides that no construction permit shall be issued unless the applicant submits proof that the emission unit or air pollution control equipment will be constructed or modified to operate so as not to cause a violation of the Act or Title V, Subtitle B, Chapter I of the Board's regulations. 35 Ill. Adm. Code 201.160(a); SR 0083.

176. The issues raised by Denial Point 11 were discussed by U. S. Steel in its September 11, 2023 and January 8, 2024 written comments to the draft denials. SR 0498 – 0499; SR 0340 – 0341.

177. As discussed in U. S. Steel's comments, the Permit Application included all required information. SR 0341. Further, Illinois EPA's characterization of these baseline emission rates as "corrected" is erroneous because these "are the values presented in the permit application submitted by National Steel Corporation in 1995 and accepted by Illinois EPA when issuing Permit No. 95010001 in 1996. U. S. Steel made no change to these values and is not in possession of information that would allow such change." *Id.* "In light of Illinois EPA's acceptance of and reliance on these values during that prior permitting action," no further justification was needed. *Id.*

178. As such, the provisions of the Act and Board regulations referenced by the Agency will not be violated if a revised permit were granted as requested by U. S. Steel.

179. Therefore, the Agency's final decision to deny the Application based upon this

Denial Point was clearly erroneous considering the facts and the law. The Agency's reasons, statutory bases, and regulatory bases are insufficient, improper, and inadequate to support denial. Additionally, the Agency's decision involved a discretionary decision and an important policy consideration that the Board should review and reverse.

xii. Denial Point 12: The requested changes to the grouping of units in the permit for consistency with the groupings of units in the CAAPP Permit would not address all differences in the groupings of units

180. The Agency's twelfth Denial Point claimed that the requests in the Permit Application to change the grouping of units to be consistent with the CAAPP Permit were inappropriate. SR 0047.

181. The Agency explained that, in the Application, U. S. Steel requested changes to the Permit because the areas or sections of the CAAPP permit in which certain emission units are addressed are not the same as those in the Permit. SR 0047. Most significantly, in the Permit, "discrete material handling and processing operations are addressed with the units with which they are associated" but in the CAAPP Permit, the operations are addressed in a separate section of the permit. *Id.* The Agency conceded that "it is reasonable" for the Permit to be revised so that the placement of units is the same as their placement in the CAAPP Permit, but the Agency had several concerns about the changes proposed to the Permit to accomplish this. *Id.* The Agency concluded that the Permit Application did not request all revisions that would be appropriate to the Permit and the CAAPP Permit because for "certain units, the application would not address differences in where the units are addressed by the two permits and the related emission standards and requirements that may apply to those units" and, as to the naming of units, the requested change was "improper as well as unnecessary." SR 0048. According to the Agency, if the Permit were revised with the placement of units in the permit shifted as requested in the Application, Integrated

Processing would be precluded because the revision of the Permit would allow discrepancies or errors in the provisions for certain units in the current CAAPP permit to be perpetuated by the amendments to the CAAPP permit." *Id.*

182. Illinois EPA identified three separate issues for this Denial Point: (1) requested changes for the "Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy)"; (2) the absence of a request for revisions for the "Deslagging Station and Material HS"; and (3) the absence of any requests for changes for "Ladle Drying/Preheating." SR 0048 — 0051.

183. The Agency contended that the following Act and Board regulatory provisions may be violated as to this Denial Point if a revised permit were granted: 415 ILCS 5/9(a), 39(a)*, 39(a)**, 39(a)***, 39.5(5)(i), 39.5(7)(a), 39.5(10)(a)(iv), and 39.5(13)(c)(v), and 35 Ill. Adm. Code 201.152 and 201.160(a). SR 0047. Section 9(a) of the Act contains the general prohibition against air pollution. 415 ILCS 5/9(a); SR 0078. Section 39(a) of the Act provides that it is the duty of Illinois EPA to issue a permit upon proof by the applicant that the facility or equipment will not cause a violation of the Act or regulations; the Agency may impose such other conditions as may be necessary to accomplish the purposes of the Act; and the Agency may impose reasonable conditions in a permit specifically relating to an applicant's past compliance history. 415 ILCS 5/39(a); SR 0078 – 0079. Section 39.5(5)(i) of the Act provides that an applicant who fails to submit any relevant facts necessary to evaluate the subject source and its CAAPP application or has submitted incorrect information in an application for a CAAPP permit shall, upon becoming aware of such failure or incorrect submittal, submit supplementary facts or correct information. 415 ILCS 39.5(5)(i); SR 0079. Section 39.5(7)(a) of the Act provides that all CAAPP permits must contain limitations and conditions and other enforceable terms which are or will be required to accomplish the purposes and provisions of the Act and to assure compliance with all applicable

requirements. 415 ILCS 5/39.5(7)(a); SR 0080. Section 39.5(10)(a)(iv) of the Act provides that the Agency shall issue a CAAPP permit, modification, or renewal if all the referenced conditions are met, including that the Agency has received a complete application and, if necessary, has requested and received additional information. 415 ILCS 39.5(10)(a)(iv); SR 0080 – 0081. Section 39.5(13)(c)(v) of the Act provides the definition of "administrative amendment." 415 ILCS 5/39.5(13)(c)(v); SR 0081. Section 201.152 of the Board's regulations provides, in part, that construction permit applications must include information concerning processes to which the emission unit or air pollution control equipment is related. 35 Ill. Adm. Code 201.152; SR 0082. Section 201.160(a) of the Board's regulations provides that no construction permit shall be issued unless the applicant submits proof that the emission unit or air pollution control equipment will be constructed or modified to operate so as not to cause a violation of the Act or Title V, Subtitle B, Chapter I of the Board's regulations. 35 Ill. Adm. Code 201.160(a); SR 0083.

184. The issues raised by Denial Point 12 were discussed by U. S. Steel in its September 11, 2023 and January 8, 2024 written comments to the draft denials. SR 0510 - 0513; SR 0352 - 0354

185. With respect to requested changes for the "Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy)," U. S. Steel explained that, regardless of naming convention, this item was properly characterized as an emission point, not an emissions unit. SR 0352. The only condition in the Permit that applies to this emission point "is a particulate matter emission limit of 12.8 tons per year, which applies solely to the emission point and not separately to 'the equipment or activities that generate emissions.'" *Id.* Any uncaptured emissions from that equipment or activities are routed to atmosphere through the Basic Oxygen Furnace Shop Roof Monitor, and those emissions are subject to the separate emission limits for the item referenced as

"BOF Roof Monitor." *Id.* This is consistent with the overall structure of the Permit, which was issued by Illinois EPA many years prior to U. S. Steel's ownership, and in which the emission limits for non-fugitive emissions are applicable to emission points (e.g., "Casthouse Baghouse," "Iron Spout Baghouse," "BOF ESP Stack") rather than emissions units. *Id.* A similar change to the item naming was effected by Illinois EPA in 2013 when issuing the CAAPP permit, where the Agency referred to this emission point (the item to which the emission limit of 12.8 tons per year is applicable) as "Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy Baghouse #2)." SR 0353. Notably, the "list of the equipment and activities that would be covered by this new term" (i.e., Baghouse 2 for Argon Stirring and Ladle Metallurgy Facility) is exactly the same as the list of the equipment and activities that are currently covered by the term "Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy)" in the Permit and by the term "Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy Baghouse #2)" in the CAAPP permit. *Id.* Thus, U. S. Steel requested only discrete changes to the Permit, "none of which related to reconfiguring the equipment and activities venting to this emission point." *Id.*

186. With respect to the absence of a request for revisions for the "Deslagging Station and Material HS," contrary to the Agency's claim, U. S. Steel did request a non-substantive change to the "Deslagging Station and Material HS" by indicating in the Permit Application that this item should be renamed as "Baghouse 1 for Material Handling." SR 0353. This request was made because: (1) renaming this item based on the emission point rather than the emitting activity is more consistent with the naming convention generally used in the Permit; and (2) the historical naming of this item is misleading because this baghouse does not serve to control emissions from any slag removal operation (the steel slag removal station is not served by any capture system or baghouse). *Id.* This requested renaming is consistent with Attachment 3 of the CAAPP Permit,

which refers to this item as "Baghouse #1." *Id.* at 0354. Moreover, contrary to the Agency's claim, U. S. Steel has not claimed that the slag removal station should not appropriately be categorized as slag skimming nor that it should not be addressed with the other slag skimming operations in the basic oxygen furnace shop. *Id.*

187. As to the absence of any requests for changes for "Ladle Drying/Preheating," U. S. Steel denies that there was any requirement "to maintain consistency with the approach to these units in the CAAPP permit" as claimed by the Agency. SR 0354.

188. As such, the provisions of the Act and Board regulations referenced by the Agency will not be violated if a revised permit were granted as requested by U. S. Steel.

189. Therefore, the Agency's final decision to deny the Application based upon this Denial Point was clearly erroneous considering the facts and the law. The Agency's reasons, statutory bases, and regulatory bases are insufficient, improper, and inadequate to support denial. Additionally, the Agency's decision involved a discretionary decision that the Board should review and reverse.

xiii. Denial Point 13: The 2022 Application does not request revisions to permit 95010001 and, indirectly, to the CAAPP Permit that would also be necessary as this Application requests that the revised permit prescribe emission factors for certain units

190. The Agency's thirteenth Denial Point claims that because the Permit Application requests establishment of prescribe emission factors for certain units, U. S. Steel also needed to request certain revisions to the Permit to ensure consistency with the CAAPP Permit. SR 0052.

191. The Agency argued that the Permit Application did not request that the revision to the Permit add conditions describing how compliance with annual emission limitations is to be determined. *Id.* If it were not stayed, Condition 5.13 of the CAAPP Permit would address the general procedures for how compliance with limitations on annual emissions set by the Permit is

to be determined, and that condition would generally require that compliance with limitations on annual emission be determined using "appropriate emission factors." *Id.* The condition, however, does not address or provide for use of prescribed factors or methodology to determine compliance with limitations on annual emissions, as is being requested by the Permit Application. *Id.* The Agency concluded that if a revised version of the Permit were issued that provided for use of prescribed emission factors and methodology without conditions describing how compliance with limitations for annual emissions in the Permit is to be determined, then the limitations on annual emissions in the revised permit would not be enforceable as a practical matter. *Id.* CAAPP Condition 5.13 cannot be relied upon because, in addition to being stayed, it only provides for use of appropriate emission factors and does not provide for the use of prescribed emissions factors or prescribed emission determination methodologies. *Id.* Further, with no request for conditions addressing how compliance with limitations on annual emissions is to be determined, the Agency contended that the Application does not show that the criteria for Integrated Processing are met. *Id.*at 0052 – 0053. "That is, the 2022 application would not show that the request for a revised permit would provide for compliance requirements substantially equivalent to those provided for by the CAAPP since the application does not request that the revised permit include requirements substantially equivalent to those that would have been provided by CAAPP Condition 5.13 if it were not stayed." *Id.*

192. The Agency contended that the following Act and Board regulatory provisions may be violated as to this Denial Point if a revised permit were granted: 415 ILCS 5/9(a), 39(a)*, 39(a)**, 39(a)***, 39.5(5)(i), 39.5(7)(a), 39.5(10)(a)(iv), and 39.5(13)(c)(v) and 35 Ill. Adm. Code 201.160(a). SR 0052. Section 9(a) of the Act contains the general prohibition against air pollution. 415 ILCS 5/9(a); SR 0078. Section 39(a) of the Act provides that it is the duty of Illinois EPA to

issue a permit upon proof by the applicant that the facility or equipment will not cause a violation of the Act or regulations; the Agency may impose such other conditions as may be necessary to accomplish the purposes of the Act; and the Agency may impose reasonable conditions in a permit specifically relating to an applicant's past compliance history. 415 ILCS 5/39(a); SR 0078 – 0079. Section 39.5(5)(i) of the Act provides that an applicant, upon becoming aware of a failure to submit relevant facts or upon submittal of incorrect information, shall submit supplementary facts or correct information. 415 ILCS 5/39.5(5)(i); SR 0079 – 0080. Section 39.5(7)(a) of the Act provides that CAAPP permits shall contain limitations and conditions and terms which are or will be required to accomplish the purposes and provisions of the Act and to assure compliance with all applicable requirements. 415 ILCS 5/39.5(7)(a); SR 0080. Section 39.5(10)(a)(iv) provides that the Agency shall issue a CAAPP permit if all conditions are met, including that the Agency has received a complete application. 415 ILCS 5/39.5(10)(a)(iv); SR 0080 – 0081. Section 39.5(13)(c)(v) of the Act provides the definition of "administrative amendment," which includes a permit revision that incorporates into the CAAPP permit the requirements "from preconstruction review permits provided the program meets procedural and compliance requirements substantially equivalent to those contained in this Section." 415 ILCS 5/39.5(13)(10)(c)(v); SR 0081. Section 201.160(a) of the Board's regulations provides that no construction permit shall be issued unless the applicant submits proof that the emission unit or air pollution control equipment will be constructed or modified to operate so as not to cause a violation of the Act or Title V, Subtitle B, Chapter I of the Board's regulations. 35 Ill. Adm. Code 201.160(a); SR 0083.

193. The issues raised by Denial Point 13 were discussed by U. S. Steel in its September 11, 2023 and January 8, 2024 written comments to the draft denials. SR 0510; SR 0351 – 0352.

194. As discussed by U. S. Steel, the Agency's position is incorrect because U. S. Steel requested that the Permit be subject to "integrated processing," which requires Illinois EPA to process the Permit Application and draft the Permit using a program that "meets procedural and compliance requirements substantially equivalent to those" imposed in the CAAPP program. SR 0351. "Although this request was stated generally, and the permit application did not specify with precision the monitoring and recordkeeping requirements to be imposed in the revised construction permit and the amended CAAPP permit, that approach is appropriate." *Id.* It is the Agency's responsibility under the Act to draft monitoring and recordkeeping requirements in permits. Further, the request for integrated processing inherently requested that Illinois EPA include in the Permit the minimum elements of the CAAPP permit, including provisions to assure compliance with emission limits, and to remove or revise conflicting or redundant permit terms. *Id.* at 0352.

195. As such, the provisions of the Act and Board regulations referenced by the Agency will not be violated if a revised permit were granted as requested by U. S. Steel.

196. Therefore, the Agency's final decision to deny the Application based upon this Denial Point was clearly erroneous considering the facts and the law. The Agency's reasons, statutory bases, and regulatory bases are insufficient, improper, and inadequate to support denial. Additionally, the Agency's decision involved a discretionary decision and an important policy consideration that the Board should review and reverse.

xiv. Denial Point 14: The 2022 Application does not address the amendment to the CAAPP Permit authorized by Construction Permit 11050006, as is relevant for the requested integrated processing of the revision to Permit 95010001

197. The Agency's fourteenth Denial Point claims that the Application was not accompanied by a request or application for an administrative amendment to incorporate changes

to the CAAPP Permit 96030056 that are authorized by Construction Permit 11050006 issued on April 1, 2013. SR 0054; *see* SR 0054 – 0056; *see* SR 0274 – 0277.

198. Specifically, the Agency contended that the Application does not identify the version of the CAAPP permit for the facility that would be eligible for administrative amendment pursuant to Integrated Processing. *Id*. The Agency states that this is relevant because Illinois EPA has already issued a construction permit with Integrated Processing to U. S. Steel – Construction Permit 11050006 (issued on April 1, 2013). SR 0055.

199. The Agency stated that Construction Permit 11050006 addresses the baghouse control system installed on the basic oxygen furnaces to improve control of the particulate emissions of the furnaces from charging and tapping. SR 0054. The Agency contended that "[c]ertain work practices that were required by Permit 95010001 for control of particulate emissions of the furnaces with only an ESP system conflicted with the use of the baghouse system or would no longer be appropriate when emissions were also controlled with the new system. To address the fact that these work practices were also present in the CAAPP permit for the facility, Construction Permit 11050006 was subject to Integrated Processing and allowed certain changes to be made to the CAAPP permit by administrative amendment." SR 0055.

200. The Agency stated that U. S. Steel has not initiated a revision to the CAAPP permit to incorporate the changes by submitting an application for administrative amendment of the CAAPP permit. *Id*. The Agency cites to Section 39.5(13)(a) of the Act, which provides that the Agency "shall take final action on a request for an administrative permit amendment within 60 days after the receipt of the request." SR 0055 – 0056 (citing to 415 ILCS 39.5(13)(a)). The Agency stated that, absent the administrative amendment, the Application effectively requests that Illinois EPA reissue a CAAPP permit that contains provisions that are no longer accurate as related

to the basic oxygen furnaces. *Id.* Additionally, the Agency argued that, as to Integrated Processing, there are effectively two version of the CAAPP Permit – one is the CAAPP Permit currently in effect and the other is an amended version of the CAAPP Permit that would take effect if and when U. S. Steel submits its application for administrative amendment. SR 0275.[7]

201. The Agency also stated that, absent a formal request to initiate the administrative amendment of the CAAPP Permit contemplated by Construction Permit 11050006, the Application can only request Integrated Processing to allow administrative amendments of the current CAAPP Permit. SR 0055 – 0056.

202. The issues raised by Denial Point 14 were discussed by U. S. Steel in its September 11, 2023 and January 8, 2024 written comments to the draft denials. SR 0513 – 0514; SR 0355.

203. The Application includes all required information relating to identification of the CAAPP Permit to be administratively amended following Integrated Processing of the Construction Permit Application. SR 0355; SR 0513.

204. Neither the Act nor the Board's regulations require an application for a construction permit, even one with a request for Integrated Processing, to specify the version of the CAAPP permit for the facility that should be amended. SR 0355; SR 0513. It is the Agency's responsibility to make revisions and amendments to CAAPP permits in conformance with applicable rules and laws. *Id.*

205. Regarding incorporating the provisions of Construction Permit 11050006 into the facility's CAAPP Permit, U. S. Steel submitted an application to renew its CAAPP Permit in November 2013. SR 0355. In the 2013 application, U. S. Steel expressly requested that Illinois

[7] The Agency also contended that drafting the revisions to the Permit as requested must be done so that the amendments to the CAAPP Permit that it authorizes can take place seamlessly. SR 0275. While U. S. Steel acknowledges the Agency's discussion on the need for forethought and advance planning in preparing a revised version of the Permit (SR 0275), this discussion does not stand as a basis to deny the Permit.

EPA incorporate the conditions of Construction Permit 11050006 into the CAAPP Permit and also noted that the BOF process described in the CAAPP Permit needs to be updated as to Condition 7.5 with regard to the new secondary baghouse added as part of the Emission Reduction Project. SR 0355; SR 0513 – 0514. Such application as deemed completed by operation of law pursuant to 39.5(5)(f) of the Act. SR 0355; see 415 ILCS 5/39.5(5)(f) ("Unless the Agency notifies the applicant of incompleteness, within 60 days of receipt of the CAAPP application, the application shall be deemed complete."). The Agency retains the authority to request additional information in conjunction with a CAAPP permit application but has not done so. *Id*. (citing to 415 ILCS 5/39.5(g) which states: "If after the determination of completeness the Agency finds that additional information is necessary to evaluate or take final action on the CAAPP application, the Agency may request in writing such information from the source with a reasonable deadline for response.").

206. The Agency contended that the following Act and Board regulatory provisions may be violated as to this Denial Point if a revised permit were granted: 415 ILCS 5/9(a), 9.1(d), 39(a)*, 39(a)**, and 39(a)***, 39.5(5)(i), 39.5(7)(a), 39.5(10)(a)(iv), and 39.5(13)(c)(v) and 35 Ill. Adm. Code 201.160(a). SR 0073. Section 9(a) of the Act contains the general prohibition against air pollution. 415 ILCS 5/9(a); SR 0078. Section 9.1(d) of the Act provides the prohibition against violations of Section 165 (PSD) and Section 173 (NNSR) of the Clean Air Act. 415 ILCS 5/9.1(d); SR 0078. Section 39(a) of the Act provides that it is the duty of Illinois EPA to issue a permit upon proof by the applicant that the facility or equipment will not cause a violation of the Act or regulations; the Agency may impose such other conditions as may be necessary to accomplish the purposes of the Act; and the Agency may impose reasonable conditions in a permit specifically relating to an applicant's past compliance history. 415 ILCS 5/39(a); SR 0078 – 0079. Section

201.160(a) of the Board's regulations provides that no construction permit shall be issued unless the applicant submits proof that the emission unit or air pollution control equipment will be constructed or modified to operate so as not to cause a violation of the Act or Title V, Subtitle B, Chapter I of the Board's regulations. 35 Ill. Adm. Code 201.160(a); SR 0083. However, as explained above, neither the Act nor the Board's regulations require an application for a construction permit, even one with a request for Integrated Processing, to specify the version of the CAAPP permit for the facility that should be amended. SR 0355; SR 0513. Section 39.5(5)(i) of the Act provides that an applicant who fails to submit any relevant facts necessary to evaluate the subject source and its CAAPP application or has submitted incorrect information in an application for a CAAPP permit shall, upon becoming aware of such failure or incorrect submittal, submit supplementary facts or correct information. 415 ILCS 39.5(5)(i); SR 0079. Section 39.5(7)(a) of the Act provides that all CAAPP permits must contain limitations and conditions and other enforceable terms which are or will be required to accomplish the purposes and provisions of the Act and to assure compliance with all applicable requirements. 415 ILCS 5/39.5(7)(a); SR 0080. Section 39.5(10)(a)(iv) of the Act provides that the Agency shall issue a CAAPP permit, modification, or renewal if all the referenced conditions are met, including that the Agency has received a complete application and, if necessary, has requested and received additional information. 415 ILCS 39.5(10)(a)(iv); SR 0080 – 0081. Section 39.5(13)(c)(v) of the Act provides the definition of "administrative amendment." 415 ILCS 5/39.5(13)(c)(v); SR 0081. However, as explained above, the Application includes all required information relating to identification of the CAAPP Permit to be administratively amended following Integrated Processing of the Construction Permit Application. SR 0355; SR 0513.

207. As such, the provisions of the Act and Board regulations referenced by the Agency will not be violated if a revised permit were granted as requested by U. S. Steel.

208. Therefore, the Agency's final decision to deny the Application based upon this Denial Point was clearly erroneous considering the facts and the law. The Agency's reasons, statutory bases, and regulatory bases are insufficient, improper, and inadequate to support denial. Additionally, the Agency's position that an applicant for a construction permit revision with Integrated Processing must specify the version of the CAAPP permit for the facility that should be amended involves an important policy consideration that the Board should review and reverse.

xv. Denial Point 15: The 2022 Application would not clarify the relationship between fugitive dust control measures required by Permit 95010001 and measures required by 35 IAC 212 Subpart K

209. The Agency's fifteenth Denial Point claims that, as "related to practices to reduce emissions of fugitive dust from roadways, parking areas and open areas at the Granite City Works and certain public roadways near this facility, the 2022 application does not propose revisions to clarify the interplay between the associated recordkeeping and reporting that are required by Permit 95010001 and the associated recordkeeping and reporting that are required by Board rules." SR 0057; *see* SR 0057 – 0059; *see* SR 0277 – 0279.

210. The Agency contended that, for roadways, parking areas and other open areas, the amended CAAPP permit would not clearly delineate the standards for opacity of emissions pursuant to the Board rules that apply to the different categories of emission units. SR 0057 – 0058. The Agency also contended that an amended CAAPP as requested would perpetuate errors in the current CAAPP Permit regarding applicability of Board rules because it is the Agency's position that the requirements of 35 Ill. Adm. Code 212.316 should not be applied to public roadways. *Id.*

211. Specifically, the Agency claimed that, except for Condition 25, Permit 95010001 does not address the Board's rules for control of fugitive dust emissions. SR 0057. Additionally, the Agency stated that, while the CAAPP Permit addresses requirements for control of fugitive dust, it is unclear whether the requirements for recordkeeping and reporting in 35 Ill. Adm. Code 212.316(g) are applicable for the public roadways for which specific measures to reduce emissions of fugitive dust are required by the Permit. *Id.* The Agency cited Condition 7.13.9(a) of the CAAPP Permit, which contains the requirement for Section 212.316(g) without further elaboration on whether public roads are subject to such a requirement. *Id.* The Agency contended that, via Condition 5.3.2(c)(ii) addressing the overall source conditions and applying the requirements in Sections 212.309, 212.310, and 212.312, the CAAPP permit indirectly indicates that the requirements of Section 212.316(g) also apply to the subject public roadways. *Id.* The Agency contended that the Permit does not currently deal with regulatory requirements for fugitive dust and, as such, an issue exists because Integrated Processing of a revision of the Permit requires that the compliance procedures in the revised permit be consistent with those required by the CAAPP permit. SR 0058 – 0059.

212. The Agency stated that the Application does not make clear the relationship between the requirements established by the permit as to fugitive dust in Conditions 23, 24, 26, 27, 28, 29, and 30 of the Permit and state regulatory requirements for fugitive emissions in Part 212 Subpart K. SR 0058. The example that the Agency provided is Condition 29 requires daily recordkeeping for the implementation of required measures for on-site dust control, but does not address the relationship between these records and the recordkeeping required by Section 212.316(g)(2). *Id.*

213. The issues raised by Denial Point 15 were discussed by U. S. Steel in its September 11, 2023 and January 8, 2024 written comments to the draft denials. SR 0514; SR 0355 – 0356.

214. The Agency contends that the following Act and Board regulatory provisions may be violated as to this Denial Point if a revised permit were granted: 415 ILCS 5/9(a), 9.1(d), 39(a)*, 39(a)**, and 39(a)***, 39.5(5)(i), 39.5(7)(a), 39.5(10)(a)(iv), and 39.5(13)(c)(v) and 35 Ill. Adm. Code 201.160(a). SR 0073. Section 9(a) of the Act contains the general prohibition against air pollution. 415 ILCS 5/9(a); SR 0078. Section 9.1(d) of the Act provides the prohibition against violations of Section 165 (PSD) and Section 173 (NNSR) of the Clean Air Act. 415 ILCS 5/9.1(d); SR 0078. Section 39(a) of the Act provides that it is the duty of Illinois EPA to issue a permit upon proof by the applicant that the facility or equipment will not cause a violation of the Act or regulations; the Agency may impose such other conditions as may be necessary to accomplish the purposes of the Act; and the Agency may impose reasonable conditions in a permit specifically relating to an applicant's past compliance history. 415 ILCS 5/39(a); SR 0078 – 0079. Section 39.5(5)(i) of the Act provides that an applicant who fails to submit any relevant facts necessary to evaluate the subject source and its CAAPP application or has submitted incorrect information in an application for a CAAPP permit shall, upon becoming aware of such failure or incorrect submittal, submit supplementary facts or correct information. 415 ILCS 39.5(5)(i); SR 0079. Section 39.5(7)(a) of the Act provides that all CAAPP permits must contain limitations and conditions and other enforceable terms which are or will be required to accomplish the purposes and provisions of the Act and to assure compliance with all applicable requirements. 415 ILCS 5/39.5(7)(a); SR 0080. Section 39.5(10)(a)(iv) of the Act provides that the Agency shall issue a CAAPP permit, modification, or renewal if all the referenced conditions are met, including that the Agency has received a complete application and, if necessary, has requested and received

additional information. 415 ILCS 39.5(10)(a)(iv); SR 0080 – SR 0081. Section 39.5(13)(c)(v) of the Act provides the definition of "administrative amendment." 415 ILCS 5/39.5(13)(c)(v); SR 0081. Section 201.160(a) of the Board's regulations provides that no construction permit shall be issued unless the applicant submits proof that the emission unit or air pollution control equipment will be constructed or modified to operate so as not to cause a violation of the Act or Title V, Subtitle B, Chapter I of the Board's regulations. 35 Ill. Adm. Code 201.160(a); SR 0083.

215. However, an application for a construction permit, even one with a request for Integrated Processing, is not required to specify the relationship between exiting permit terms and applicable rule requirements. SR 0355; SR 0514. It is Illinois EPA's responsibility to draft a permit with conditions that the Agency judges to be suitable and appropriate and in conformance with applicable rules and laws. Therefore, this Denial Point cannot be a basis for denial of the Application. *Id.*

216. As such, the provisions of the Act and Board regulations referenced by the Agency will not be violated if a revised permit were granted as requested by U. S. Steel.

217. Therefore, the Agency's final decision to deny the Application based upon this Denial Point was clearly erroneous considering the facts and the law. The Agency's reasons, statutory bases, and regulatory bases are insufficient, improper, and inadequate to support denial. Additionally, the Agency's position that an applicant for a construction permit revision with Integrated Processing must specify the relationship between existing permit terms and applicable rule requirements involves an important policy consideration that the Board should review and reverse.

xvi. Denial Point 16: The 2022 Application does not address changes to the CAAPP Permit that are needed due to revisions to 40 CFR 63 Subpart FFFFF as could be expedited by integrated processing of Permit 95010001

218. The Agency's sixteenth Denial Point claims that the Application does not address or identify changes to Permit 95010001, or by means of Integrated Processing changes to CAAPP Permit 96030056, that are appropriate as a result of certain revisions to the Iron and Steel National Emission Standards for Hazardous Air Pollutions ("NESHAP"), 40 CFR 63 Subpart FFFFF. SR 0060; *see* SR 0060 – 0061; *see* SR 0280 – 0283.

219. The Agency stated that the revisions to the Iron and Steel NESHAP, which took effect in January 2022, provide that the emissions standards under the NESHAP apply at all times (i.e., removing start up, shutdown, and malfunction exemption provisions). SR 0060.

220. The Agency contended that the provisions of the Iron and Steel NESHAP are "relevant to Permit 95010001 as it directly or indirectly relies on these rules for the compliance procedures that accompany the permit limitations for the particulate emissions of the NESHAP-subject units, as needed to make those limitations enforceable as a practical matter." *Id.* Specifically, the Agency stated:

> For the BOFs, Permit 95010001 directly relies on 40 CFR 63 Subpart FFFFF as Condition 9 refers to applicable provisions of 40 CFR 63 Subpart FFFFF for the work practices, opacity limits, operational limits, emission testing, operational monitoring, recordkeeping and reporting that are required. For the blast furnace casthouse and units other than the BOFs that are subject to 40 CFR 63 Subpart FFFFF, the applicable compliance provisions of this NESHAP are currently indirectly relied upon as those requirements are addressed in the CAAPP permit for the facility. (For the BOFs, the CAAPP permit also addresses the applicable compliance procedures of 40 CFR 63 Subpart FFFFF.)

Id.

221. The Agency's position is that, absent recognition of these recent revisions in the Application, the version of CAAPP Permit 96030056 that would be authorized by means of

Integrated Processing could continue to reflect the historic version of the Iron and Steel NESHAP. *Id*.

222. The issues raised by Denial Point 16 were discussed by U. S. Steel in its September 11, 2023 and January 8, 2024 written comments to the draft denials. SR 0514 – 0515; SR 0356.

223. Illinois EPA may adjust CAAPP permit terms to assure compliance with all applicable requirements. *See* 415 ILCS 5/39.5(15)(a)(iv); SR 0356; SR 0515.

224. Further, the applicable requirements of the Iron and Steel NESHAP as currently codified are legally enforceable, and the monitoring, testing, recordkeeping, and work practice requirements provide a sound technical basis for demonstration of compliance with the particulate matter emission limits. SR 0356; SR 0515; 85 Fed. Reg. 42074 (July 13, 2020). This is so regardless of whether Illinois EPA adjusts the CAAPP Permit to assure compliance with all regulatory requirements. *Id*. Moreover, the recent NESHAP Subpart FFFFF revisions are not related to the Project and, thus, U. S. Steel was under no obligation to address them in the Application.

225. The Agency contended that the following Act and Board regulatory provisions may be violated as to this Denial Point if a revised permit were granted: 415 ILCS 5/9(a), 39(a)*, 39(a)**, 39.5(5)(i), 39.5(7)(a), 39.5(10)(a)(iv), and 39.5(13)(c)(v) and 35 Ill. Adm. Code 201.160(a). SR 0073. Section 9(a) of the Act contains the general prohibition against air pollution. 415 ILCS 5/9(a); SR 0078. Section 39(a) of the Act provides that it is the duty of Illinois EPA to issue a permit upon proof by the applicant that the facility or equipment will not cause a violation of the Act or regulations; and the Agency may impose such other conditions as may be necessary to accomplish the purposes of the Act. 415 ILCS 5/39(a); SR 0078 – SR 0079. Section 39.5(5)(i) of the Act provides that an applicant who fails to submit any relevant facts necessary to evaluate

the subject source and its CAAPP application or has submitted incorrect information in an application for a CAAPP permit shall, upon becoming aware of such failure or incorrect submittal, submit supplementary facts or correct information. 415 ILCS 39.5(5)(i); SR 0079. Section 201.160(a) of the Board's regulations provides that no construction permit shall be issued unless the applicant submits proof that the emission unit or air pollution control equipment will be constructed or modified to operate so as not to cause a violation of the Act or Title V, Subtitle B, Chapter I of the Board's regulations. 35 Ill. Adm. Code 201.160(a); SR 0083. As to these provisions, U. S. Steel is not required by the Act or regulations to include suggested bases upon which Illinois EPA may revise the facility's CAAPP Permit. SR 0356; SR 0515. As such, neither the Act nor Board regulations would be violated if the revised Permit was issued as required as to this point. Section 39.5(7)(a) of the Act provides that all CAAPP permits must contain limitations and conditions and other enforceable terms which are or will be required to accomplish the purposes and provisions of the Act and to assure compliance with all applicable requirements. 415 ILCS 5/39.5(7)(a); SR 0080. Section 39.5(10)(a)(iv) of the Act provides that the Agency shall issue a CAAPP permit, modification, or renewal if all the referenced conditions are met, including that the Agency has received a complete application and, if necessary, has requested and received additional information. 415 ILCS 39.5(10)(a)(iv); SR 0080 – 0081. Section 39.5(13)(c)(v) of the Act provides the definition of "administrative amendment." 415 ILCS 5/39.5(13)(c)(v); SR 0081. As to these provisions, as explained above, Illinois EPA may revise a CAAPP permit to assure compliance with all applicable requirements. *See* 415 ILCS 5/39.5(15)(a)(iv); SR 0356; SR 0515.

226. Moreover, the Agency contends that this Denial Point is not based on a deficiency in Permit 96030056 in that the Application does not show that the Project-affected emissions units that are subject to NESHAP Subpart FFFFF would be required to comply with the current

requirements of the Subpart FFFFF rules, rather than with the provisions of Permit 95030056. SR 0281 – 0282. The Agency further states that the Application does not request revisions to the Permit or administrative amendments to the CAAPP Permit by means of Integrated Processing that would provide that the Project-affected units subject to NESHAP Subpart FFFFF must comply with the current requirements of the federal regulations. *Id.* U. S. Steel does not disagree with Illinois EPA's observation regarding the relevance of the NESHAP requirements. SR 0515. However, the Application was submitted by U. S. Steel for the narrow and specific purpose of addressing the outstanding appeal items and the underlying PSD and NNSR applicability evaluations relating to the Project implemented by National Steel Corporation. U. S. Steel did not intend for the Application to address changes that are not directly relevant to this purpose, and neither is U. S. Steel obligated to address all potential unrelated changes. SR 0357; SR 0515 – 0516.

227. As such, the provisions of the Act and Board regulations referenced by the Agency will not be violated if a revised permit were granted as requested by U. S. Steel.

228. Therefore, the Agency's final decision to deny the Application based upon this Denial Point was clearly erroneous considering the law. The Agency's reasons, statutory bases, and regulatory bases are insufficient, improper, and inadequate to support denial. Additionally, the Agency's position that an applicant for a construction permit revision with Integrated Processing must include suggested bases upon which the Agency might reopen the facility's CAAPP permit involves an important policy consideration that the Board should review and reverse.

xii. Denial Point 17: The 2022 Application does not address changes to the CAAPP Permit that have resulted from shutdown of emission units, as is relevant for the requested integrated processing of the revision to Permit 95010001

229. The Agency's seventeenth Denial Point claims that the Application "does not identify or address changes to the CAAPP Permit for the facility (Permit 96030056) that result from the permanent shutdown of certain emission units at the facility" as a revision to Permit 05010001 to be issued with Integrated Processing. SR 0062; see SR 0062 – 0064; SR 0283 – 0285.

230. The Agency contended that U. S. Steel did not take other action to initiate issuance of a revision to CAAPP Permit 96030056 that would remove provisions concerning emission units that are now permanently shutdown, such as the two by-product coke oven batteries that were permanently shut down in 2015. SR 0062.

231. The Agency's position is that, because the Application did not include the information or take other appropriate action as identified above, the Application does not include the necessary information to enable a revision to Permit 95010001 to be issued with Integrated Processing because the Application would not show that such a revision to Permit 95010001 would meet the criteria for Integrated Processing. SR 0062.

232. The Agency stated that the Application "would not show that the revisions to Permit 95010001 would provide for procedural and compliance requirements to Permit 96030056 that are substantially equivalent to those provided for by the CAAPP. The application would not support subsequent amendment of Permit 96030056 by means of Integrated Processing that would remove provisions for units that are now shutdown." SR 0062. The Agency contended that Integrated Processing of a construction permit allows only for subsequent amendments to a CAAPP permit as provided for by the construction permit and that the Agency does not have authority to revise a

CAAPP permit to remove provisions for units that are now shut down but are not otherwise the subject of the construction permit. *Id.*

233. The Agency claimed that, while the Application states that the by-product coke ovens at the facility have been shut down, the Application needs to separately address the consequences for the current CAAPP permit (in addition to the shutdown of coal and coke handling operations, the coke by-product plant, the handling of coke by-products, possibly certain wastewater treatment processes, and the use of coke oven gas). *Id.*

234. The issues raised by Denial Point 17 were discussed by U. S. Steel in its September 11, 2023 and January 8, 2024 written comments to the draft denials. SR 0515 – 0516; SR 0356 – 0357.

235. Neither the Act nor the Board's regulations require an application for a construction permit revision, even one for which Integrated Processing is requested, to request changes to the CAAPP permit other than those directly resulting from the requested revisions of the underlying construction permit. SR 0357; SR 0515. It is the Agency's responsibility to draft a permit with conditions it judges to be suitable and appropriate and in conformance with applicable rules and laws. *Id.*

236. The Application was submitted by U. S. Steel for the narrow and specific purpose of addressing the outstanding appeal items and the underlying PSD and NNSR applicability evaluations relating to the Project implemented by National Steel Corporation. U. S. Steel did not intend for the Application to address changes that are not directly relevant to this purpose. SR 0357; SR 0515 – 0516.

237. Additionally, the application to renew the CAAPP permit was submitted in November 2013, and that application was deemed complete pursuant to Section 39.5(5)(f) of the

Act. *Id.* The Agency has not requested additional information in conjunction with the CAAPP permit application. *Id.*

238. The Agency contended that the following Act and Board regulatory provisions may be violated as to this Denial Point if a revised permit were granted: 415 ILCS 5/9(a), 39(a)*, 39(a)**, and 39(a)***, 39.5(5)(i), 39.5(7)(a), 39.5(10)(a)(iv), and 39.5(13)(c)(v) and 35 Ill. Adm. Code 201.160(a). SR 0073. Section 9(a) of the Act contains the general prohibition against air pollution. 415 ILCS 5/9(a); SR 0078. Section 39(a) of the Act provides that it is the duty of Illinois EPA to issue a permit upon proof by the applicant that the facility or equipment will not cause a violation of the Act or regulations; the Agency may impose such other conditions as may be necessary to accomplish the purposes of the Act; and the Agency may impose reasonable conditions in a permit specifically relating to an applicant's past compliance history. 415 ILCS 5/39(a); SR 0078 – 0079. Section 201.160(a) of the Board's regulations provides that no construction permit shall be issued unless the applicant submits proof that the emission unit or air pollution control equipment will be constructed or modified to operate so as not to cause a violation of the Act or Title V, Subtitle B, Chapter I of the Board's regulations. 35 Ill. Adm. Code 201.160(a); SR 0083. As to these provisions, neither the Act nor the Board's regulations require an application for a construction permit revision, even one for which Integrated Processing is requested, to request changes to the CAAPP permit other than those directly resulting from the requested revisions of the underlying construction permit. As such, there would be no violation of the Act or regulations if the revised Permit was issued as requested. SR 0357; SR 0515. Section 39.5(5)(i) of the Act provides that an applicant who fails to submit any relevant facts necessary to evaluate the subject source and its CAAPP application or has submitted incorrect information in an application for a CAAPP permit shall, upon becoming aware of such failure or incorrect

submittal, submit supplementary facts or correct information. 415 ILCS 39.5(5)(i); SR 0079. Section 39.5(7)(a) of the Act provides that all CAAPP permits must contain limitations and conditions and other enforceable terms which are or will be required to accomplish the purposes and provisions of the Act and to assure compliance with all applicable requirements. 415 ILCS 5/39.5(7)(a); SR 0080. Section 39.5(10)(a)(iv) of the Act provides that the Agency shall issue a CAAPP permit, modification, or renewal if all the referenced conditions are met, including that the Agency has received a complete application and, if necessary, has requested and received additional information. 415 ILCS 39.5(10)(a)(iv); SR 0080 – 0081. Section 39.5(13)(c)(v) of the Act provides the definition of "administrative amendment." 415 ILCS 5/39.5(13)(c)(v); SR 0081. The Application was submitted by U. S. Steel for the narrow and specific purpose of addressing the outstanding appeal items and the underlying PSD and NNSR applicability evaluations relating to the Project implemented by National Steel Corporation. SR 0357; SR 0515 – 0516.

239. As such, the provisions of the Act and Board regulations referenced by the Agency will not be violated if a revised permit were granted as requested by U. S. Steel.

240. Therefore, the Agency's final decision to deny the Application based upon this Denial Point was clearly erroneous considering the facts and the law. The Agency's reasons, statutory bases, and regulatory bases are insufficient, improper, and inadequate to support denial. Additionally, the Agency's position that an applicant for a construction permit revision with Integrated Processing must address changes to the facility's CAAPP permit other than those directly resulting from the requested revisions of the underlying construction permit involves an important policy consideration that the Board should review and reverse.

xiii. Denial Point 18: The evaluation of Best Available Control Technology ("BACT") in the 2022 Application for CO is not sufficient and does not adequately support U. S. Steel's proposal for BACT

241. The Agency's eighteenth Denial Point claims that the Application addresses BACT for CO from the casthouse; but the BACT evaluation is not sufficient because it does not show that BACT, other than add-on control devices, were considered. SR 0065; *see* SR 0065 – 0068; *see* SR 0144 – 0157. The Agency also contended, for the blast furnace stoves, the Application does not include supporting information, such as diagrams and cost data, to support the claim that it is not feasible to conduct emission testing. SR 0065. For both, the Agency contends that the Application does not include descriptions or documentation for the investigations that were conducted into available options for CO control. SR 0065. The Agency claimed therefore that the Application cannot be relied upon to conclude that BACT is utilized for CO for the casthouse and blast furnace stoves or for the Agency to set appropriate requirements as BACT for CO in revising the Permit. SR 0065.

242. As to the CO emission from the casthouse, the Agency stated that the Application only identifies add-on control options and does not identify other process-related control options, such as work practices, or explain why process-related control options are not available. SR 0066. The Agency contended that a determination of BACT must consider options to control or reduce emissions of an emission unit besides add-on control devices. SR 0066 (citing to 42 U. S.C. 7479(3)).

243. As to the CO emissions from the blast furnace stoves, the Agency stated that information such as diagrams and cost are necessary if the BACT for CO is not a numerical standard. SR 0065. The Application proposed that BACT reflect certain good combustion practices for CO. SR 0067. The Agency argued that additional support is needed to support the

claim that measurement or testing of emissions of the blast furnace stoves is infeasible. SR 0067 – 0068.

244. As for the lack of documentary support for the review of available control options, the Agency contended that this is appropriate and necessary for both the casthouse and stoves because BACT determinations for the CO emissions of blast furnace casthouses and blast furnace stoves are uncommon. SR 0067; SR 0067, fn. 77. The Agency stated that BACT evaluations commonly include copies of information from the RBLC that is potentially relevant and further explanation is also provided if some information is not considerable applicable to the units at issue. SR 0067.

245. The issues raised by Denial Point 18 were discussed by U. S. Steel in its September 11, 2023 and January 8, 2024 written comments to the draft denials. SR 0487 – 0490; SR 0327 – 0330.

246. The Application includes estimates of the CO emissions from the casthouse and the blast furnace stoves and includes a detailed description of the systems of continuous emission reduction that U. S. Steel proposed to control these emissions in accordance with 35 Ill. Adm. Code 204.810(a)(3). SR 0488; SR 0327; SR 0601 – 0958. However, as described above, the Agency contends that the Application does not include other information necessary to determine that BACT would be applied. As explained below, U. S. Steel has met any BACT obligations in relation to CO emissions from the casthouse and blast furnace stoves.

247. First, as to the CO emissions from the blast furnace casthouse, U. S. Steel was not required to include a BACT analysis as to these emissions in its Application. SR 0328; SR 0488 – 0489. U. S. Steel voluntarily provided a proposed BACT analysis for these emissions at the request of Illinois EPA. *Id.* U. S. Steel was under no obligation to do so because the Application

does not request any changes to its current permits relating to CO emissions from the casthouse. SR 0488; SR 0328; SR 0601 - 0958. "There is no obligation to apply [BACT] in the abstract." *U. S., et al. v. Midwest Generation, LLC, et al*., 781 F. Supp. 2d 677, 690 (N.D. Ill. 2011). BACT requirements are not freestanding but are imposed in the pre-construction permit process. *Id*. The Northern District of Illinois explained that "[i]n the absence of such a permit, they do not exist." *Id.* As such, U. S. Steel's obligations are limited to those requests addressed in the Application.

248. Additionally, as to the CO emissions from the blast furnace casthouse, the only control options identified by U. S. Steel for potential consideration in a BACT determination by the Agency are add-on air pollution control equipment options (installation and use of a capture system and some type of incinerator). SR 0488; SR 0327; SR 0601 – 0958. U. S. Steel conducted a literature search, which did not identify any process-related control option for CO emissions from blast furnace casthouses. SR 0488; SR 0327. As such, U. S. Steel is not required to explain why process-related control options are not available because the literature did not identify any. *Id*.

249. Moreover, the Agency is familiar with the chemical reaction that is forced to occur in the casthouse as an inherent part of the ironmaking process and the Agency did not submit a request for additional information to U. S. Steel. SR 0488; SR 0327 (citing to the Agency's Statement of Basis for the 2013 revised CAAPP permit, wherein the Agency explains the ironmaking process); SR 1396 – 1401. U .S. Steel did not receive a request from the Agency for specific additional information and, as such, U. S. Steel could not know that it needed to explain that partial combustion of coke inevitably yields CO as a reaction product. SR 0328; SR 0488.

250. Additionally, U. S. Steel did not attach documentary support for why process-related control options are not available because its literature search did not identify any process-

related control options available. SR 0327 – 0328; SR 0488 – 0489. U. S. Steel is not required by 35 Ill. Adm. Code 204.810(a)(3) to attach documentation that contain no pertinent information. *Id*.

251. As to the CO emissions from the blast furnace stoves, in the 1995 permit application, National Steel Corporation proposed that BACT for CO emissions for the blast furnace stoves is maintenance of good combustion practices. SR 0489; SR 0328; SR 1942 – 2173; *see* SR 2174 – 2219. As described in the Application, this determination is consistent with the PSD requirement that a permit prescribe work practices to satisfy the BACT requirement where the permitting authority "determines that technological or economic limitations on the application of measurement methodology to a particular emissions unit would make the imposition of an emissions standard infeasible." SR 0489; SR 0328 (citing to 35 Ill. Adm. Code 204.280); SR 0601 – 0958; SR 1942 – 2173. When issuing permits in 1996 and 2013, Illinois EPA reviewed this BACT proposal and agreed with it. SR 0489; SR 0328; SR 1278 – 1308; SR 2179; *see, generally* SR 1395 - 1442.

252. U. S. Steel explained in detail in the Application why numeric emissions limits were not proposed, explaining that direct measurement of emissions by use of USEPA reference methods, is not feasible for the fuel emission units at issue. SR 0489; SR 0329; SR 0601 - 0958. U. S. Steel detailed the lack of sampling port in the stack and challenges to installing a sampling port. *Id*. The cited statutory and regulatory provisions do not require more specific information. SR 0329 – 0330; SR 0490.

253. Additionally, the information included in the Application is more detailed than the information in the application submitted by National Steel Corporation in 1995 and accepted by Illinois EPA in issuing Permit No. 95010001 in 1996. SR 0490; SR 0330.

254. The Agency contended that the following Act and Board regulatory provisions may be violated as to this Denial Point if a revised permit were granted: 415 ILCS 5/9(a), 9(b)(2), 9.1(d), 39(a)*, 39(a)**, and 39(a)***, and 35 Ill. Adm. Code 201.152*, 201.152***, 201.160(a), 204.280, 204.330, 204.810, 204.820, and 204.1100(c). SR 0073. Section 9(a) of the Act contains the general prohibition against air pollution. 415 ILCS 5/9(a); SR 0078. Section 9(b)(2) of the Act provides the prohibition against violating conditions that are imposed by air permits. 415 ILCS 5/9(b)(2); SR 0078. Section 9.1(d) of the Act provides the prohibition against violations of Section 165 (PSD) and Section 173 (NNSR) of the Clean Air Act. 415 ILCS 5/9.1(d); SR 0078. Section 39(a) of the Act provides that it is the duty of Illinois EPA to issue a permit upon proof by the applicant that the facility or equipment will not cause a violation of the Act or regulations; the Agency may impose such other conditions as may be necessary to accomplish the purposes of the Act; and the Agency may impose reasonable conditions in a permit specifically relating to an applicant's past compliance history. 415 ILCS 5/39(a); SR 0078 – 0079. Section 201.152 of the Board's regulations provides, in part, that construction permit applications must include information concerning processes to which the emission unit or air pollution control equipment is related, and the nature, points of emissions, and quantities of emissions (uncontrolled and controlled) at the source. 35 Ill. Adm. Code 201.152; SR 0082. Section 201.160(a) of the Board's regulations provides that no construction permit shall be issued unless the applicant submits proof that the emission unit or air pollution control equipment will be constructed or modified to operate so as not to cause a violation of the Act or Title V, Subtitle B, Chapter I of the Board's regulations. 35 Ill. Adm. Code 201.160(a); SR 0083. As to these provisions, there will be no violations of the Act or Board regulations if the Permit is issued as requested because, as explained above, U. S. Steel has met any BACT obligations in relation to CO emissions from the casthouse and blast

furnace stoves. Section 204.280 of the Board's regulations provides the definition of "Best Available Control Technology." 35 Ill. Adm. Code 204.280; SR 0087. Section 204.330 of the Board's regulations provides the definition of "complete." 35 Ill. Adm. Code 204.330; SR 0087. Section 204.810 of the Board's regulations provides, in part, that a PSD permit application must include, if a determination of BACT is required, a detailed description as to what system of continuous emission reduction is planned for the source or modification, emission estimates, and any other information necessary to determine that BACT would be applied. 35 Ill. Adm. Code 204.810; SR 0089. As explained above, these items were included in the Application – the necessary information was included and addressed. Section 204.820 of the Board's regulations provides that "[a]ny owner or operator who constructs or operates a source or modification not in accordance with the application submitted under this Part or with the terms of any approval to construct . . . shall be subject to appropriate enforcement action." 35 Ill. Adm. Code 204.820; SR 0089. Section 204.1100(c) of the Board's regulations provides that a major modification must apply BACT for each regulated NSR pollutant for which it would result in a significant net emissions increase at the source. 35 Ill. Adm. Code 204.1100(c); SR 0090. As explained above, U. S. Steel has met any BACT obligations in relation to CO emissions from the casthouse and blast furnace stoves.

255. As such, the provisions of the Act and Board regulations referenced by the Agency will not be violated if a revised permit were granted as requested by U. S. Steel.

256. Therefore, the Agency's final decision to deny the Application based upon this Denial Point was clearly erroneous considering the facts and the law. The Agency's reasons, statutory bases, and regulatory bases are insufficient, improper, and inadequate to support denial.

xix. Denial Point 19: The Application does not address BACT for SO_2 and CO from use of coke oven gas (COG) in the blast furnace stoves

257. The Agency's nineteenth Denial Point claims that the Application "does not include demonstrations of BACT for sulfur dioxide (SO_2) and CO from the burning of coke oven gas (COG) in Project-affected fuel burning units." SR 0069; *see* SR 0069 – 0070; *see* SR 0144 and SR 0157 – 0160. The Agency states that, absent such information, the Application does not allow a revision to the Permit to be issued for the Project that considers baseline emissions from burning COG. SR 0069.

258. The Agency contended that, because the Application addresses SO_2 and CO emissions from the use of coke oven gas as fuel in the blast furnace stoves, the Application must also address BACT for SO_2 and CO as applied to use of coke oven gas as fuel in the stoves since SO_2 and CO are pollutants for which the Project is a major modification subject to PSD. SR 0069 – 0070.

259. The Agency stated that, "[i]f emissions from burning of COG are to be relied upon for the issuance of a revised permit, the 2022 application must also address the BACT requirements of PSD for the SO_2 and CO emissions from use of COG, as would have been applicable in 1996, when the Project commenced . . . . PSD would be violated if a revised permit were issued for the Project based on revised NSR applicability analyses that considered use of COG, as contained in the 2022 application, absent demonstrations that the Project utilized BACT for emissions of SO_2 and CO from use of COG." SR 0069.

260. The Agency argued that, because the Application does not address BACT as explained above, the Application does not demonstrate that prior to February 2015 (when the by-product recovery coke oven batteries were shutdown and coke oven gas ceased to be available),

BACT was being utilized for the SO_2 and CO emissions from the use of coke oven gas in the blast furnace stoves. SR 0070.

261. Additionally, the Agency stated that the Application does not state that it was no longer necessary to address CO emission from the use of coke oven gas as of February 2015 since coke oven gas was no longer available. SR 0070.

262. The issues raised by Denial Point 19 were discussed by U. S. Steel in its September 11, 2023 and January 8, 2024 written comments to the draft denials. SR 0490 – 0491; SR 0030.

263. The deficiency alleged by the Agency relates to a historical issue – emissions from the burning of COG, which was only available when the by-product recovery coke batteries were in operation prior to their shutdown in 2015. SR 0330; SR 0490 – 0491. The Agency asserted that the Application must address BACT for this historical issue since the Application addresses emissions from burning of coke oven gas. *See* SR 0069.

264. However, U. S. Steel is under no statutory or regulatory obligation to address such historical issues in the Application. *See* SR 0330; *see* SR 0490 – 0491. A source owner's obligations with respect to BACT are limited to those imposed in a PSD permit. *See U. S., et al. v. Midwest Generation, LLC, et al*., 781 F. Supp. 2d 677 (N.D. Ill. 2011); s*ee U. S., et al. v. Midwest Generation, LLC, et al*., 694 F. Supp. 2d. 999 (N.D. Ill. 2010). In relation to the BACT requirements, the Court explained that "[t]here is no obligation to apply 'best available control technology' in the abstract.'" *U. S., et al. v. Midwest Generation, LLC, et al*., 781 F. Supp. 2d 677, 690 (N.D. Ill. 2011). BACT requirements are not freestanding but are imposed in the pre-construction permit process. *Id*. The Court explained that "[i]n the absence of such a permit, they do not exist." *Id.* As discussed above, while the case addressed the issues of continuing PSD

violations in an enforcement context, the Court's discussion of PSD and BACT requirements is relevant to the permitting context.

265. Here, U. S. Steel's BACT obligations are limited to those exiting operations addressed in the Application. SR 0330; SR 0490 – 0491. U. S. Steel is not required to address BACT obligations for an operation that is no longer in use at the facility, i.e., burning of COG. *Id*.

266. The Agency contended that the following Act and Board regulatory provisions may be violated as to this Denial Point if a revised permit were granted: 415 ILCS 5/9(a), 9.1(d), 39(a)*, 39(a)**, and 35 Ill. Adm. Code 201.152*, 201.152***, 201.160(a), 204.280, 204.330, 204.810, and 204.1100(c). SR 0073. Section 9(a) of the Act contains the general prohibition against air pollution. 415 ILCS 5/9(a); SR 0078. Section 9.1(d) of the Act provides the prohibition against violations of Section 165 (PSD) and Section 173 (NNSR) of the Clean Air Act. 415 ILCS 5/9.1(d); SR 0078. Section 39(a) of the Act provides, in part, that it is the duty of Illinois EPA to issue a permit upon proof by the applicant that the facility or equipment will not cause a violation of the Act or regulations; and the Agency may impose such other conditions as may be necessary to accomplish the purposes of the Act. 415 ILCS 5/39(a); SR 0078 – SR 0079. Section 201.152 of the Board's regulations provides, in part, that construction permit applications must include information concerning processes to which the emission unit or air pollution control equipment is related, and the nature, points of emissions, and quantities of emissions (uncontrolled and controlled) at the source. 35 Ill. Adm. Code 201.152; SR 0082. Section 201.160(a) of the Board's regulations provides that no construction permit shall be issued unless the applicant submits proof that the emission unit or air pollution control equipment will be constructed or modified to operate so as not to cause a violation of the Act or Title V, Subtitle B, Chapter I of the Board's regulations.

35 Ill. Adm. Code 201.160(a); SR 0083. Section 204.280 of the Board's regulations provides the definition of "Best Available Control Technology." 35 Ill. Adm. Code 204.280; SR 0087. Section 204.330 of the Board's regulations provides the definition of "complete." 35 Ill. Adm. Code 204.330; SR 0087. Section 204.810 of the Board's regulations provides, in part, that a PSD permit application must include, if a determination of BACT is required, a detailed description as to what system of continuous emission reduction is planned for the source or modification, emission estimates, and any other information necessary to determine that BACT would be applied. 35 Ill. Adm. Code 204.810; SR 0089. Section 204.1100(c) of the Board's regulations provides that a major modification must apply BACT for each regulated NSR pollutant for which it would result in a significant net emissions increase at the source. 35 Ill. Adm. Code 204.1100(c); SR 0090. As explained above, U. S. Steel's BACT obligations are limited to those exiting operations addressed in the Application. SR 0330; SR 0490 – 0491. U. S. Steel is not required to address BACT obligations for an operation that is no longer in use at the facility, i.e., burning of COG. *Id*. Therefore, issuance of the revised Permit as requested would not result in violations of the Act or regulations or result in air pollution. A determination of BACT was not required for the burning of COG since that is no longer available.

267. As such, the provisions of the Act and Board regulations referenced by the Agency will not be violated if a revised permit were granted as requested by U. S. Steel.

268. Therefore, the Agency's final decision to deny the Application based upon this Denial Point was clearly erroneous considering the law. The Agency's reasons, statutory bases, and regulatory bases are insufficient, improper, and inadequate to support denial. Additionally, the Agency's position that an applicant must address BACT for an operation that no longer exists at the facility involves an important policy consideration that the Board should review and reverse.

xx. Denial Point 20: As related to SO_2 emissions from the use of BFG, the 2022 Application is inconsistent with a pending 2008 application

269. The Agency's twentieth Denial Point claims that, "[a]s related to emissions of sulfur dioxide (SO2) from burning blast furnace gas (BFG), the 2022 application is inconsistent with and conflicts with an earlier application for revisions to Permit 95010001 that was received on February 8, 2008 (the '2008 application')." SR 0071; *see* SR 0072; see SR 0128 – 0131.

270. The 2008 application, which was an application for revisions to Permit 95010001, requested increases in the SO_2 emissions from burning of BFG. SR 0071; SR 1443 – 1580. The Agency claimed that the Application did not reference the 2008 application or explain if the revisions to Permit 95010001 requested by the 2008 application as it relates to SO_2 emissions from burning of BFG are still needed. SR 0071 – 0072. The Agency also stated that the Application does not address the 2008 application to explain why the revisions to the Permit requested by the 2008 application are no longer needed. *Id.*

271. The Agency noted that U. S. Steel has not requested withdrawal of the 2008 application and notes that U. S. Steel's approach taken in the Application to SO_2 emissions from burning BFG is different than the approach taken for NOx, VOM, and particulate. SR 0071 – SR 0072.

272. Specifically, the Agency pointed to the 2008 application in which U. S. Steel requested an increase in the SO_2 emission factor limit for BFG from 6.65 to 16.00 pounds/million cubic feet of gas burned, but states that the Application does not request a change for this emission factor limit. SR 0072. The Agency stated that the Application does not show that the revisions to the SO_2 emission limits requested in the 2008 application were in fact not needed at that time. *See* SR 0072.

273. The Agency argued that, absent resolving the conflict between the 2008 application and Application, the Application should not be considered to show compliance with the SO_2 emission limits for burning BFG currently in Permit 95010001. SR 0071 – 0072.

274. The issues raised by Denial Point 20 were discussed by U. S. Steel in its September 11, 2023 and January 8, 2024 written comments to the draft denials. SR 0324 – 0325; SR 0485 – 0486.

275. As explained in the comments, the Agency has not acted on the application submitted in 2008. SR 0485; SR 0324; *see* SR 1443 – 1580. U. S. Steel submitted the 2008 application in accordance with a Consent Order between U. S. Steel and Illinois. *See* SR 1581 – 1609 (*State of Illinois v. United States Steel Corporation*, No. 05-CH-750, Third Judicial Circuit (Madison County)); SR 0324 – 0325; SR 0485; *see* SR 1443 – 1580.

276. The 2008 application was based on limited information that was available to U. S. Steel at the time of submittal. SR 0485; SR 0324; SR 1443 – 1580. However, information subsequently gathered by U. S. Steel supports that, when averaged over the year, the emission factor limit in existing Permit 95010001 is appropriate. SR 0485; SR 0324.[8]

277. The Agency noted that U. S. Steel has not withdrawn the 2008 application; however, U. S. Steel cannot withdraw the 2008 application at this time but would do so following issuance of the revised Permit and termination of the Consent Order. SR 0485; SR 0324. Nevertheless, this point cannot be a basis for denial of the Application. SR 0330; SR 0490 – 0491.

278. Furthermore, the Application did not need to show compliance with SO_2 emission limits for burning BFG currently in Permit 95010001 because the Application did not request any changes to the SO_2 emission limits. SR 0325. The Application also did not include demonstrations

[8] It is noteworthy that this topic was discussed with Illinois EPA as the 2020 Application submittal was pending and the Agency did not object to this development at the time. SR 0325; SR 0485.

of compliance with any of the numerous emission limits that apply to the Facility and are unrelated to the present Application. SR 0325. There is no statutory or regulatory obligation requiring that an application for a construction permit include compliance demonstrations for emission limits that are unrelated to the application. SR 0325.

279. The Agency contended that the following Act and Board regulatory provisions may be violated as to this Denial Point if a revised permit were granted: 415 ILCS 5/9(a), 9(b)(2), 9.1(d), 39(a)*, 39(a)**, 39(a)***, and 35 Ill. Adm. Code 201.160(a). SR 0073. Section 9(a) of the Act contains the general prohibition against air pollution. 415 ILCS 5/9(a); SR 0078. Section 9(b)(2) of the Act provides the prohibition against violating conditions that are imposed by air permits. 415 ILCS 5/9(b)(2); SR 0078. Section 9.1(d) of the Act provides the prohibition against violations of Section 165 (PSD) and Section 173 (NNSR) of the Clean Air Act. 415 ILCS 5/9.1(d); SR 0078. Section 39(a) of the Act provides that it is the duty of Illinois EPA to issue a permit upon proof by the applicant that the facility or equipment will not cause a violation of the Act or regulations; the Agency may impose such other conditions as may be necessary to accomplish the purposes of the Act; and the Agency may impose reasonable conditions in a permit specifically relating to an applicant's past compliance history. 415 ILCS 5/39(a); SR 0078 – 0079. Section 201.160(a) of the Board's regulations provides that no construction permit shall be issued unless the applicant submits proof that the emission unit or air pollution control equipment will be constructed or modified to operate so as not to cause a violation of the Act or Title V, Subtitle B, Chapter I of the Board's regulations. 35 Ill. Adm. Code 201.160(a); SR 0083. As explained above, information subsequently gathered by U. S. Steel supports that, when averaged over the year, the emission factor limit at issue here in existing Permit 95010001 is appropriate and, therefore, the increase requested in the 2008 application is no longer needed. As such, because the Facility is in

compliance with the emission factor limit in existing Permit 95010001, there is no potential for air pollution, or violation of the Act or regulations.

280. As such, the provisions of the Act and Board regulations referenced by the Agency will not be violated if a revised permit were granted as requested by U. S. Steel.

281. Therefore, the Agency's final decision to deny the Application based upon this Denial Point was clearly erroneous considering the facts and the law. The Agency's reasons, statutory bases, and regulatory bases are insufficient, improper, and inadequate to support denial. Additionally, the Agency's position that a construction permit application must address compliance demonstrations for emission limits that are unrelated to the application, involves an important policy consideration that the Board should review and reverse.

xxi. Denial Point 21: As related to emission limits for SO_2, lead and CO, the 2022 Application is inconsistent with pending Board appeals

282. The Agency's twenty-first Denial Point claims that, "[f]or various processes, the 2022 application does not request or propose appropriate changes to the current emission factor limits in Permit 95010001 for SO_2, lead and CO to resolve pending permit appeals (PCB 2013-52 and PCB 2013-62)." SR 0073; *see* SR 0073 – 0075; *see* SR 0125 – 0127.

283. The Agency explained that Permit 95010001 sets emission factor limits for the blast furnace casthouse and the slag pits for SO_2, for the BOF for lead and CO; and for desulfurization and reladling for lead. SR 0073. The Agency contended that the Application "does not indicate that the inclusion of the current emission factor limits in a revised permit is not expected to result in another appeal as to these limits are now considered to be acceptable." SR 0073.

284. Additionally for the BOF for CO, the Agency contended that the Application does not indicate that "the current limit would still be acceptable if it applied in aggregate to the CO emissions from the stack of the ESP and the stack of the baghouse. . . ." SR 0073. The Agency

also claimed that, because the Application does not request that these limits be revised to address all stack emissions of the BOF, that the Application effectively requests a relaxation of the current limits. SR 0075.

285. The Agency argued that, as such, the Application is not consistent with the two permit appeals (PCB 13-53 and PCB 13-62) currently pending at the Board. SR 0075.

286. The Agency also noted that U. S. Steel has not amended the appeals so that they no longer address the emission factor limits that are set for SO_2, CO, and lead, and that the Application does not include an explanation as to why these emission factor limits are no longer considered to be objectionable. SR 0075.

287. The issues raised by Denial Point 21 were discussed by U. S. Steel in its September 11, 2023 and January 8, 2024 written comments to the draft denials. SR 0324; SR 0485.

288. As explained in the written comments, there is no regulatory or statutory authority, or authority arising from a Board order, to support the Agency's position that the Application must be consistent with and address the issues in the pending permit appeals. SR 0324; SR 0485. The absence of addressing issues in the pending permit appeals in the Application is not a ground for denial of the Application. *Id.* While it is logical for the Agency to inquire about contested provisions in pending appeals that may appear to be absent in the Application, the absence of such discussion is not a ground for denying the Application. SR 0324; SR 0485.[9]

289. It was U. S. Steel's understanding, based on conversations with the Agency, that once the revised permit was issued, the pending permit appeals could be dismissed. *Id.*

[9] It is noteworthy that, in its numerous discussions with the Agency on the Application, the Agency did not mention prior to the draft denial that it was the Agency's position that U. S. Steel must address individually in its permit application all items that are currently under appeal. SR 0324; SR 0485.

290. The Agency contended that the following Act and Board regulatory provisions may be violated as to this Denial Point if a revised permit were granted: 415 ILCS 5/9(a), 39(a)*, 39(a)**, 39(a)***, 39.5(5)(i), 39.5(7)(a), 39.5(10)(a)(iv), and 39.5(13)(c)(v) and 35 Ill. Adm. Code 201.160(a). SR 0073. Section 9(a) of the Act contains the general prohibition against air pollution. 415 ILCS 5/9(a); SR 0078. Section 39(a) of the Act provides that it is the duty of Illinois EPA to issue a permit upon proof by the applicant that the facility or equipment will not cause a violation of the Act or regulations; the Agency may impose such other conditions as may be necessary to accomplish the purposes of the Act; and the Agency may impose reasonable conditions in a permit specifically relating to an applicant's past compliance history. 415 ILCS 5/39(a); SR 0078 – 0079. Section 39.5(5)(i) of the Act provides that an applicant, upon becoming aware of a failure to submit relevant facts or upon submittal of incorrect information, shall submit supplementary facts or correct information. 415 ILCS 5/39.5(5)(i); SR 0079 – SR 0080. Section 39.5(7)(a) of the Act provides that CAAPP permits shall contain limitations and conditions and terms which are or will be required to accomplish the purposes and provisions of the Act and to assure compliance with all applicable requirements. 415 ILCS 5/39.5(7)(a); SR 0080. Section 39.5(10)(a)(iv) provides that the Agency shall issue a CAAPP permit if all conditions are met, including that the Agency has received a complete application. 415 ILCS 5/39.5(10)(a)(iv); SR 0080 – 0081. Section 39.5(13)(c)(v) of the Act provides the definition of "administrative amendment," which includes a permit revision that incorporates into the CAAPP permit the requirements "from preconstruction review permits provided the program meets procedural and compliance requirements substantially equivalent to those contained in this Section." 415 ILCS 5/39.5(13)(10)(c)(v); SR 0081. Section 201.160(a) of the Board's regulations provides that no construction permit shall be issued unless the applicant submits proof that the emission unit or air pollution control equipment will be

constructed or modified to operate so as not to cause a violation of the Act or Title V, Subtitle B, Chapter I of the Board's regulations. 35 Ill. Adm. Code 201.160(a); SR 0083. However, as explained above, there is no obligation under the cited statutory and regulatory provisions to address in a construction permit application consistency with issues in the pending permit appeals. SR 0324; SR 0485.

291. As such, the provisions of the Act and Board regulations referenced by the Agency will not be violated if a revised permit were granted as requested by U. S. Steel.

292. Therefore, the Agency's final decision to deny the Application based upon this Denial Point was clearly erroneous considering the law. The Agency's reasons, statutory bases, and regulatory bases are insufficient, improper, and inadequate to support denial.

xxii. Denial Point 22: The 2022 Application does not include a signed certification for the accuracy and completeness of the Application

293. The Agency's twenty-second Denial Point claims that the Application, as submitted on October 7, 2022, did not include a certification for the truth, accuracy and completeness of the application. SR 0076; *see* SR 0076 – 0077; *see* SR 0122 – 0125.

294. In the Application as submitted on October 7, 2022, U. S. Steel included a copy of an earlier certification dated February 25, 2022 that was submitted with the application submitted in March 2020. SR 0076.

295. The Agency contended that the copy of the prior certification "cannot serve as the required certification." SR 0076. The Agency claimed that the 2022 Application replaces the prior 2020 Application because the 2022 Application is a revision of the 2020 Application and U. S. Steel intended as such by stating in the cover letter that, "'Due to the nature of revisions throughout this application, the Illinois EPA should refer to this application for permit processing.'" SR 0076 – 0077.

296. The Agency stated that the "2022 application replaced the prior 2020 application" and, therefore, the "2022 application must include a new certification for its truth, accuracy and completeness." SR 0076 – 0077.

297. Additionally, in its September 11, 2023 written comment responding to the Agency's Initial Draft Denial Letter, U. S. Steel attached a certification dated September 8, 2023. SR 0076; SR 0484; SR 0517 – 0519.

298. The Agency argued that this later-submitted certification was not sufficient to correct the prior omission because it was an attachment to comments and not submitted as a supplement to the 2022 Application. SR 0076. Moreover, the Agency pointed out that an errata sheet, or something similar, did not accompany the certification that "corrected erroneous information in the application as either identified by the Illinois EPA in the Initial Draft Denial or identified by U. S. Steel when developing its response to the Initial Draft Denial." SR 0076. The Agency claimed that, as such, even if submitted as a supplement, the certification's "truthfulness and validity would be questionable" and "absent an appropriate certification the Application is deficient." SR 0076.

299. The issues raised by Denial Point 22 were discussed by U. S. Steel in its September 11, 2023 and January 8, 2024 written comments to the draft denials. SR 0322 – 0324; SR 0483 – 0485.

300. As explained in its comments, the "2022 application" referenced by the Agency in the draft denials is a construction permit application submitted on March 2, 2020. SR 0323; SR 0484. The Application as submitted on March 2, 2020 included a completed 199-CAAPP form. SR 0323; SR 0484; SR 1038 – 1041. This form included the following certification language, which was signed and dated by U. S. Steel:

> I certify under penalty of law that, based on information and belief formed after reasonable inquiry, the statements and information contained in this application are true, accurate and complete and that I am a responsible official for the source, as defined by Section 39.5(1) of the Environmental Protection Act.

SR 1041.

301. The Application materials submitted in October 2022 constituted a supplement to the Application submitted on March 2, 2020. In the transmittal letter to the October 2022 Supplement, U. S. Steel explained that it and the Agency had been in discussions regarding the 2020 Application and that U. S. Steel "has updated the permit application to reflect those discussions. Due to the nature of the discussions throughout the application, the Illinois EPA should refer to this application revision for processing." SR 0601; SR 0120 – 0121. The Agency argued that this language supports the Agency's position. SR 0120 – 0121. While the cover letter to the October 2022 Supplement stated that the Agency should refer to that application for processing given the extent of the revisions to the March 2020 Application, U. S. Steel did not intend for the October 2022 Supplement to replace the March 2020 Application. *See* SR 0323; SR 0484. In the cover letter for the October 2022 Supplement, for purpose of administrative convenience only, U. S. Steel suggested that Illinois EPA refer to the Supplement rather than to the initial submittal in March 2020 because, as requested by Illinois EPA following review of the 2020 Application submittal, the sections of the Application were reordered. SR 0323; SR 0484; SR 0601. Additionally, in response to the Agency's point that the 2022 Supplement included previously submitted application forms, U. S. Steel did this for administrative convenience. *See* SR 0121; SR 0323; SR 0484.[10]

[10] It is noteworthy that the Agency did not request U. S. Steel to submit a certification for the Supplement prior to issuing its draft denial letter. SR 0485.

302. The Agency argued that the 2022 Supplement differs significantly from the March 2020 Application and that the October 2022 Supplement addressed revisions to the Permit without the need to refer to the 2020 Application submittal. SR 0119 – 0120. U. S. Steel acknowledges that the 2022 Supplement differs from the 2020 Application in certain aspects, however neither the Act nor Board regulations requires the Supplement to be treated as a revised or separate application due to this fact.[11] The language in U. S. Steel's cover letter is clear that the October 2022 Supplement is a supplement and addresses revisions to the March 2020 Application. SR 0601.

303. Furthermore, the cited Act and Board regulatory provisions only state that a certification is required for each permit application, but do not expressly require a separate certification for each supplement to a permit application. *See* 415 ILCS 5/39.5(5)(e); *see* 35 Ill. Adm. Code 270.401(f); SR 0323; SR 0484.

304. Additionally, as noted by the Agency, without waiving any rights or defenses, U. S. Steel submitted a new certification along with its September 11, 2023 written comment to the Agency's Initial Draft Denial Letter. SR 0517 – SR 0519; SR 0484; SR 0324. The certification signed and dated by U. S. Steel certified to the truth, accuracy and completeness of the Application supplement that was submitted in October 2022. SR 0517 – 0519; SR 0484; SR 0324. The Agency argues that attaching the certification to U. S. Steel's comment letter was not submitting the certification as a supplement to the application (SR 0076); however, U. S. Steel made clear in its comment letter to the Agency that U. S. Steel was providing a new certification as requested by

[11] The Agency also contended that it is not denying the Application because the 2022 submittal was not accompanied by an application fee due to revisions to applications in response to a notification that the earlier application was incomplete not requiring a separate fee under Section 9.12 of the Act. SR 0026, fn. 22. However, Section 9.12 of the Act also does not require a separate application fee for supplements to an earlier application.

the Agency and clearly intended for the new certification to become a part of the permit record. SR 0484; SR 0324.[12]

305. Therefore, a certification for the October 2022 supplement was submitted prior to the final permit application denial. SR 0517 – 0519; SR 0484; SR 0324.

306. The Agency contended that the following Act and Board regulatory provisions may be violated as to this Denial Point if a revised permit were granted: 415 ILCS 5/39(a)* and 39.5(5)(e) and 35 Ill. Adm. Code 270.401(f). SR 0076. Section 39(a) of the Act provides, in part, that it is the duty of Illinois EPA to issue a permit upon proof by the applicant that the facility or equipment will not cause a violation of the Act or regulations. 415 ILCS 5/39(a); SR 0078. As explained above and further below, there is no requirement that each supplement to an application contain a certification. A certification was included in the March 2020 Application within the 199-CAAPP Form. SR 1038 – 1041. Additionally, even if the Agency's interpretation is correct that a certification for each supplement to an application is required, a certification was submitted for the October 2022 Supplement along with U. S. Steel's September 11, 2023 comment letter. SR 0484 and 0517 – 0519; SR 0324. As such, issuance of the revised Permit as requested will not cause a violation of the Act or regulations based on this Denial Point. Section 39.5(5)(e) of the Act provides that each submitted CAAPP permit application shall be certified for truth, accuracy, and completeness by a responsible official. 415 ILCS 5/39.5(5)(e); SR 0079. Section 270.401(f) of the Board's regulations provides that a CAAPP permit application shall contain a certification by a responsible official that the statements and information in the application are true, accurate, and complete based on information and belief formed by the responsible official after reasonable

[12] The Agency also stated that the September 2023 comment letter acknowledges an error in the 2022 submittal and, therefore, the comment letter contradicted the certification. SR 0124. The error the Agency referenced is a scrivener's error (SR 0124, fn. 27); the comment letter clearly acknowledges this error and, taken as a whole with the certification attachment, appropriately acknowledges the error.

inquiry. 35 Ill. Adm. Code 270.401(f); SR 0091. The provisions of Section 39.5(5)(e) of the Act and Section 270.401(f) of the Board's regulations do not specify that each supplement to a CAAPP permit application must contain a certification. A certification was included in the March 2020 Application within the 199-CAAPP Form. SR 1038 – 1041. Additionally, even if the Agency's interpretation is correct that a certification for each supplement to an application is required, a certification was submitted for the October 2022 Supplement along with U. S. Steel's September 11, 2023 comment letter. SR 0484 and 0517 – 0519; SR 0324.

307. As such, the provisions of the Act and Board regulations referenced by the Agency will not be violated if a revised permit were granted as requested by U. S. Steel.

308. Therefore, the Agency's final decision to deny the Application based upon this Denial Point was clearly erroneous considering the facts and the law. The Agency's reasons, statutory bases, and regulatory bases are insufficient, improper, and inadequate to support denial. Additionally, the Agency's position that a lack of certification accompanying a supplement to a permit application calls into question the entire application involves an important policy consideration that the Board should review and reverse.

III. CONCLUSION

309. As explained above, the Agency's final decision to deny the Application was clearly erroneous considering the facts and the law; involved an exercise of discretion by the Agency that the Board, in its discretion, should review; and involved important policy considerations that the Board should, in its discretion, review and reverse.

310. The Agency's reasons, statutory bases, and regulatory bases are insufficient, improper, and inadequate to support denial. The Agency's final decision is not supported by the record and is not rational in light of all in the information in the record.

311. U. S. Steel therefore respectfully requests that the Board grant review of the Agency's final decision to deny the Application and a schedule a hearing in this matter to review such final action. U. S. Steel requests that the Board enter an order finding that the Agency's final decision was clearly erroneous, was not supported by the record, was not supported by the Act or Board regulations, and involved important policy issues that the Board resolves in favor of the Petitioner.

WHEREFORE, for the reasons set forth above, Petitioner, UNITED STATES STEEL CORPORATION petitions the Illinois Pollution Control Board for a hearing on the Illinois EPA's final action to deny the Application, and requests that the Illinois Pollution Control Board find that Illinois EPA's final decision was improper, remand the matter to the Agency, and instruct the Agency to issue the Permit as requested in the Application.

Respectfully submitted,

UNITED STATES STEEL CORPORATION,
Petitioner,

Dated: June 12, 2024

By: */s/ Michael P. Murphy*
One of Its Attorneys

Michael Murphy
LaDonna Driver
Melissa Brown
HEPLERBROOM, LLC
4340 Acer Grove Drive
Springfield, Illinois 62711
Michael.Murphy@heplerbroom.com
LaDonna.Driver@heplerbroom.com
Melissa.Brown@heplerbroom.com
(217) 528-3674

SUPPORTING RECORD

TABLE OF CONTENTS FOR SUPPORTING RECORD

Document Name	Supporting Record Number
Supplement to Application for Revision to Construction Permit 95010001 (October 3, 2022)	SR 0601 – SR 0958
Environmental Justice Notification (March 24, 2020)	SR 0959 – SR 0960
Application for Revisions to Construction Permit 95010001 (March 2, 2020)	SR 0961 – SR 1248
Construction Permit/PSD Approval No. 95010001 (December 17, 2012)	SR 1249 – SR 1277
Construction Permit No. 95010001 (January 25, 1996)	SR 1278 – SR 1308
National Steel Bankruptcy Order (April 21, 2003)	SR 1309 – SR 1394
Statement of Basis for CAAPP Permit 96030056 (Feb. 4, 2013)	SR 1395 – SR 1442
Application to Modify Construction Permit 95010001 (January 31, 2008)	SR 1443 – SR 1580
Consent Order, 05-CH-750 (Dec. 18, 2007)	SR 1581 – SR 1609
CAAPP Permit 96030056 (March 4, 2013)	SR 1610 – SR 1941
Application for Construction Permit 95010001 (Dec. 30, 1994)	SR 1942 – SR 2173
Project Summary for Construction Permit 95010001 (November 1995)	SR 2174 – SR 2219
Operating Permit 95010001 (June 6, 1997)	SR 2220 – SR 2249
Revised Operating Permit 95010001 (Jan. 5, 1999)	SR 2250 – SR 2284

Document Name	Supporting Record Number
FedEx Receipt 2020 Application for Revision to Permit 95010001	SR 2285 – SR 2286
Application Supplement for Permit 95010001 (January 1996)	SR 2287 – SR 2501
Revision of Section 114 Request (Sept. 14, 2022)	SR 2502 – SR 2512

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 · (217) 782-3397
JB PRITZKER, GOVERNOR JOHN J. KIM, DIRECTOR

217/785-1705 CERTIFIED MAIL
7021 1970 0001 8412 0340

DENIAL OF AN APPLICATION FOR REVISIONS TO A CONSTRUCTION PERMIT/PSD APPROVAL[1]

May 8, 2024

U.S. Steel Granite City
Attn: Krista Armentrout – Environmental Manager
1951 State Street
Granite City, Illinois 62040

Permit/Application No.: 95010001 I. D. No.: 119813AAI
Date Permit Originally Issued: January 25, 1996
Date Application for Revisions Received: October 7, 2022
Subject of Permit: Production Increase
Location: Granite City Works, Southeastern Granite City

The Illinois EPA has reviewed your above referenced application for revisions to the above-referenced construction permit/Prevention of Significant Deterioration (PSD) approval (Permit 95010001) issued for the above referenced project. The permit application is DENIED because, if a revision to Permit 95010001 were issued as requested by this application, it might violate various Sections of the Illinois Environmental Protection Act (Act) and various p*rovisions* in Illinois' regulation pursuant to the Act. The Sections of the Act that might be violated include Sections 9(a), 9(b)(2), 9.1(d), 39(a), 39.5(5)(e), 39.5(7)(a), 39.5(5)(i), 39.5(10)(a)(iv) and 39.5(13)(c)(v). The provisions of the relevant Illinois regulations, i.e., Subtitle B of Title 35 of the Illinois Administrative Code (IAC), that might be violated include 35 IAC 201.152, 201.160(a), 203.123, 203.128, 203.201,. 203.203(b), 203.208, 203.301, 203.302, 204.280, 204.330, 204.400, 204.550, 204.560. 204.810, 204.1100(c), 204,1110, 204.1130 and 270.401(f).

The specific Sections of the Act and the specific provisions of the Illinois Administrative Code that may not be met if Permit 95010001 were to be revised as requested by this application are detailed in the Listing of Denial Points, Attachment 1 of this permit denial. For each Denial Point, Attachment 1 also describes the information that this application did not provide and the specific reasons why the Act and might be violated if a revised permit were issued as requested, with accompanying explanation and discussion.

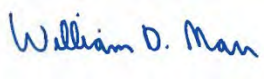
This permit denial has two appendices. Appendix A lists the various sections of the Act that are cited in Attachment 1 as the statutory basis for this denial letter, with description and, in some cases, general explanation why the section might be violated if Permit 95010001 were to be revised as requested by this application. Appendix B lists the various provisions in

[1] In this application, US Steel requests that the revision of Permit 95010001 be processed with "Integrated Processing," as is provided for by Sections 39.5(13)(a) and (c)(v) of the Act. Integrated Processing would allow changes to the Clean Air Act Permit Program (CAAPP) permit for the Granite City Works, as would be set forth in the revised permit, to subsequently be made by means of an Administrative Amendment of the CAAPP permit.

Subtitle B of Title 35 of the Illinois Administrative Code that are cited in Attachment 1 as the regulatory basis for this denial letter, with description and, in some cases, general explanation why the provision might be violated if Permit 95010001 were to be revised as requested by this application.

Before taking action to deny the above-referenced application, the Illinois EPA held two public comment periods on drafts of proposed denial letters, an Initial Draft Denial Letter and a Revised Draft Denial Letter, in accordance with 35 IAC Part 252, as provided for by 35 IAC 252.105(b).

If you have any questions on the denial of this denial, please call Jason Schnepp or Minesh Patel at 217/785-1705.



William D. Marr
Manager, Permit Section
Bureau of Air

WDM:mvp:tan

U.S. Steel Granite City (I. D. No. 119813AAI)
Permit/Application No. 95010001
Application Received on October 7, 2022 for Revisions to the Permit

ATTACHMENT 1: LISTING OF DENIAL POINTS

1. THE REVISED NETTING ANALYSIS FOR THE PROJECT FOR NITROGEN OXIDES (NOx) DOES NOT FULFILL RELEVANT REQUIREMENTS OF NEW SOURCE REVIEW (NSR) FOR SUCH ANALYSES

Overview of This Denial Point, with Information As Required or Specified by Section 39(a) of the Act for Denial of a Permit

1. *The Sections of the Act which may be violated if a revised permit were granted as requested:* Sections 9(a), 9.1(d) and 39(a)*. (Note: The significance of asterisks that accompany certain Sections of the Act is explained in Appendix A.)

2. *The provision of the regulations under the Act which may be violated if the revised permit were granted as requested:* 35 Illinois Administrative Code (IAC) 201.160(a), 203.201, 203.203(b), 203.208**, 203.301, 203.302, 204.550**, 204.810, 204.1100(c), 204.1110 and 204.1130. (Note: The significance of asterisks that accompany certain provisions of the Illinois Administrative Code is explained in Appendix B.)

3. *The specific type of information, if any, which the Agency deems the applicant did not provide the Agency:* The 2022 application does not show that the Production Increase Project (Project) would still not be a major modification for emissions of nitrogen oxides (NOx) for purposes of New Source Review (NSR) with the increases in NOx emissions that are requested to address errors in the initial permitting of the Project. In particular, the application requests an increase in the permitted NOX emissions of the basic oxygen furnaces (BOFs) of more than 200 tons/year. The netting analysis for NOx in the application, which addresses the Project with the requested increases in NOx emissions, is flawed so cannot be relied upon to show that the increases in permitted NOx emissions would not result in the Project being a major modification. The revised NSR applicability analysis is flawed as, contrary to applicable rules, it relies upon decreases in NOx emissions from actions that were neither contemporaneous with the Project nor creditable as they were not required by Permit 95010001. These decreases resulted from the later shutdowns of ten older boilers at the facility and the much later shutdown of the two by-product recovery coke oven batteries at the facility, as coke oven gas (COG) ceased to be available for use in Project-affected fuel burning units. The incongruous conclusion of the revised NSR applicability analysis is that the Project was accompanied by an overall decrease in the NOx emissions of Project-affected fuel burning units rather than an increase in NOx emissions as would be expected from an increase in production of iron by the blast furnaces.

As the Project would become a major modification for NOx with the requested increase in permitted NOx emissions, the Project would become subject to Nonattainment New Source Review (NaNSR) (35 IAC Part 203, Major Stationary Sources Construction and Modification (MSSCAM)) for NOx. NOx is regulated as a precursor to the formation of ozone in the atmosphere and, in 1996, the Granite City Works was in an area designated nonattainment for ozone air quality. (This area is still nonattainment for ozone.) As the Project would become a major modification for NOx with the requested increase in permitted NOx emissions, the Project would also become subject to Prevention of Significant Deterioration or PSD (35 IAC Part 204) for NOx. NOx is also regulated as a precursor to the formation of nitrogen dioxide (NO_2) in the atmosphere and, in 1996, the facility was in an area designated attainment or unclassified for NO_2 air quality. (This area is still attainment or unclassified for NO_2.) However, as related to the NOx emissions of the Project as now requested by the 2022 application, the application does not address the substantive requirements of MSSCAM or PSD for a major modification, much less show that these requirements are fulfilled. The application does not show that for the Project-affected emissions units for which the Lowest Achievable Emission Rate (LAER) and Best Available Control Technology (BACT) should have originally been required for NOx, LAER and BACT are present as required, respectively. by MSSCAM and PSD. For NOx, the application also does not address the requirement of MSSCAM that a major project be accompanied by emission offsets to counterbalance the increase in emissions of the nonattainment pollutant from the project. The application also does not include an analysis for the impact of the project on NO_2 air quality, as required by PSD.

4. *A statement of specific reasons why the Act and the regulations might not be met if a revised permit were granted as requested:* Section 9.1(d) of the Act and the substantive requirements of 35 IAC Part 203 and Part 204 for a major modification (the requirements for LAER, BACT and emission offsets for NOx and an air quality impact analysis for NO_2) would be violated if a revision to Permit 95010001 were issued that increased the permitted NOx emissions of the Project as requested by the 2022 application. This is because the revised NSR applicability analysis for the Project for NOx improperly relies upon decreases in NOx emissions that are neither contemporaneous nor creditable to claim that the Project would continue to not be a major modification for NOx with the increases in permitted NOx emissions that are being requested.

Discussion

Overview

For NOx emissions, the 2022 application for revisions to the Construction Permit 95010001 for the Production Increase Project (Project)[1] does not address or show fulfillment of the substantive requirements of the Prevention of Significant Deterioration (PSD) and Nonattainment New

[1] Permit 95010001 was initially issued in January 1996 for a "Production Increase" at the Granites City Works. It provides for increases in the allowable production rates of iron from 2,372,500 to 3,165,000 tons per year and of steel from 2,774,000 to 3,580,000 tons per year. This permit was preceded by Construction Permit 9209014, a permit for increases in production issued in September 1992. That permit provided for increases in the permitted production rate on a monthly average basis for iron from 5,600 to 6,500 tons per day (equivalent to production of 2,372,500 tons per year) and for steel from 6,900 to 7,600 tons per day (equivalent to production of 2,774,000 tons per year).

Source Review (NaNSR) programs related to impacts on air quality, i.e., air quality analysis for impacts on NO_2 air quality per 35 IAC 204.1130 and emission offsets for NOx per 35 IAC 203.302. For the blast furnaces and blast furnace stoves, i.e., the emission units that underwent physical modifications with the Project, the 2022 application also does not show fulfillment of the BACT and LAER requirements, respectively of PSD (35 IAC 204.1100) and NaNSR (35 IAC 203.301) for NOx emissions.[2, 3] This showing is necessary because Permit 95010001 is currently based on the net increase in NOx emissions from the Project not being significant so that the Project is not a major modification for NOx.[4] The 2022 application requests that the Project be permitted for additional NOx emissions but does not show that the Project would still not be a major modification for NOx if the permit were revised as requested. As the Project would become a major modification for NOx with the requested revisions to Permit 95010001, the 2022 application must show for NOx that the relevant substantive requirements of PSD and NaNSR are fulfilled for the Project. It would not be appropriate for a revised permit to be issued with increases in permitted NOx emissions as requested by the current application if this application does not also show that the applicable substantive requirements of PSD and NaNSR would be met for the Project for NOx.

In this regard, the 2022 application requests that the permitted NOx emissions of the casthouse on the blast furnaces and the basic oxygen furnaces be increased by 19.4 and 220.2 tons/year, respectively, for an overall increase of 239.6 tons/year. (2022 application, Appendix B - Emission Calculations, USS Granite City – 1996 Production Increase Project: Revised NOx PSD Net Emissions Increase Analysis.)[5] The revised netting analysis for the Project for NOx in the 2022 application suggests that this increase would be accompanied by decreases in the NOx emissions of certain other units. With these accompanying decreases, the net increase in NOx emissions from the Project with the requested revised permit would continue to not be significant.[6] The requested increase in the permitted NOx emissions of the blast furnaces and

[2] The basic oxygen furnaces, at which the largest increase in permitted NOx emissions is requested, were not physically modified and would not become subject to requirements for BACT or LAER for NOx even if the Project were a major modification.

[3] The 2022 application also does not include an analysis of alternatives. This analysis would have been required to be included in the original application for the Project if it had been recognized in 1996 that the Project was a major modification for NOx. It is beyond the scope of the revisions of Permit 95010001 that are now requested to address the fact that such an analysis was not originally part of the construction permit application for the Project.

[4] Under the PSD program, the significant emission rate for NOx is 40 tons/year; under NaNSR, since Granite City is not in an area that is classified as serious, severe or extreme nonattainment for ozone air quality, the significant emissions rate for NOx is also 40 tons/year. An increase in NOx emissions or, if the source elects to evaluate the net increase in emissions, a net increase in NOx emissions from a project that is equal to or greater than this rate is considered significant. (35 IAC 204.660 and 35 IAC 203.209.)

[5] In the 2022 application, the increases in the NOx emissions of the blast and basic oxygen furnaces reflect proposed corrections to baseline emissions, as well as increases in the permitted emissions with the project. For the blast furnaces, the application indicates that baseline NOx emissions should be lowered from 15.6 to 4.6 tons/year. For the basic oxygen furnaces, baseline NOx emissions should be raised from 46.94 to 179.8 tons/year. (2022 application, Table 6-5, “Pre-project Actual Emissions and Summary of Proposed Changes to Pre-project NOx Emission Factors for Affected Emissions Units.”)

[6] When a netting analysis that showed a project would not be a major modification is found to have understated emissions of certain new or modified emission units, the next step is usually to examine

basic oxygen furnaces, 239.6 ton/year combined, would not result in the Project becoming a major modification for NOx. For this purpose, the 2022 application indicates that the overall decrease in NOx emissions from Project-affected fuel burning units would now be 250.3 tons/year, comparing their revised baseline NOx emissions of 956.3 tons/year and future NOx emissions of 706 tons/year. (2022 application, Appendix B - Emission Calculations, USS Granite City – 1996 Production Increase Project: Revised NOx PSD Net Emissions Increase Analysis.) However, the 2022 application does not identify the specific decreases in NOx emissions that occurred at different groups of Project-affected fuel burning units. Instead, the 2022 application simply indicates that the future NOx emissions of the Project-affected fuel burning units, overall, would not exceed 706.0 tons/year.

This netting analysis for NOx in the 2022 application cannot be relied upon for issuance of a revised permit for the Project as requested by US Steel. The application does not include relevant information showing that additional decreases in NOx emissions that would now be proposed to be relied upon would be contemporaneous and creditable for permitting of the Project. For emission decreases to be relied on for the purpose of a netting analysis, 35 IAC 204.550 and 203.208 provide that the decreases must be contemporaneous and creditable. This necessitates information for how the additional decreases in NOx emissions addressed in the revised netting analysis for NOx were created and how the amounts of the decrease were quantified. Most significantly, the 2022 application does not show that certain decreases in NOx emissions that it would rely upon should be considered contemporaneous with the Project. A revised permit cannot be issued for the Project that relies upon “post-project” emissions decreases, which occurred after the Project, to show that the Project with the requested increases in NOx emissions of the furnaces, should still not be considered a major modification. This is critical because changes that are unrelated to the Project have occurred at certain fuel burning units after the initial issuance of Permit 95010001. The 2022 application proposes to rely upon the decreases in NOx emissions due to these changes, which decreases were not and could not have been relied upon by the original permit for the Project. These decreases in emissions would be relied upon by the revised netting analysis as the analysis does not account for and exclude the emissions decreases from these changes from the analysis. (In addition, as will be addressed separately below, the 2022 application does not include appropriate support for certain units for the quantification of NOx emissions in the revised netting analysis.)

Application Relies on Emission Decreases That Are Not Contemporaneous

As related to the requirement of the NSR rules that decreases in emissions relied upon for netting be contemporaneous, the 2022 application indicates baseline NOx emissions of 131.8 and 123.2 tons/year from the use of blast furnace gas (BFG) and natural gas, respectively, in Boilers 1

whether the project should still not be considered a major modification. The revised netting analysis for this purpose may consider adjustments such as reductions in the permitted emissions of other new or modified units involved in the project. It may also consider additional emission decreases that were not relied upon by the original netting analysis but could have been as they are contemporaneous and creditable. As this reexamination of a project shows that it still would not be considered a major modification with appropriate adjustments to the netting analysis, an appropriately revised construction permit may be issued that is based on the project continuing to not be a major modification.

through 12. (2022 application, Appendix B - Emission Calculations, USS Granite City – 1996 Production Increase Project: Revised NOx PSD Net Emissions Increase Analysis.) Boilers 1 through 12 are the twelve boilers at the source in 1996 that were addressed by Permit 95010001. Ten of these boilers, Boilers 1 through 10, were shut down in 2009.[7] The 2022 application does not show that NOx emissions of these ten boilers, as existed in the period prior to 2009, were considered in the "future" NOx emissions with the Project of at most 706 tons/year from the Project-affected fuel burning units. In addition, with regard to Boilers 11 and 12, the two remaining old boilers at the source that continue in operation, flue gas recirculation systems have been installed on these boilers pursuant to Construction Permit 10080022, issued in January 2011. These systems were installed to control NOx emissions to facilitate compliance with 35 IAC 217.164. The 2022 application does not show that the revised netting analysis for NOx does not rely on the lower NOx emissions from Boilers 11 and 12 that are now being achieved with the new control systems, rather than their NOx emissions as previously existed with the Project in the period before these control systems were installed.

The application also indicates baseline NOx emissions of 461 tons/year from use of coke oven gas (COG) in the blast furnace stoves and Boilers 11 and 12.[8] In 2015, US Steel shut down the two by-product recovery coke oven batteries at the Granite City Works. COG ceased to be available for use in the stoves or Boilers 11 and 12. However, COG was available for use in the stoves and these boilers in 1996. As related to the Project, the 2022 application does not show that the revised netting analysis for NOx would not rely upon decreases in the NOx emissions of the stoves and boilers due to the elimination of COG, which did not occur until 2015.[9]

---

[7] The shutdown of Boilers 1 through 10 was required by Condition 2.6(a) of Construction Permit 06070023, which was originally issued in January 2008. This permit addresses construction of a cogeneration boiler at the facility that would be designed to produce both high-pressure steam to generate electricity and lower pressure process steam. This boiler has been constructed and is in operation. The permitting of this new boiler relied upon contemporaneous decreases in NOx emissions from several actions, most notably, a decrease of 558.9 tons/year from addition of low NOx burners to four reheat furnaces. The permitting of the new cogeneration boiler also relied on a 33.41 tons/year decrease in NOx emissions from the shutdown of Boilers 1 through 10 as this eliminated use of natural gas by these boilers. The related application for emissions decreases that were contemporaneous with the new boiler did not rely on any decreases in the NOx emissions of these boilers from use of COG and BFG. This is because "…the boilers shutdowns will not result in any change in the amount of BFG and COG combusted at the Facility." (Application 06070022, Section 3.3.1. "Boilers 1 through 10 Shutdown Emission Calculations," p. 3-7.) The reliance of Permit 06070023 on emission decreases from the shutdown of these boilers is a further impediment to reliance on these decreases in a revised netting analysis for the Project.

[8] For Project-affected boilers, the 2022 application indicates that baseline NOx emissions from usage of COG are addressed only for Boilers 11 and 12. (2022 application, Table 6-5, "Pre-project Actual Emissions and Summary of Proposed Changes to Pre-project NOx Emission Factors for Affected Emissions Units.") This is likely erroneous since the application for Permit 06070022 indicates that Boilers 1 through 10 also had the ability to use COG.

[9] The 2022 application does reflect increased use of natural gas by Project-affected fuel burning units. The application explains that with the shutdown of the by-product coke oven batteries, COG is no longer available and more natural gas may need to be used (e.g., 2022 application, Section 6.3, Post-Project NOx Emissions Limitations"). Permit 95010001 currently limits annual use of natural gas by the Project-affected fuel burning units to 1,346 million cubic feet. The revised netting analyses in the 2022

In summary, for purposes of applicability of NSR, the NOx emissions allowed from the Project in 1996 that would be permitted with the requested revisions to the permit could be substantially higher than indicated in the 2022 application.[10] This application does not show that this would not be the case such that the Project would not become a major modification for NOx with the requested increases in the permitted emissions of the blast furnaces and the basic oxygen furnaces. The timing of actions that have resulted in decreases in NOx emissions of fuel burning units after 1996 is critical when considering applicability of NSR to the Project with the requested revisions to Permit 95010001. As the decreases in NOx emissions from certain actions cannot be considered or would be smaller, the net increase in NOx emissions of the Project would be greater. In this regard, it must be assumed that the "future NOx emissions" indicated in the 2022 application reflect maximum actual NOx emissions beginning in 2023, with the requested revisions to Permit 95010001. The application does not suggest that these future NOx emissions are the emissions that should have been allowed by the permit back in 1996 when the permit was issued and the Project commenced.[11]

---

application are based on a post-project annual natural gas usage of up to 1,980 million cubic feet (e.g., Tables 5-7, 6-6 and 7-3).

The decreases in NOx emissions that resulted from the shutdown of the coke oven batteries and elimination of COG in 2015 are contemporaneous with any increases in NOx emissions due to the accompanying use of more natural gas. However, these emissions decreases are not contemporaneous relative to the Project, which was undertaken in 1996. In addition, an application for revisions to Permit 95010001 is not an appropriate venue to address the use of more natural gas due to the shutdown of the coke oven batteries. The Project involved increases in production of iron and steel. The Project-affected fuel burning units do not include four slab furnaces that also used COG and now must use more natural gas. Lastly, the consequences of the shutdown of the coke oven batteries on the facility's NOx emissions, including the consequences for the slab reheat furnaces, are the subject of a separate construction permit application, Application 15030001, received March 5, 2015, which application is still pending.

[10] It should be noted that for purposes of applicability of NSR, for the same reasons that the 2022 application understates the net increase in emissions of NOx from Project-affected fuel burning units, the application also understates the increases or net increases in emissions of the Project for purposes of NSR for particulate matter (PM), particulate matter$_{10}$ (PM_{10}) and volatile organic material (VOM), i.e., pollutants other than NOx for which the requested revised permit for the Project would rely upon the increase or net increase in emissions not being significant.

[11] With the requested revisions of Permit 95010001, it is unclear how the "future NOx emissions" of fuel burning units indicated in the 2022 application are NOx emissions that could have been allowed by this permit in 1996. The future NOx emissions of affected fuel burning units indicated in the 2022 application are less than the baseline NOx emissions, i.e., proposed future emissions of 706 tons/year compared to the claimed baseline of 956 tons/year. However, the Project did not include any elements that would lower the NOx emissions of fuel burning units. Rather, the production of more iron and steel would be accompanied by increased utilization of the blast furnace stoves and boilers as more blast air and steam are generally needed for blast furnaces to produce more iron. Accordingly, in 1996, the NOx emissions of fuel burning units allowed by Permit 95010001 must necessarily be more than the baseline emissions, as this permit addresses a project that involves use of more BFG and natural gas by Project-affected fuel burning units. (Use of COG was not expected to be affected by the Project because production of COG was constrained by the design and operation of the existing coke oven batteries, which were not being modified as part of the Project.)

Indeed, the future NOx emissions of the fuel burning units for purposes of any revised netting analysis should be expected to be substantially greater than their baseline emissions. If one assumes that the increases in emissions would be proportional to the permitted increase in iron production, future NOx emissions of the fuel burning units would be expected to increase by roughly 40 percent. If the baseline

2. THE DETERMINATION OF BASELINE NOx EMISSIONS IN THE REVISED NETTING ANALYSIS CANNOT BE INDEPENDENTLY CONFIRMED

Overview of This Denial Point, with Information As Required or Specified by Section 39(a) of the Act for Denial of a Permit

1. *The Sections of the Act which may be violated if a revised permit were granted as requested:* Sections 9(a), 9.1(d) and 39(a)*.

2. *The provision of the regulations under the Act which may be violated if the revised permit were granted as requested:* 35 IAC 201.152**, 201.152*** and 201.160(a).

3. *The specific type of information, if any, which the Agency deems the applicant did not provide the Agency:* The 2022 application does not include data and information supporting the determinations of baseline NOx emissions for certain emissions units in the revised NSR applicability analysis for NOx. In this regard, it is noteworthy that the revised NSR applicability analysis does more than seek increases in permitted NOx emissions of the blast furnace casthouse and BOFs to correct errors in the original application for the Production Increase Project. As explained in the discussion below, the revised NSR applicability analysis now also addresses NOx emissions from burning coke oven gas (COG) in Project-affected units, which the Illinois EPA did not require be addressed in 1996. For the continuous casting operations, the analysis also takes a different approach to use of natural gas and associated NOx emissions. Lastly, the analysis does not reflect a reevaluation of the NOx emission factor used for ladle preheaters. For these units, an emissions factor for use of natural gas in boilers, which likely is not appropriate for the simpler burner systems in preheaters, continues to be used.

4. *A statement of specific reasons why the Act and the regulations might not be met if a revised permit were granted as requested:* As there are deficiencies in the data and information that is provided in the 2022 application for the baseline NOx emissions of fuel burning units, the revised NSR applicability analysis cannot be relied upon. Separate from Denial Point 1 concerning reliance on NOx emission decreases that are not contemporaneous and creditable, deficiencies in the emission data presented in this analysis are also a reason why this analysis cannot serve as proof that the Production Increase Project would not become a major modification for NOx under NSR with the increases in permitted NOx emissions that are now being requested. Likely or possible deficiencies in the emission data in the revised NSR applicability analysis for NOx in the application need to be resolved or corrected before any revised version of Permit 95010001 is issued that would be based upon a revised NSR applicability analysis for the Project.

---

emissions of these units should have been 956 tons/year, as indicated in the 2022 application, this suggests future emissions of these units with the Project should be about 1,340 tons/year (956 tons/year x 1.4 = 1,338 ~ 1,340 tons/year). Alternatively, absent any decreases in NOx emissions from the twelve boilers and the discontinuation of COG, and disregarding increased use of natural gas in place of COG, the NOx emissions from the Project-affected fuel burning units for purposes of NSR applicability, as of 1996, would be on the order of 1,420 tons/year (Proposed future emissions of 706 tons/year + 131.8 tons/year attributable to use of BFG by the boilers + 123.2 tons/year attributable to use of natural gas by the boilers + 461 tons/year from the discontinuation of the use of COG in the stoves and Boilers 11 and 12 ~ 1,420 tons/year). If so, the calculated change in NOx emissions from Project-affected fuel burning units for purposes of NSR applicability would be a net increase on the order of 460 tons/year (1,420 – 956 = 464), rather than a net decrease of about 250 tons/year.

Discussion

The new determination of baseline NOx emissions of Project-affected fuel burning units provided in the revised netting analysis cannot be independently confirmed. In this regard, the 2022 application does not show that all Project-affected fuel burning units have been addressed. For units that are addressed, the application does not show that appropriate emission factors and operating data have been used to estimate emissions. As specific concerns exist with the determination of baseline NOx emissions for certain emission units, as discussed below, concerns exist with the determination of the overall baseline NOx emissions for the Project.

Baseline Usage of Coke Oven Gas (COG)

As already discussed, the use of coke oven gas (COG) in Project-affected fuel burning units is introduced in the 2022 application for revisions to Permit 95010001.[12] This application does not include supporting documentation or explanation for the baseline usage of COG utilized in the revised netting analysis. The annual usage of COG in the blast furnace stoves (374 million cubic feet/year) and in boilers (2,211 million cubic feet/year) is simply presented in the revised netting analysis for NOx. (2022 application, Appendix B - Emission Calculations, USS Granite City - 1996 Production Increase Project: Revised NOx PSD Net Emissions Increase Analysis). The indicated usages of COG are not accompanied by any documentation or explanation.

Emission Factor for Use of COG in Boilers 11 and 12:

For COG, the 2022 application utilizes a NOx emission factor for Boilers 11 and 12[13] of 404 pounds/million cubic feet of COG.[14] The application states that this factor is based on emission testing conducted on the stack of A Coke Battery (2022 application, Table 6-4. "NOx Emission Factors for Fuel Burning"). The application does not show that it is appropriate to utilize an

[12] It should be noted that the introduction in the revised netting analysis for the Project of NOx emissions from use of COG in Project-affected fuel burning units is not acknowledged in the section of the 2022 application in which historical production and operating rates are discussed. Section 6.2.1 of the application, "Historical Throughput Rates," states that "The pre-project actual emissions were calculated using the same production and operating rates as the 1995 Application shown in Table 6-3 [Pre-Project Production and Operating Rates for NOx]." This statement is clearly not accurate as the usage of and NOx emissions from COG were not quantified in the 1995 application. Moreover, Table 6-3 does not include information for the historical or baseline usage of COG.

[13] In the 2022 application, there is an inconsistency in the information for the baseline NOx emissions of boilers. In Table 6-5, "Pre-project Actual Emissions and Summary of Changes to Pre-Project NOx Emissions Factors for Affected Emissions Units," baseline NOx emissions of Boilers 1 through 10 do not appear to be addressed since this table shows that baseline emissions are provided for B11 and B12 (Boilers 11 and 12). In Appendix B, USS Granite City – 1996 Production Increase Project: Revised NOx PSD Net Emissions Increase Analysis, baseline NOx emissions appear to be provided for all boilers, as information is shown as being for "boilers."

[14] For the stoves, the revised netting analysis utilizes a lower NOx emission factor of 80 pounds/million cubic feet of COG. The application states that this factor is based on an emission test for which the date is unknown (2022 application, Table 6-4, p. 6-3). As this factor is identical to the NOx emission factor in USEPA's WebFIRE database for burning COG in industrial boilers, this factor can be considered appropriate. (USEPA, Clearinghouse for Inventories & Emission Factors, Emission Factors & AP42, WebFIRE, with search conducted using the term "coke oven gas" in the field under Select options under Source Classification Code. .

emission factor developed from the results of emission testing on the combustion stack of a coke oven battery to calculate emissions of a boiler. There are significant differences between combustion of COG as occurs at coke ovens and combustion of fuel in a boiler. At a fundamental level, a combustion stack emits the products of combustion from the heating of coke ovens to the high temperature needed to convert coal into coke. Regenerative heat exchangers are utilized to efficiently achieve this temperature. Boilers 11 and 12 emit the products of combustion from burning fuel to achieve the temperature needed convert water into process steam.[15]

Emission Factor for Use of Natural Gas in Ladle Preheaters:

For use of natural gas, the 2022 application utilizes a single emission factor for NOx emissions from all Project-affected fuel burning units. This factor, 306 pounds/million cubic feet of natural gas reflects the results of emission testing conducted on Boiler 12 when using natural gas. The application does not show that it is appropriate to utilize this emissions factor for ladle preheaters, which are different types of emissions units than boilers. Moreover, the revised netting analysis for NOx in the application erroneously indicates that the estimated baseline NOx emissions of ladle preheaters were "Revised to use current AP-42 emission factor." (2022 application, Appendix B, Emission Calculations, USS Granite City – 1996 Production Increase Project: Revised NOx PSD Net Emissions Increase Analysis.) The current AP-42 NOx emission factor for small boilers (<100 million Btu/hour heat input) without low NOx burners or flue gas recirculation is only 100 pounds/million cubic feet of natural gas. (USEPA, *Compilation of Air Pollutant Emission Factors*, AP-42, Table 1.4-1.)

Emissions from Use of Natural Gas on the Continuous Casting Lines:

Unlike the original application, the 2022 application does not directly address NOx emissions associated with use of natural gas in continuous casting operations.[16] In this regard, this application states:

> The pre-project actual emissions for the Continuous Caster Mold – Caster #1 and Caster 2 process, as presented by National Steel Corporation in the 1995 Application listed NOx emissions from this operation. USS Granite City evaluated this analysis and determined that there is no NOx formation from this operation. Any NOx emissions from this operation are due to combustion of natural gas and are already accounted for under the gaseous fuel burning activities listed above [Section 6.2.2.1, Fuel Burning Emissions Units

[15] Application 15030001, the pending application for a construction permit for use of more natural gas with the shutdown of the by-product coke oven batteries, utilizes an emission factor for use of COG of 80 pounds/million cubic feet for baseline NOx emissions of Boiler 12. This is the NOx emission factor in FIRE for use of COG in boilers. This factor is much lower than 404 pounds/million cubic feet, the factor for COG used in the 2022 application for the baseline emissions of Boilers 11 and 12.

It should be noted that Application 15030001 does not include a NOx emission factor for Boiler 11 for COG. This is likely because Boiler 11 did not use COG in the baseline period used for Boilers 11 and 12 (January 2013 through December 2014) for the net increase analysis in this application.

[16] As reflected in Permit 95010001, the original permitting of the Project accounted for NOx emissions of 89.5 tons/year from Caster Molds – Casting but did not account for any NOx emissions from Slab Cut-Off and Slab Ripping, for which only particulate emissions were addressed.

Emissions (Revised)]. Therefore, in the revised analysis, NOx emissions are not included from this operation.

2022 application, Section 6.2.2.7, "Continuous Caster Mold Process Emissions (Revised)."

This is problematic for several reasons. First, the 2022 application does not address the NOx emissions of the natural gas-oxygen torches used in the slab cutting and slab ripping processes, which are part of the continuous casting lines.[17] Second, as the application indicates that NOx emissions are present from the mold processes on the casting lines, the application does not show that the same NOx emission factor is appropriate for this use of natural gas as utilized for ladle preheaters or, alternatively, separately account for the NOx emissions from use of natural gas in the casting process. Lastly, the 2022 application does not identify either the caster processes or the torches as units whose use of natural gas and resulting NOx emissions would be addressed with the emissions of other Project-affected fuel burning units (e.g., 2022 application, Table 6-5, "Pre-project Actual Emissions and Summary of Proposed Changes to Pre-project NOx Emission Factors for Affected Emissions Units").

[17] Alternatively, if NOx is not formed by the torches given they are supplied with oxygen, the application does not confirm that usage of natural gas by the torches was not considered when the baseline NOx emissions from use of natural gas in Project-affected fuel burning units were determined.

3. THE APPLICATION LACKS INFORMATION FOR THE ACTUAL NOx EMISSIONS OF PROJECT-AFFECTED FUEL BURNING UNITS (LACK OF INFORMATION RELEVANT TO NETTING)

Overview of This Denial Point, with Information As Required or Specified by Section 39(a) of the Act for Denial of a Permit

1. *The Sections of the Act which may be violated if a revised permit were granted as requested:* Sections 9(a), 9.1(d), 39(a)*, 39(a)** and 39(a)***.

2. *The provision of the regulations under the Act which may be violated if the revised permit were granted as requested:* 35 IAC 201.152***, 201.160(a), 203.123, 203.128, 203.208*, 204.400, 204.550* and 204.560.

3. *The specific type of information, if any, which the Agency deems the applicant did not provide the Agency:* The revised Netting Analysis for NOx in the 2022 application does not show that the value for the maximum future NOx emissions from certain fuel burning units, 706 tons/year, in aggregate, is appropriate for purposes of NSR. That is, the 2022 application does not show that 706 tons/year represents the post-project NOx emissions of these units as could have been addressed when Permit 95010001 was originally issued in 1996 if emissions from burning of COG in these units when operating at the levels of iron and steel production that were permitted had been considered. The 2022 application also does not show that the actual NOx emissions of the subject units in the period from 1996 to the present have not exceeded 706 tons/year. In other words, the application does not show that a value for future NOx emissions of the subject units of 706 tons/year does not really represent "future" emissions beginning at the present time. Otherwise, the value for future NOx emissions in the application improperly takes credit for reductions in the NOx emissions of the Production Increase Project (Project) that were not originally part of the Project. When the Project was initially issued in 1996, the NOx emissions from use of blast furnace gas (BFG) and natural gas in 12 boilers at the Granite City Works was addressed. When revaluating applicability of NSR for the Project for NOx with the increases in permitted emissions requested by the application, it is not appropriate to only address the potential NOx emissions of the two boilers that now remain. Although the other ten boilers are now shutdown, they were operating and emitted NOx in 1996. Similarly, in 1996, coke oven gas (COG) was used as a fuel and burned at the facility. With the shutdown of the two by-product recovery coke oven batteries at the facility, COG is no longer being produced. The NOx emissions of the fuel-burning units that formerly burned COG are now lower than they were in 1996 since natural gas is used to make up for the heat input to the units previously provided by COG. (Compared in terms of pounds of NOx per million Btu of fuel heat input, the NOx emissions from use of natural gas as a fuel are generally lower than those from use of COG.) However, when revaluating applicability of NSR for the Project for NOx with the increases in permitted emissions now requested, it is not appropriate to evaluate the NOx emissions of the units that formerly used COG as they now exist and to ignore the fact that in 1996 these units did use COG and their potential NOx emissions were higher. Again, as touched on in Denial Point 1, the difficulty is not that the future NOx emissions of the subject units may be lower compared to

what may have been possible for their permitted NOx emissions in 1996. The difficulty is that the revised NSR applicability analysis for NOx in the 2022 application attempts to rely on this "post-project" reduction in the NOx emissions of these units to make up for the increases in permitted NOx emissions of the blast furnace casthouse and BOFs that are requested.

4. *A statement of specific reasons why the Act and the regulations might not be met if a revised permit were granted as requested:* It would be improper for the Illinois EPA to issue a revision to Permit 95010001 that is based on the NSR applicability analysis for NOx in the 2022 application that is not consistent with the provisions of the NSR rules governing such analyses. This would be the case if the value/proposed limitation for maximum future NOx emissions of the subject units in the application was relied upon for issuance of a revision to Permit 95010001 and this value/proposed limitation does not reflect the potential emissions from the subject units with the Project, as required by 35 IAC 203.208 and 204.550 In other words, it would be improper for a revised permit to be issued that reflects current circumstances for the subject units if this reflects NOx emissions that are lower than could have properly been allowed in 1996.

Discussion

The 2022 application does not include a demonstration that the actual NOx emissions of Project-affected fuel burning units would not have exceeded the "future amount" or post-project emissions indicated in the revised netting analysis for the Project for NOx since Construction Permit 95010001 was issued if the production of iron and steel by the source was at the levels allowed by this permit.

3A. THE APPLICATION LACKS INFORMATION FOR THE ACTUAL NOx EMISSIONS OF PROJECT-AFFECTED FUEL BURNING UNITS (LACK OF SUPPORTING INFORMATION)

Overview of This Denial Point, with Information As Required or Specified by Section 39(a) of the Act for Denial of a Permit

!. *The Sections of the Act which may be violated if a revised permit were granted as requested:* Sections 9(a), 9.1(d), 39(a)* and 39(a)**.

2. *The provision of the regulations under the Act which may be violated if the revised permit were granted as requested:* 35 IAC 201.152*, *201.152****,35 IAC 201.160(a), 203.123, 203.128, 204.400 and 204.560.

3. *The specific type of information, if any, which the Agency deems the applicant did not provide the Agency:* The amount in the 2022 application for the maximum future NOx emissions from certain fuel burning units, 706 tons/year, in aggregate, is not accompanied by supporting information but is simply presented. The application does not explicitly list the various units whose NOx emissions are being addressed and describe the nature of the various units relative to the emissions of NOx from burning fuel in the units. Data is not provided for the maximum annual amounts of fuels burned in these units. Data is also not provided for the emission factors used to calculate annual emissions, the sources or basis of those factors, and why those factors should be considered representative of the NOx emissions of the various types of units that are being addressed.

4. *A statement of specific reasons why the Act and the regulations might not be met if a revised permit were granted as requested:* Absent information as described above, the 2022 application does not include information that is necessary to allow the Illinois EPA to rely upon the future maximum NOx emissions of the subject units, presumably the fuel burning units affected by the Production Increase Project, being no more than the stated amount, or issue a revised permit that limits NOx emissions to the stated amount. The missing information is needed so that the Illinois EPA and other interested parties can independently review the methods, data and calculations by which the representation in the 2022 application for maximum future NOx emissions of the subject units was determined. This information is also necessary if the Illinois EPA is to place appropriate conditions in a revised permit requiring US Steel to track the NOx emissions of the subject units, so as to verify that that the future NOx emissions do not exceed the amount stated in the application or other appropriate amount. In this regard, it is significant that the emissions of many of the Project-affected fuel burning units at the facility, i.e., the blast furnace stoves, the BFG gas flares, and various process heaters, cannot be directly determined because these units are not amenable to emission testing.
Note that this denial point addresses the lack of supporting information for the maximum future NOx emissions of the subject units that is stated in the 2022 application. Denial Point 3, above,

addresses the time period that should be reflected in the determination of maximum future emissions for purposes of evaluating applicability of NSR.

(A further discussion is not provided for this denial point, as it was not present in the Initial Draft Denial Letter. Following the close of the public comment period on the Initial Draft Denial Letter, the Illinois EPA realized that the 2022 application is also deficient as the value it provides for future NOx emissions of Project-affected fuel burning units is not accompanied by supporting information.)

4. FOR THE BASIC OXYGEN FURNACES, THE 2022 APPLICATION DOES NOT ADDRESS THE POTENTIAL FOR UNCAPTURED EMISSIONS OF NOx, VOLATILE ORGANIC MATERIAL (VOM) AND CARBON MONOXIDE (CO) THROUGH THE ROOF MONITOR FOR THESE FURNACES

Overview of This Denial Point, with Information As Required or Specified by Section 39(a) of the Act for Denial of a Permit

1. *The Sections of the Act which may be violated if a revised permit were granted as requested:* Sections 9(a), 9.1(d), 39(a)* 39(a)**.

2. *The provision of the regulations under the Act which may be violated if the revised permit were granted as requested:* 35 IAC 201.152*** and 201.160(a).

3. *The specific type of information, if any, which the Agency deems the applicant did not provide the Agency:* The 2022 application does not include information for the uncaptured emissions of NOx, volatile organic material (VOM)_ and carbon monoxide (CO) for the BOFs that occur through the roof monitor on the BOF shop, i.e., the building in which the BOFs are located. The existences of emissions of NOx, VOM and CO from the BOFs is well-established from testing of the stacks of the control systems for the particulate emissions of the BOFs. This testing shows emissions now occur through both the older ESP control system for the BOFs and the baghouse that was installed within the last ten years to improve control of particulate emissions from charging and tapping of the BOFs. These control systems may capture most of the emissions of the BOFs, achieving overall capture efficiencies that engineering design suggests may approach 100 percent. However, the 2022 application does not contain technical or engineering information showing that all emissions of the BOFs are now being captured and no emissions occur through the roof monitor or other openings in the BOF shop. Complete capture of the emissions of the BOF is also not required by applicable regulations. For example, under the National Emission Standards for Hazardous Air Pollutants for Integrated Iron and Steel Manufacturing Facilities ("Iron and Steel NESHAP" or "NESHAP"), 40 CFR 63 Subpart FFFFF, Table 1, the opacity of emissions from the roof monitor and other openings in the BOF shop at the facility is only limited to no more than 20 percent, on a 3-minute average.

4. *A statement of specific reasons why the Act and the regulations might not be met if a revised permit were granted as requested:* Absent information addressing uncaptured emissions of NOx, VOM and CO from the BOFs, the 2022 application would not provide complete information about the emissions of the BOFs. For NOx, absent information for these uncaptured emissions, if US Steel were to submit a corrected, revised NSR applicability analysis to show that the Project would not be a major modification for NOx with increases in permitted emissions as requested, that analysis would not be complete. For VOM, for which the 2022 application also requests an increase in permitted emissions, the revised NSR applicability analysis to support such a revision is not complete. For CO, for which revisions to the PSD approval provided by Permit 95010001 are requested for emission units other than the BOFs, the updated air quality impact analysis for

CO required under the PSD rules would not reflect a complete emissions inventory for the existing sources of CO emissions at the Granite City Works.

Discussion

For the basic oxygen furnaces, consistent with the original permitting of the Project, the 2022 application only quantifies stack emissions of NOx, VOM and CO. For these furnaces, the application does not address uncaptured emissions of these pollutants. (For these furnaces, the 2022 application does address uncaptured emissions of particulate and lead[18] for which Permit 95010001 limits emissions of these pollutants from the "BOF [Basic Oxygen Furnace] Roof Monitor," (Permit 95010001, Condition 18 and Table 2, Item 2)).

The revised netting analyses for NOx and VOM in the 2022 application assume that all emissions of these pollutants from the basic oxygen furnaces are now captured. That is, with the installation of the new baghouse control system on the furnaces to improve control of particulate emissions from the charging and tapping processes, all NOx and VOM emissions of these furnaces that originally were not captured and were emitted through the roof monitor now are captured and are emitted through the stack on the baghouse system. For example, as related to emissions of NOx, the application explains,[19, 20]

> At the time of the 1995 Application, the BOF Shop did not include a baghouse to capture secondary emissions. Secondary emissions were released to the atmosphere through the BOF Shop roof monitor. No information was available at the time about the NOx emissions from the BOF Shop roof monitor. Since then, the BOF Shop includes a capture system for secondary emissions that are routed to a baghouse. NOx emissions testing for the BOF Shop

[18] The uncaptured lead emissions of the basic oxygen furnaces are summarily addressed by the 2022 application. In Section 2.2, this application states that changes to the current limits for lead emissions set by Permit 95010001 are not requested. As such, this application acknowledges the current limits for lead emissions in Permit 95010001, including the limits for uncaptured emissions from these furnaces that are emitted through the roof monitor (Permit 95010001 Condition 18 and Table 2, Item 2). Revisions to these limits are not requested.

[19] The 2022 application addresses uncaptured emission of VOM of the basic oxygen furnaces in a similar manner in Part 7 of the application. Refer to the second Section 7.2.2.1 in the application on p. 6-4, "BOF Baghouse – Secondary Emissions (New)."

[20] As reflected in this excerpt, the 2022 application refers to the NOx and VOM emissions of the baghouse system as "secondary emissions." This is inconsistent with the meaning of this term under the NESHAP for Integrated Iron and Steel Manufacturing Facilities, 40 CFR 63 Subpart FFFFF, which only restricts this term to emissions of particulate matter. It is also misleading as it does not distinguish between captured and uncaptured emissions and suggests that capture of these emissions with a baghouse is sufficient to eliminate concerns for the existence of uncaptured emissions.

In this regard, as defined at 40 CFR 63.7852, "*Secondary emissions* mean **particulate matter** emissions (emphasis added) that are not controlled by a primary emissions control system, including emissions that escape from open and closed hoods, lance hole openings, and gaps or tears in the primary emission control system." For secondary emissions, 40 CFR 63 Subpart FFFFF recognizes the existence of both captured or stack emissions and uncaptured emissions, as would occur through a roof monitor. For basic oxygen furnaces, as well as setting emission limits for particulate emissions from primary control systems, this NESHAP also sets separate emission limits for 1) the particulate matter emissions from a control device used for the collection of secondary emissions, and 2) the opacity of secondary emissions that exit any opening in the furnace shop or other building housing a basic oxygen furnace.

> baghouse completed in the 2019-2020 time frame shows an average NOx rate of 0.0075 lb/ton for the BOF Shop Baghouse Stack. USS Granite City added the BOF Shop secondary NOx emission baseline based on the result of the stack test for the BOF Shop Baghouse stack.
>
> 2022 application, Section 6.2.2.6. "BOF Baghouse – Secondary Emissions (New)."

This assumption made by the 2022 application for uncaptured emissions of NOx and VOM of the basic oxygen furnaces, i.e., that all emissions that were formerly uncaptured are now emitted through the baghouse system, is not appropriate. At a fundamental level, the application does not include any support for this assumption. A rigorous analysis for and quantification of the uncaptured emissions of NOx and VOM from these furnaces is warranted as these emissions were overlooked in the original permitting for the Project.[21]

Then, the data for NOx and VOM emissions from the baghouse stack, which is now available from testing of the baghouse, does not support this assumption and, if anything, shows that this assumption is unsound. This is because this testing does not address the level of capture being achieved by the baghouse system. Rather it shows that there are emissions of these pollutants from charging and tapping and, as such, data for the uncaptured emissions of these pollutants is also appropriate. In this regard, the results of emission testing for the NOx and VOM emissions from the new baghouse system on these furnaces, as cited by the application, indicate more than negligible levels of emissions. (2022 application, Appendix B – Emission Calculations, USS Granite City – 1996 Production Increase Project: Revised NOx PSD Net Emissions Increase

[21] In the original permitting of the Project, the uncaptured emissions of NOx and VOM from the basic oxygen furnaces appear to have been considered negligible. This was likely because the emissions of NOx and VOM of the furnaces were all attributed to the refining process, rather than to charging and tapping. During the refining step in a basic oxygen furnace, oxygen is injected into the molten iron charged to a furnace, which removes carbon from the iron by oxidation, converting the iron into steel. The oxidation of the carbon also provides heat to facilitate the melting of the scrap metal that is also charged to the furnace, so molten metal in the appropriate temperature range can be tapped from the furnace.

In 1996, the basic oxygen furnaces were only controlled by the electrostatic precipitator (ESP) system. While the ESP system only reduces or controls emissions of particulate and not emissions of NOx or VOM, the ESP system does capture NOx and VOM from these furnaces. As the capture efficiency for particulate emissions from refining is assumed to be at least 99.9 percent, it was also reasonable to assume that the ESP system also would achieve at least 99 percent capture for NOx and VOM. With these assumptions, i.e., that NOx and VOM are only generated during the refining step and at least 99.9 percent capture of these emissions is achieved by the ESP system, given the limits on emissions of NOx and VOM from the stack of the ESP set by Permit 95010001, i.e., 69.63 and 10.74 tons/year, respectively, the uncaptured emissions of NOx and VOM from these furnaces would have been projected to be no more than 0.07 and 0.01 tons/year, respectively,. (For example, for NOx, 69.63 tons/year ÷ (99.9 ÷ 100.0) x (100.0 – 99.9) ÷ 100.0 = 0.07 tons/year.) For purposes of determining applicability of NSR to the Project. the increases in NOx and VOM emissions of the furnaces with the Project would be less because these calculations for uncaptured emissions address all emissions of the furnaces, both baseline emissions and the increases in emissions from the Project.

Even with the correction to the emission data for the basic oxygen furnaces indicated in the 2022 application, <u>if</u> all NOx and VOM emissions of these furnaces were actually attributable to the refining step, uncaptured NOx and VOM emissions would still be very small. For example, the potential NOx emissions from the stack of the ESP are now shown to be 380.0 tons/year. With capture of at least 99.9 percent of the NOx by the ESP system, the potential uncaptured NOx emissions from these furnaces would still only be an additional 0.38 tons/year.

Analysis and Revised VOM PSD Net Emissions Increase Analysis.) For NOx, the application indicates baseline captured emissions of 179.8 tons/year, of which, based on the measured emissions from the new baghouse system, as much as 5.1 percent, i.e., 9.1 tons/year, would have been uncaptured in 1996; captured VOM emissions are 26.6 tons/year, of which as much as 15.8 percent, i.e., 4.2 tons/year, would have been uncaptured emissions in 1996. However, instead of assuming that all NOx and VOM emissions are now captured, it would not be unreasonable to assume that the new baghouse system improved capture of the emissions from charging and tapping such that the levels of captured emissions from the baghouse stack and the uncaptured emissions through the roof monitor are now identical.[22, 23]

Finally, the assumption that all NOx and VOM emissions of these furnaces is now captured is inconsistent with the approach taken in the 2022 application to the particulate and lead emissions of these furnaces, for which it is assumed that there are uncaptured emissions that still occur through the roof monitor. In particular, the 2022 application requests that the revised permit establish prescribed emission factors for the particulate emissions of the basic oxygen furnaces

[22] It is reasonable to assume that the new baghouse that was installed to improve control of particulate emissions from charging and tapping of the basic oxygen furnaces reduced these emissions to less than half of their previous amounts. For example, the nominal control efficiency for charging and tapping went from 95 percent with only the ESP control system to 97.5 percent with the addition of the baghouse system. With this assumption, the potential NOx and VOM emissions from the baghouse stack from charging and tapping would be estimated to be about the same as the potential uncaptured emissions from charging and tapping that still occur through the roof monitor, with both being about 2.5 percent of the total emissions from the furnaces. The remainder of the NOx and VOM emissions from charging and tapping continue to occur through the ESP stack (95 percent of the total emissions of the furnaces).

[23] With this assumption, the potential NOx emissions of the basic oxygen furnaces with the Project would become 420.4 tons/year, rather than 400.0 tons/year (400.0 tons/year x (100% + 5.1%) ÷ 100% = 420.4 tons/year. The potential VOM emissions of these furnaces with the Project would become 52.1 tons/year, rather than 45.0 tons/year (45.0 tons/year x (100% + 15.8%) ÷ 100% = 52.1 tons/year.

that occur through the roof monitor.[24] For example, for pre-project actual emissions of the roof monitor, Section 5.2.2.7 of the application explains the following, [25]

> Prescribed emissions factors consistent with the approach described in Section 3 [Discussion of Permit Conditions Used to Restrict PTE] are provided herein. USS Granite City is proposing prescribed emission factors for the BOF Shop Roof Monitor for which emissions testing is not feasible.[Footnote 33] For BOF Roof Shop Monitor, use PM emissions factor of 0.0296 lb/ton and filterable PM_{10} emission factor of 0.0198 lb/ton.
>
> Footnote 33: PM and PM_{10} emissions factors are appropriately determined from the results of emission testing per 40 CFR 63 Subpart FFFFF to determine PM and PM_{10} emission rates for the BOF ESP and baghouse, Desulf/Soda Ash and Hot Metal Charging Baghouse, Slag Skimming Baghouse, and Baghouse 2 for Argon Stirring and Ladle Metallurgy.
>
> 2022 application, Section 5.5.2.2. "Prescribed Emission Factors for Certain BOF Shop Operations."

[24] The 2022 application requests that Permit 95010001 be revised to set "prescribed emission factors" for the emissions of certain emissions units or their uncaptured emissions (e.g., the uncaptured particulate emissions of the basic oxygen furnaces, which are also referred to as the emissions through the roof monitor of the basic oxygen furnace shop). For those units or emission points, the prescribed emission factors would effectively replace the provisions currently in Permit 95010001 that address emissions in pounds/ton of input or production or in pounds/hour. For convenience, these provisions in the permit are generally referred to as "emission factor limits." The usage of this term extends to the provisions of the permit that address emission of lead that are in pounds per hour. In this regard, in Permit 95010001, Table 2, these limits for lead emissions are listed under the heading of "Emission Factor," along with the limits in pounds per ton of production for emissions of other pollutants.

Unlike the emission factor limits currently in Permit 95010001, which the Illinois EPA considers to be directly enforceable against US Steel, prescribed emissions factors that would be established in a revision to Permit 95010001 would not be enforceable. Instead, prescribed emission factors would be specific values for emission rates that US Steel would have to use for normal operation when determining compliance with the limits on annual emissions set by the revised permit. The appropriateness of the various prescribed emissions factors that are selected would be a matter that would be considered during the processing of the revisions to Permit 95010001. Given the role of prescribed emission factors in determining compliance with annual emission limits set by the permit, it is expected that prescribed emission factors would only be set for units for which emissions testing is not feasible or is not warranted given the low levels of annual emissions predicted by engineering analysis and calculations. It is also expected that, as it is practical to do so, prescribed emission factors would be conservative, reflecting the maximum rates of emissions that could occur during the routine, compliant operation of emissions units.

[25] For pre-project actual emissions of particulate matter of the basic oxygen furnace through the roof monitor, Section 5.2.2.7 of the 2022 application explains the following,

> The BOF roof monitor actual emissions were calculated using the information from AP-42 Chapter 12.5 and AIRS (Aerometric Information Retrieval System) database. For pre-change actual PM and PM_{10} emissions, National Steel used 90% capture efficiency during the charging and tapping steps and 99% capture efficiency during the refining step for BOP operations. A detailed description of the baseline roof monitor PM and PM_{10} emission factors is provided in Appendix C of the 1995 Application. For the BOF operations, per particle size distribution in AP-42 Table 12.5-2, 67% of PM is PM_{10}. No changes are necessary for this emission factor.
>
> 2022 application, Section 5.2.7.7, BOF Roof Monitor Emissions (No Change)

The fact that there are emissions of NOx and VOM from the basic oxygen furnaces that now occur from the stack of the new baghouse system but were previously not captured and were not originally quantified raises concern that similar circumstances are present for emissions of CO. [26] In this regard, the 2022 application requests various revisions to Permit 95010001 to correct issues that are posed for the original permitting of the Project with respect to CO emissions, but the application does not propose any such revisions for the basic oxygen furnaces or explain why such revisions are not needed.[27]

[26] For the basic oxygen furnaces, uncaptured emissions of CO should generally be expected to be much greater than the uncaptured emissions of NOx or VOM because the permitted stack emissions of CO of these furnaces are much greater. In this regard, Permit 95010001 limits the CO emissions from the stack of the ESP system for these furnaces to 16,097 tons/year. (The 2022 application does not request an increase in this limit.) If only 99.9 percent capture of CO is assumed by the ESP system, the potential uncaptured CO emissions of these furnaces would be 16.1 tons/year. (16,097 tons/year ÷ {99.9 ÷ 100.0} x {100.0 – 99.9} ÷ 100.0 = 16.1 tons/year CO.) Of course, the capture efficiency of the ESP system for CO could be higher than the efficiency for NOx or VOM if CO is only formed during the refining step when oxygen is actually being injected into the furnace and not during the entire refining step. However, one approach to the revision of Permit 95010001 would be to conservatively assume that the capture efficiency of the ESP system for CO is the same as its capture efficiency for particulate.

[27] The application also does not suggest that it would be inappropriate for any revised permit to simply limit the stack emissions of CO from the basic oxygen furnaces, addressing the combined stack emissions of the ESP and the new baghouse, to the current limits for the CO emissions of the furnaces in Permit 95010001, which limits currently apply only to emissions from the stack of the ESP.

5. THE EMISSION INVENTORY FOR THE SOURCE USED IN THE AIR QUALITY ANALYSIS FOR CARBON MONOXIDE (CO) OMITS CERTAIN CO EMISSIONS

Overview of This Denial Point, with Information As Required or Specified by Section 39(a) of the Act for Denial of a Permit

1. *The Sections of the Act which may be violated if a revised permit were granted as requested:* Sections 9(a), 9.1(d), 39(a)* and 39(a)**.

2. *The provision of the regulations under the Act which may be violated if the revised permit were granted as requested:* 35 IAC 201.152***, 201.160(a), 204.330, 204.1110 and 204.1130.

3. *The specific type of information, if any, which the Agency deems the applicant did not provide the Agency:* The "Air Quality Modeling Report," Appendix C of the 2022 application, which provides the "Source Impact Analysis" required under PSD, is deficient because it does not address certain CO emissions of units that are at or were at the Granite City Works. In particular, the uncaptured CO emissions of the blast furnace cast house and the BOFs (i.e., the emissions that occur from the roof monitors and other openings in structures) are not addressed. The CO emissions of the two by-product recovery coke oven batteries formerly at the Granite City Works, which were in operation in 1996, are also not addressed.

4. *A statement of specific reasons why the Act and the regulations might not be met if a revised permit were granted as requested:* As the source impact analysis in the 2022 application does not address certain CO emissions, it does not fully address the impact of the Production Increase Project, with increases in permitted CO emissions as now requested, on ambient air quality for CO. This analysis also does not address the impact of the Project on CO air quality as would have been determined in 1996 if the Project had been permitted for more CO emissions, as is now being requested by the 2022 application.

Discussion

The results of the analysis of the impacts of the Project on ambient air quality for carbon monoxide (CO) cannot be relied upon because the inventory for the CO emissions of the source with the Project does not address all CO emissions or otherwise explain why the CO emissions of certain units need not be considered. The 2022 application includes an air quality analysis because the Project was originally permitted as a major modification for CO under the Prevention of Significant Deterioration (PSD) program and the application requests revisions to Permit 95010001 to increase the CO emissions for which the Project is permitted.[28] To support

[28] The 2022 application requests that Permit 95010001 be revised to address an additional 25,334 tons/year of CO. This would include emissions of 320 tons/year of CO from the casthouse on the blast furnaces, for which CO was not addressed in the original permitting for the project (2022 application, Section 4.4, p. 4-4) . This would also include an additional 25,014 ton/year from Project-affected fuel burning units, other than Boilers 1 through 10, which are now retired (2022 application, Sections 4.2 and 4.3, pp. 4-2 and 4-3). For the fuel burning units, US Steel has determined that the emission factors for CO

this request, an air quality analysis for CO must be part of the application pursuant to Illinois' PSD rules, 35 IAC 204.1130, Air Quality Analysis, since the request involves revisions to the provisions in Permit 95010001 that involve the Project as it is a major modification for CO under the PSD program.

Uncaptured Emissions from the Casthouse on the Blast Furnaces

The air quality analysis in the 2022 application does not address the uncaptured emissions of the casthouse (2022 application, Appendix C – Air Quality Modeling Report, Table for "US Steel Granite City Volume Source Inputs"). The application indicates potential CO emissions of 13.6 tons/year from the roof monitor on the casthouse on the blast furnaces (2022 application, Section 4.4). These "uncaptured" CO emissions, which are not captured by the baghouse systems on the casthouse, must be addressed in the air quality analysis submitted to support revisions of Permit 95010001 to provide for more CO emissions from the Project.

Uncaptured Emissions from the Basic Oxygen Furnaces

The air quality analysis in the 2022 application does not address uncaptured emissions of the basic oxygen furnaces. (2022 application, Appendix C – Air Quality Modeling Report, Table for "US Steel Granite City Volume Source Inputs.") As discussed earlier, the 2022 application does not address uncaptured emissions from these furnaces. The application also does not explain why uncaptured emissions would not be present as the application does not show 100 percent capture of the emissions of these furnaces by the control systems for emissions of particulate. As there are uncaptured CO emissions from these furnaces, these emissions must also be addressed in the air quality analysis submitted to support revisions of Permit 95010001 to accommodate additional CO emissions from the Project.

By-product Coke Oven Batteries

The 2022 application does not explain why the air quality analysis in the application should not consider the CO emissions of the former by-product coke oven batteries at the source. These batteries were in operation when the Project was originally permitted in 1996 and did not cease operation until 2015. Accordingly, the analysis does not address CO ambient air quality with the Project as would have been predicted by the original air quality analysis for the Project if it had addressed the additional CO emissions now being requested for the Project. On the other hand, the analysis addresses CO emissions of emission units that did not exist in 1996, as this analysis addresses the emissions of the heat recovery coke ovens adjacent to the Granite City Works, which were built and are now operated by Gateway Energy & Coke. [29]

utilized in the original permitting of the Project, particularly the emission factor for blast furnace gas used in the blast furnaces stoves, understated CO emissions.

[29] The modelling in the air quality analysis did address certain newer units, which came into operation after the Project in 1996. In particular, the analysis addressed the CO emissions of the new coke oven batteries adjacent to the Granite City Works that are owned and operated by Gateway Energy & Coke. However, modeling of the CO emissions of new units would only compensate for the CO emissions of existing units if the new batteries were direct, in-kind replacements of the shutdown units, which is not the case. This is not the case. The batteries that were shut down by US Steel were by-product recovery batteries. They recovered chemicals from the off-gas from the coking process (e.g., benzene, toluene and naphthalene, with the gas then used as fuel for heating the coke ovens and in certain other units at the source. Gateway's batteries are heat recovery batteries, in which the off-gas from coking is combusted in

the ovens and the heat is used to make steam and generate electricity. Moreover, the new batteries and the old batteries both operated for a period of several years before US Steel shut down its batteries.

5A. ISSUES WITH THE BACKGROUND AIR QUALITY USED IN THE AIR QUALITY ANALYSIS THE EMISSION INVENTORY FOR THE SOURCE USED IN

(Note: In the Initial Draft Denial, this denial point, Denial Point 5A, was not addressed separately but was instead addressed as part of Denial Point 5. This deficiency is now being addressed separately for ease of understanding. This deficiency relates to the value for background ambient air quality used in the CO air quality analysis rather than deficiencies in the inventory of sources (i.e., the compilation of emissions units and emission data) used in the dispersion modeling in the air quality impact analysis for CO.)

Overview of This Denial Point, with Information As Required or Specified by Section 39(a) of the Act for Denial of a Permit

1. *The Sections of the Act which may be violated if a revised permit were granted as requested:* Sections 9(a), 9.1(d) and 39(a)* and 39(a)**.

2. *The provision of the regulations under the Act which may be violated if the revised permit were granted as requested:* 35 IAC 201.160(a), 204.330, 204.1110 and 204.1130.

3. *The specific type of information, if any, which the Agency deems the applicant did not provide the Agency:* The "Air Quality Modeling Report," Appendix C of the 2022 application, which also provides the "Air Quality Analysis" required under PSD, is deficient. As related to baseline ambient air quality for CO, this report does not address baseline ambient air quality as existed at the time that the Production Increase Project was initially permitted. It also does not address ambient air quality as it presently exists. Rather, a value for background air quality from ambient monitoring conducted in 2016 through 2018 is used. This does not represent either air quality in the period before the Project was initially permitted or air quality at the present time. While the monitoring station in East St. Louis that was the source for the value selected for background air quality ceased operation in 2019, the Missouri Department of Natural Resources continues to conduct ambient monitoring for CO at a site in St. Louis. (In this regard, the 2022 application, p. 4-5, indicates that "There are many existing ambient CO monitors within the 100 miles of the facility (Figure 4).") The 2022 application does not justify use of a value for background ambient air quality that is not representative of the period when the Project was initially permitted. Then, if this can be justified, the 2022 application does not explain why it is appropriate to use a value for background air quality taken from ambient monitoring conducted over five years ago.

4. *A statement of specific reasons why the Act and the regulations might not be met if a revised permit were granted as requested*: Because of the issues with the value for baseline air quality used in the "Air Quality Modeling Report" in the 2022 application, as discussed above, it would not be proper to rely on the results of this report to issue a revised permit what would provide for increases in permitted CO emissions as requested by the 2022 application.

Discussion

In addition [to the deficiency addressed in Denial Point 5], the air quality analysis in the application uses a value for CO background air quality on an 8-hour average that is based on ambient air quality data collected for a three year period consisting of 2016, 2017 and 2018. As such the value used for background air quality is not necessarily appropriate as a representation of either current ambient air quality or the historic air quality at the time that the Project was originally permitted.[30]

[30] Under the PSD program, the air quality analysis for a project whose modelled maximum impact(s) by itself on air quality for a pollutant are above certain specified concentration(s) or "significant impacts levels" under the PSD program must also consider "background air quality." This accounts for the contribution to ambient air quality of mobile sources (e.g., cars, trucks and buses) and of other sources (e.g., residential and commercial heating), which contribution cannot be determined as part of the computerized dispersion modelling for discrete emission units performed as part of the analysis. The air quality analysis in the 2022 application shows that the maximum air quality impact of the Project with the requested increases in CO emissions would continue to be above the significant impact level for CO on an 8-hour average. (In the original air quality analysis, the Project's impacts were significant for CO on both a 1-hour and an 8-hours average.) The value for background in the current air quality analysis is based on data collected at an ambient air monitoring station in East St. Louis operated by the Illinois EPA. If US Steel shows that the air quality analysis for the revision to Permit 95010001 should address current ambient air quality for CO, the value for background air quality in the analysis should be updated. Since the Illinois EPA discontinued ambient monitoring for CO at its East St. Louis monitoring station in 2020, the new value for background would likely need to be based on data collected at an appropriate monitoring station in Missouri operated by the Missouri Department of Natural Resources.

It should be noted that the values for background used in the original air quality analysis were likely conservative, as they were based on data from a now retired monitoring station in Granite City that was less than a third of a mile from the Granite City Works. Given the location of that station, the ambient air quality data collected at that station may have included the contribution to air quality of units for which modelling was also conducted, so that the original analysis effectively counted the impacts of those units twice. Thus, it is reasonable for the current air quality analysis to use value(s) for background air quality based on data collected at a monitoring station other than the one that was originally used.

6. SCOPE OF PROPOSED GROUP EMISSION LIMITS

Overview of This Denial Point, with Information As Required or Specified by Section 39(a) of the Act for Denial of a Permit

1. *The Sections of the Act which may be violated if a revised permit were granted as requested:* Sections 9(a), 9.1(d), 39(a)* and 39(a)**.

2. *The provision of the regulations under the Act which may be violated if the revised permit were granted as requested:* 35 IAC 201.160(a), 203.123, 203.128, 204.400 and 204.560.

3. *The specific type of information, if any, which the Agency deems the applicant did not provide the Agency:* The 2022 application does not show that certain proposed collections of emission units for the "group limits" for annual emissions of particulate, NOx and VOM that are generally requested are appropriate. In this regard, the 2022 application does not propose limitations that would only apply to the annual emissions of particulate of the casthouse for the two blast furnaces. The application also does not propose limitations that would apply only to the annual particulate emissions of the two BOFs. These are principal emission units at the Granite City Works. For the casthouse, the 2022 application does not show that that it would be unreasonable or inappropriate for Permit 95010001 to continue to have limitations for annual emissions of particulate that are directly enforceable independent of emissions of the other, lesser units involved in production of iron (i.e., the charging of the blast furnaces and slag pit operations). (As the application does not indicate any NOx or VOM emissions from these lesser operations, it is unclear whether group limits are actually being requested for blast furnace operations for NOx and VOM.) Similarly, for the BOFs, the 2022 application does not show that it would be unreasonable or inappropriate for Permit 95010001 to continue to have limitations for annual particulate emissions that are directly enforceable independent of the emissions of other, lesser units involved in making steel (i.e., the removal of sulfur from the molten iron, the skimming of the resulting slag from the surface of the iron in the ladle, and the ladle metallurgy operations after the BOFs). (The application does not actually indicate any NOx emissions from these lesser operations; for VOM, the only lesser unit identified with emissions is the skimming of slag.) While the 2022 application points to three construction permits for facilities issued by other permitting authorities as support for the proposition that limitations on annual emissions that apply to both principal units and lesser units are appropriate, the 2022 application does not show that the circumstances of the Granite City Works are such that those other permits should serve as precedents for the requested revisions of Permit 95010001. Variability in utilization or activity was an inherent aspect in the basic design or purpose of those three facilities and led to the approach to the emissions limitations that were set for those facilities. In this regard, one facility involved a fleet of sea-going vessels engaged in exploration for petroleum. The second facility, "the first of its kind," would be developed to make fuel ethanol from processed municipal waste and sewage sludge. (It may also be relevant that the construction permit for this facility, and as well as the permit for a fleet of vessels that would conduct offshore exploration for petroleum, both limited emissions so that the facilities would not be major sources for purposes of NSR.) The third facility was being developed as a peaking power plant, to operate mainly when other

sources of electricity, including wind and solar power, could not fully satisfy the demand for electricity. Moreover, this last permit sets limitations for the annual emissions of a group of identical generating units. As such, this permit does not provide support for setting limitations for a collection of disparate emission units. In summary, the 2022 application does not request revisions to Permit 95010001, that would continue to separately limit the annual particulate emissions of the blast furnace casthouse and the annual emissions of the two BOFs by themselves.

4. *A statement of specific reasons why the Act and the regulations might not be met if a revised permit were granted as requested:* If a revision to Permit 95010001 were issued without limits that independently apply to the emissions of the blast furnaces casthouse and to the emissions of the two BOFs, the 2022 application would not show the limits on annual emissions established in such revised permit would serve to restrict the emissions of the casthouse and the two BOFs as a practical matter. In this regard, as US Steel is applying for revisions to emission limits that are currently in Permit 95010001, it is obliged in its application to adequately explain and justify the revisions to the current emission limits that it is requesting. The three permits cited by US Steel in the 2022 application do suggest that permit limitations for the annual emissions of emission units that are accompanied by appropriate operational and/or emissions monitoring may now be considered acceptable as being enforceable as a practical matter without associated emission factor limits, i.e., limits on emission of pollutant(s) in pounds per ton of production or throughput, pounds per million Btu fuel heat input or pounds per hour. However, these permits do not show that the stringency of the current limits for the annual emissions of principal emissions units at the Granite City Works, a facility with substantial emissions in an urban area, should generally be relaxed by setting revised limits that would now apply to emissions of both principal unit(s) and other lesser units, as is proposed by the 2022 application.

Discussion

The application does not show that the proposed collections of emission units for the requested group limits for annual emissions of particulate, NOx and VOM are appropriate.[31, 32] In particular, the application does not propose limits that would only apply to the annual emissions of the casthouse on the blast furnaces and to the annual emissions of the two basic oxygen furnaces. These are principal emission units at this facility. It would be reasonable and appropriate for both the annual emissions of the casthouse and the annual emissions of the two basic oxygen furnaces to be directly limited separately from the emissions of any other units. The construction permits issued by permitting authorities in other jurisdictions cited in the application as support for

[31] For PM, PM_{10}, NOx and VOM (i.e., pollutants other than sulfur dioxide (SO_2), carbon monoxide (CO) and lead), the 2022 application requests that the revised permit not include the provisions in Permit 95010001 that the Illinois EPA considers would limit emissions of individual "processes" in pounds/ton of production or throughput and in tons/year. These provisions were set to ensure that the Project would not be a major modification for purposes of New Source Review (NSR). The removal from Permit 95010001 of the "emission factor limits" which limit emissions of various process operations relative to their production or throughput, would facilitate resolution of two permit appeals filed by US Steel with the Illinois Pollution Control Board (PCB), PCB 2013-53 and PCB 2013-62. Both appeals indirectly address the emission factor limits in Permit 95010001. PCB 2013-53 concerns the revised Clean Air Act Permit Program (CAAPP) permit for the facility (Permit 96030056) issued in 2013. US Steel appealed this permit as it repeats the emission factor limits as originally set by Permit 95010001. PCB 2013-62 concerns the construction permit for the addition of the baghouse system to improve control of particulate emissions from charging and tapping of the BOFs, Permit 11050006, as reissued in 2013. For the BOFs, this permit also repeats the emission factors limits for the BOFs set by Permit 95010001. US Steel appealed the subject emission factor limits in these permits because, prior to issuing the revised CAAPP permit for the facility in 2013, the Illinois EPA had explicitly explained that the provisions in the permit containing emission factors were considered to constitute enforceable limits on emissions. This was done in the Illinois EPA's "Statement of Basis for a Planned Revision of the Clean Air Act Permit Program (CAAPP) Permit for: U. S. Steel Corporation, Granite City Works, 20th and State Streets, Granite City, Illinois," of March 2011, pages 20 through 26. That these provisions set enforceable limits was then recognized by the USEPA in the Administrator's subsequent order of December 3, 2012, "In the Matter of United States Steel Corporation – Granite City Works, CAAPP Permit No. 96030056," Petition Number V-2011-2, pages 7 through 9).

[32] With regard to the current limits for the annual emissions of PM, PM_{10}, NOx and VOM of individual processes, the 2022 application requests "group limits" for the annual emissions of groups of related emission units. For example, the application requests that the revised permit limit the overall emissions of a group of units that includes the casthouse for the blast furnaces and other, ancillary units involved in production of iron. The permit currently sets separate limits for the emissions of the casthouse, the emissions from charging the blast furnaces, and the emissions from slag pit activities. Unlike the current limits for annual emissions, which apply on a calendar year basis, the proposed new limits for annual emissions would be rolled monthly, restricting emissions over each consecutive 12 month period. The requested limits would theoretically be less stringent than the current limits as US Steel could potentially compensate for any "overage" of emissions by unit(s) in a group of units with lower levels of emissions from other units in the group.

Incidentally, in these appeals, US Steel only challenges the emission factor limits for "processes," such as the casthouse, the basic oxygen furnaces, continuous casting operations, and discrete material handling operations. These appeals do not challenge the emission factor limits for fuel burning units affected by the Project. Those limits do not restrict the emissions of individual units or groups of similar units. Instead, they separately restrict the emissions from use of different fuels, i.e., blast furnace gas, natural gas and oil.

emission limits that apply to groups of emission units do not show that the annual emissions of the casthouse and the basic oxygen furnaces should not both continue to be limited individually.[33]

In this regard, the 2022 application points to USEPA policy and practice concerning how the potential emissions of a source may be restricted (2022 application, Section 3, "Discussion of Permit Conditions used to Restrict PTE [Potential to Emit]). The application shows that USEPA has found that construction permits may be issued that restrict potential emissions by means of limits on annual emissions that are practically enforceable. Accordingly, the current provisions in Permit 95010001 that limit emissions of process units in pounds/ton of production of throughput, which apply on a short-term rather than annual or long-term basis, are not essential to restrict potential emissions. In addition, the application points to several construction permits issued outside of Illinois since 2000 for which the permitting authority determined that annual emission limits that apply to groups of emission units that are practically enforceable were determined to be sufficient to restrict potential emissions without need for accompanying limits that address emissions on a short-term basis.[34, 35] However, the 2022 application does not show that the

[33] In light of the construction permits issued by other permit authorities cited by the application as support for group limits, it would seem acceptable for a revised permit to set group limits for the emissions units or operations that do not qualify as principal units. For example, for the production of iron, a revised permit could set limits for the overall emissions from charging the blast furnaces and the slag pits. Alternatively, limits specifically for the emissions of the casthouse for the blast furnaces and the basic oxygen furnaces, i.e., the principal units at the facility for iron and steel production, could be accompanied by group limits for the overall emissions of these principal units and the other, "non-principal" units in these areas of the facility. For example, limits could be set for both emissions of the casthouse and for the emissions of the casthouse, charging of the blast furnaces, and the slag pits.

[34] The 2022 application, Appendix E - "Copies of EPA Determinations," contains two decisions by the USEPA's Environmental Appeals Board (EAB):

- The 2012 decision of the EAB for an Outer Continental Shelf (OCS) Permit to Construct and Title V Air Quality Operating Permit issued by Region 10 of USEPA to Shell Offshore, Inc. (USEPA, EAB, *In Re Shell Offshore, Inc.*, OCS Appeals Nos. 11-05, 11-06 & 11-07, Order Denying Petitions for Review, Decided March 30, 2012).
- The 2018 decision of the EAB for a PSD permit issued by the Department of Environmental Quality for Pima County, Arizona, to Tucson Electric Power (USEPA, EAB, *In Re Tucson Electric Power*, PSD Appeal No. 18-02, Order Denying Review, Decided December 3, 2018).

[35] In a footnote, the 2022 application also refers to the USEPA's order responding to a petition to object to a Title V permit issued for a facility in Middletown, New York proposed by Masada (USEPA, Order, May 2, 2001, *In the Matter of Orange Recycling and Ethanol Production Facility, Pencor-Masada Oxynol, LLC*, Permit ID: 3-3309-00101/00001, Issued by the New York State Department of Environmental Conservation, Petition No.: II-2000-07.) As explained by US Steel in the application, in this order, the USEPA upheld the,

> …use of annual emission caps with a rolling cumulative total methodology and rejected petitioners' "concerns that the permit appears to rely on after-the-fact monitoring, rather than engineering practices, test data or vendor guarantees" to establish restrictions on PTE. U. S. EPA based its findings on the fact that "[i]f the source has no room to operate under the PTE emission limiting cap, it must cease operation or face a violation" and that "all PTE limits rely on after the fact monitoring of some kind."
>
> 2022 application, Footnote 11.

specific circumstances of the Project are such that the current limits for annual emission of the principal emission units should be replaced with group limits that apply to the combined emissions of principal emission units and other lesser emission units.[36] The circumstances of the Granite City Works are not the same as those presented by the cited permits. US Steel's Granite City Works is a manufacturing facility at which iron is produced from iron ore in blast furnaces and steel is produced from molten iron and scrap metal in basic oxygen furnaces. The processes that generate emissions at the Granite City Works are different than the oil-fired engines that are generally addressed by the permit for Shell Offshore and the natural gas-fired engines addressed by the permit for Tucson Electric. The permit for Shell Offshore, Inc., addresses a marine drilling unit, the "Kulluk," and an associated fleet of support vessels that may be used during July through November of each year to conduct exploratory drilling operations in areas of the Beaufort Sea north of Alaska. The permit for Tucson Electric Power addressed a new peaking electrical generating facility with ten engine-generating units at Tucson Electric's Irvington Station. The utilization of the individual generating units in the new facility would vary from day to day and season to season as the use of the units would be tied to the inability of other electrical generating facilities to meet the demand for electricity.[37]

---

[36] For the casthouse on the blast furnaces, Permit 95010001 currently sets separate limits for the emissions of various pollutants from the casthouse baghouse (i.e., the main baghouse for the casthouse), the iron spout baghouse, and the roof monitor (uncaptured emissions). If Permit 95010001 were to be revised, it would be reasonable for each pollutant for which emissions are limited, other than CO, for the permit to restrict the overall emissions of the pollutant from the casthouse, rather than to individually limit the stack emissions of each control system and uncaptured emissions. The application also does not suggest that it would be inappropriate for any revised permit to simply limit the stack emissions of CO from the BOFs.

For the basic oxygen furnaces, the current permit separately addresses emissions of particulate and lead from the stack of the ESP and the roof monitor (uncaptured emissions.) For these furnaces, it would also be reasonable in a revised permit to set limits for different pollutants for the overall emissions of the pollutant from these furnaces. In particular, the revised permit would not set limits specifically for the emissions of the new baghouse system that was installed to improve control of particulate emissions from charging and tapping of these furnaces. Instead, the revised permit would address emissions that occur from this baghouse with limits for different pollutants for the overall emissions of these furnaces.

[37] At the Shell Off-Shore and Masada facilities, variability of utilization or operation of different emission units was a consideration in the permitting of these facilities. In its response to comments on the draft permit for Shell Offshore, USEPA Region 10 explains,

> The commenters are correct that EPA guidance does express a general preference for shorter time periods rather than 12-month rolling limits. See 1989 PTE Guidance at 9. As the commenter acknowledges, however, EPA has also recognized that longer rolling limits are appropriate for sources with substantial and unpredictable variations in emissions, as well as for those sources that curtail operation during part of a year on a regular seasonal cycle. Id. at 9 – 10. Such is the case here. Shell's planned exploratory operations are atypical as compared to other sources because emission units consist of multiple engines and generators with variable emission on the Kulluk and a fleet of numerous support vessels. Operations will vary from hour-to-hour, day-to-day month-to-month, and season-to-season based on factors such as the number of wells drilled, the activity being undertaken (drilling mud cellar lines, other drilling activity, or activity that does not involve drilling), the depth of wells drilled, whether emergency engines are being run for testing, and ice conditions. Given the variability in operations, and thus emissions expected from the source, and after considering a full

7. INADEQUATE JUSTIFICATION FOR ELIMINATION OR REVISION OF CURRENT LIMITS FOR PROJECT-AFFECTED FUEL BURNING UNITS

Overview of This Denial Point, with Information As Required or Specified by Section 39(a) of the Act for Denial of a Permit

1. *The Sections of the Act which may be violated if a revised permit were granted as requested:* Sections 9(a), 9.1(d), 39(a)* and 39(a)**.

2. *The provision of the regulations under the Act which may be violated if the revised permit were granted as requested:* 35 IAC 201.160(a), 203.123, 203.128, 204.400 and 204.560.

---

range of options for limiting the source's potential to emit, Region 10 determined that it was appropriate to establish longer-term rolling limits.

USEPA, Region 10, "Response for Comments for Outer Continental Shelf Permit to Construct and Title V Air Quality Operating Permit: Conical Drilling Unit Kulluk," October 2011, p. 26.

In the USEPA's order for Masada of April 8, 2002, USEPA observes that,

Masada's operations will have significant fluctuations due [sic] the variability of the processed waste, making an operating parameter-based PTE limit less appropriate. The emissions-based PTE limit discussed below recognizes this fact and provides Masada with operational flexibility accordingly. Moreover, Masada will be measuring its emissions on a real-time basis using CEMS [continuous emissions monitoring systems], obviating the need to limit and monitor operating parameters as a surrogate for emissions.[Footnote 6] Thus the petitioners have not demonstrated that it was inappropriate for the NYSDEC [New York State Department of Environmental Conservation] to restrict Masada's emissions directly, rather than its operation or production.

Although it is generally preferable that PTE limitations be as short-term as possible (e.g., not to exceed one month), EPA guidance [USEPA, "Guidance on Limiting Potential to Emit in New Source Permitting," June 13, 1989] also allows permits to be written with longer term limits if they are rolled (meaning recalculated periodically with updated data) on a frequent basis (e.g., daily or monthly). The 1989 guidance recognizes that such longer rolling limits may be appropriate for sources with 'substantial and unpredictable annual variation in production." 1989 Guidance at 9.

Footnote 6. This is consistent with prior EPA practice in appropriate circumstances. See e.g., Memorandum entitled "3M Tape Manufacturing Division Plant, St. Paul, Minnesota," from John Rasnic to David Kee, dated July 14, 1992 ("a federally enforceable emission limit may be used …to limit the potential to emit as long as a continuous emissions monitor (CEM) or an acceptable alternative is used."); and Memorandum entitled "Policy Determination on Limiting Potential to Emit for Koch Refining Company Clean Fuels Project," from John Rasnic to David Kee, dated March 13, 1992 ("Use of an emission limit to restrict potential to emit …is acceptable provided that emissions can be and are required to be readily determined or calculated.")

USEPA, Order, April 8, 2002, "*In the Matter of Orange Recycling and Ethanol Production Facility, Pencor-Masada Oxynol, LLC*, Permit ID: 3-3309-00101/00003, Issued by the New York State Department of Environmental Conservation," Petition No.: II-2001-05, p. 6)

3. *The specific type of information, if any, which the Agency deems the applicant did not provide the Agency*: The 2022 application does not include information that would support revisions to Permit 95010001 to revise or eliminate current limitations for usage of fuels by the Project-affected fuel burning units, as is requested by the application. With regard to the elimination of the current limitations, the 2022 application does not quantitatively demonstrate that this would not result in an increase in the potential emissions of the subject units. This is of particular concern as Permit 9501001 does not limit the usage of COG, which was not quantitatively addressed in 1996 during the initial permitting of the Production Increase Project. Moreover, with the shutdown in 2015 of the two by-product recovery coke oven batteries at the facility, more natural gas must now be used as fuel in certain subject units (e.g., the blast furnace stoves), to replace the COG that was previously used. With regard to the revisions of the current limitations, the 2022 application does not include information that would be necessary for the Illinois EPA to set values for revised limitations that would be appropriate. As discussed above in Denial Point 3A, the 2022 application does not include the data and calculations underlying the representations in the 2022 application for future maximum emission of the Project-affected fuel burning units. This data would include the maximum usages of fuels as would be needed for the Illinois EPA to appropriately set revised limitations for future usages of fuel.

4. *A statement of specific reasons why the Act and the regulations might not be met if a revised permit were granted as requested:* Absent information as described above, the 2022 application does not include the necessary information to allow a revised permit to be proposed for the Project, much less issued, that would eliminate or revise the current limitations in Permit 95010001 for the usage of fuel by Project-affected fuel burning units.

Discussion

The justification provided in the 2022 application for revisions to Permit 95010001 to eliminate or revise limits on usage of fuel and, presumably, emissions by Project-affected fuel burning units is not adequate. Although this application indicates that the revised permit should not contain the limits for usage of natural gas and BFG currently set by Permit 95010001, it does not propose any new limits in their place.

> USS Granite City is also requesting revision/elimination of gaseous fuel usage limits for project-affected combustion units. In 2015, USS Granite City shutdown its by-product coke oven batteries. This eliminated the ability to use coke oven gas ("COG") as a fuel at the mill. In addition, ten of the twelve boilers at the time of the Project in 1996 have been retired. These actions have greatly reduced the emissions from fuel combustion in project-affected emissions units and obviate the need to preserve limits to restrict PTE of the remaining units.
>
> 2022 application, Section 2.2.3, p. 2-4.

This rationale is deficient because it does not consider that the 2022 application also requests that the revised permit address an increase in the usage of natural gas at the facility as a consequence of the shutdown of the by-product coke oven batteries. While the limits for fuel usage and emissions currently in Permit 95010001 may no longer be relevant, as generally addressed

above,[38] this does not mean that other limits for fuel usage and emissions are not appropriate. In this regard, the 2022 application does not show that new limits for fuel usage and emissions would not now be needed and those limits should address fuel burning units other than the Project-affected units currently addressed by the permit. In this regard, limits for usage of fuels and emissions should not extend to Boilers 1 through 10, as they are no longer in operation, having been shut down a number of years before the coke oven batteries were shutdown. As the four slab reheat furnaces at the facility were affected by the elimination of COG, new limits may be needed that also extend to these furnaces. It may also be appropriate for the cogeneration boiler to be addressed by the new limits as this boiler began operation several years before the by-product coke oven batteries at the facility were shutdown.

[38] It is noteworthy that the 2022 application does not address what an appropriate limit for usage of COG would have been in Permit 95010001 if the permit had originally addressed use of COG by Project-affected fuel burning units. In the absence of such information, it is unclear how the shutdown of the two by-product coke ovens at the facility and elimination of COG led to decreases in NOx emissions relative to the limits for NOx emissions of fuel-burning units set by Permit 95010001.

8. THE APPLICATION DOES NOT SHOW THAT EMISSION FACTORS THAT ARE PROPOSED AS PRESCRIBED FACTORS FOR CERTAIN UNITS WOULD BE REPRESENTATIVE

Overview of This Denial Point, with Information As Required or Specified by Section 39(a) of the Act for Denial of a Permit

1. *The Sections of the Act which may be violated if a revised permit were granted as requested:* Sections 9(a), 9.1(d), 39(a)*, 39(a)**, 39.5(5)(i), 39.5(7)(a), 39.5(10)(a)(iv) and 39.5(13)(c)(v).

2. *The provision of the regulations under the Act which may be violated if the revised permit were granted as requested:* 35 IAC 201.160(a), 203.123, 203.128, 204.400 and 204.560.

3. *The specific type of information, if any, which the Agency deems the applicant did not provide the Agency:* Relative to the revisions to Permit 95010001 that are requested to establish certain "prescribed emission factors," the 2022 application does not include information justifying the future use of such proposed factors for the purpose of determining compliance with the revised limitations for the emissions of the project that are requested. In particular, the 2022 application does not include information showing that the proposed factors should be considered representative, accurate and appropriate. For example, for the uncaptured emissions of particulate of the BOFs, which occur through the roof monitor and, possibly, other openings in the BOF shop building, the application does not include any explanation for the emission factors that are proposed as prescribed emission factors. These factors are lower than the factors that were used for the calculations in the application for the baseline emissions of uncaptured particulate from the BOFs. This is generally reasonable as improvements have been made that have improved capture and control of the particulate emissions of the BOFs and should lower uncaptured emissions. Notably, a baghouse control system has been installed to improve control of emissions from charging and tapping the BOFs. However, the 2022 application does not explain how the proposed prescribed factors were developed. It also does not lay out the practices for control of particulate emissions of the BOFs that would accompany the proposed factors.

4. *A statement of specific reasons why the Act and the regulations might not be met if a revised permit were granted as requested:* Absent information as described above, the 2022 application does not include the necessary information to allow a revised permit to be proposed for the Project, much less issued, that would determine future emissions of the subject emission units and emission points based on the factors proposed in the 2022 application. The 2022 application does not show that the proposed prescribed factors would appropriately be relied upon for the purpose of enforceably limiting the future emissions of the emission units and emission points for which they are proposed.

Discussion

To calculate baseline emissions of certain emission units for which emission testing is not feasible or practical, the 2022 application necessarily relies on use of emission factors that are

not based on source-specific emissions testing. Likewise, for the ongoing determination of the emissions of these units, the application requests that revised Permit 95010001 "prescribe" or specify the emission factors that are to be used. As explained in the 2022 application, where a permit relies on a limit on annual emissions or an "annual emission cap" to restrict potential emissions, USEPA policy and precedent provide that:

> Where the permit prescribes an emission factor to be used in conjunction with operational data in demonstrating compliance [with an annual emission cap], the permitting authority should describe the basis for its determination that the emission factor is representative.
>
> 2022 application, Section 3, p. 3

This summary of relevant USEPA policy in the 2022 application is consistent with the statements made by the EAB and the Administrator of USEPA in various orders responding to petitions that request it object to Title V permits or, in Illinois, CAAPP permits), issued by a permitting authority. In its decision in *Shell Offshore, Inc.*, the EAB also considered the use of prescribed emission factors in the permit that was appealed. The EAB did not object to this practice. It found that the use of prescribed emission factors may be appropriate for a permit to prescribe use of specific emission factors published by USEPA in its *Compilation of Air Pollutant Emission Factors* (AP-42) for certain emission units for the purpose of determining emissions for purposes of compliance with annual emission limits set by the permit.[39]

> The Region explained in the record its rationale, based on the Region's technical expertise and applied in certain limited circumstances, for supplementing source-specific emission factors derived for most of the emission units or groups of emission units with either AP-42 emission factors, or factors derived from source test data Shell submitted to the Region in support of two separate, previously OCS [Outer Continental Shelf] PSD permits authorizing Shell to conduct exploratory activities in the Chukchi and Beaufort Seas using the *Discover* drillship.
>
> USEPA, Environmental Appeals Board, *In Re Shell Offshore, Inc.*, OCS Appeals Nos. 11-05, 11-06 & 11-07, Order Denying Petitions for Review, Decided March 30, 2013.

For US Steel, Granite City Works, the USEPA specifically addressed the use of emission factors for determining compliance with emission limits in an order of December 3, 2012. Note that relative to prescribed emission factors, the USEPA's finding, as is provided below, should be considered *dicta*. This is because the permit that was the subject of the appeal did not provide for use of prescribed emission factors. In addition, as the order addresses the possibility of using of

[39] The EAB did observe that it is preferable that compliance with emission limits set by a permit be determined using source-specific emission factors, as would be developed by emissions testing required by the permit. The EAB did not address prescribed emission factors from sources other than AP-42 since the permit that was appealed only prescribed use of emission factor from AP-42. Given the general nature and limited scope of AP-42, the EAB's decision should not be interpreted to preclude use of emissions factors from source other than AP-42. There are emission units and pollutants for which use of prescribed emissions is appropriate for which emission factors are not present in AP-42 or better emission factors are available from other sources.

prescribed emission factors in terms of the actions that the Illinois EPA would need to take when issuing a permit that prescribed emission factors, the order serves to identify the underlying information that a source must provide in an application if it seeks a permit that would provide for use of prescribed emission factors is sought. The Illinois EPA would then be responsible for assuring that the emission factors that are prescribed would be appropriate and sufficient for compliance or noncompliance with the associated emission limits to be reasonably determined.[40,]

> …IEPA [Illinois EPA] must include in the permit itself the monitoring methodology for determining compliance with these limits [emission factor limits and annual emission limits]. If using emission factors, IEPA must propose the actual emission factors in the permit or supporting permit record, and provide supporting documentation for the accuracy and appropriateness of these emission factors, such as historical source test data or other available information. If source test data are not readily available for a specific emission unit, as IEPA asserts, other sources of emission factors (including published literature and material and energy balances) must be reviewed and cited for acceptable emission factors before issuing the permit.
>
> USEPA, Order Responding to Petitioner's Request that the Administrator Object to Issuance of State Operating Permit, Petition Number V-2011-2, *In the Matter of United States Steel Corporation – Granite City Works, CAAPP Permit No. 96030056*, Petition Number V-2011-2, dated December 3, 2012, p. 12.

<u>Roof Monitor on the Basic Oxygen Furnace Shop – Particulate Emissions:</u>
The 2022 application does not include support for the particulate emission factors that are proposed as prescribed factors for the roof monitor on the basic oxygen furnace shop (i.e., the uncaptured emissions from these furnaces). The application does include support for the <u>baseline</u>

[40] In an order concerning a Title V permit issued by the Texas Commission on Environmental Quality (TCEQ), the Administrator of USEPA stated the following when addressing the use of emission factors in the permit:

> …Moreover, the justification provided by a permittee in a permit application should not substitute for the judgment of the permitting authority (TCEQ) with responsibility for ensuring that a Title V permit contains sufficient monitoring to ensure compliance. If TCEQ wishes to adopt and incorporate an applicant's technical justification for specific monitoring into the current Title V permit record, it must, at minimum, identify specifically where such a justification is to be found (just as it would be required to do it if [sic]wished to incorporate by reference a requirement located elsewhere.)
>
> USEPA, Administrator, Order Responding to Petition Requesting Objection to the Issuance of Title V Operating Permit, Petition No. VI-2017-6, *In the Matter of BP Amoco Chemical Company, Texas City Chemical Plant, Galveston County, Texas, Permit No. 01513*, dated July 20, 2021, p. 18.

particulate emission rates for the roof monitor on the basic oxygen furnace shop.[41, 42] However, the permitting of the Project in 1996 relied upon various changes that were made to improve capture and control of emissions of particulate from the basic oxygen furnaces and decrease the uncaptured emissions of particulate. For example, a fourth section was added to the ESP in 1995, increasing the volume of air that it could handle. As such, the baseline particulate emission rates of the Project are not representative of future emissions with the Project. Moreover, the emission factors actually proposed in Section 5.5.2.2 in the 2022 application are lower than emission factor limits now contained in Table 2 of Permit 95010001 for the roof monitor on the basic oxygen furnace shop. For PM, an emission factor of 0.0296 ~~0.01986~~ pounds/ton is proposed as a prescribed factor, compared to the current emission factor limit of 0.0987 pounds/ton; for filterable PM_{10}, an emission factor of 0.0198 0~~.0296~~ pounds/ton is proposed, compared to the current emission factor limit of 0.06614 pounds/ton. The 2022 application does not show that the emission factors for the roof monitor on the basic oxygen furnace shop that are proposed as prescribed emission factors in Section 5.5.2.2 of the application are representative.[43]

Caster Mold, Slab Cutoff/Ripping Processes in Continuous Casting:
For the caster mold, slab ripping and slab ripping processes on the continuous casting lines, prescribed emission factors are proposed in Section 5.5.3 of the 2022 application that are identical to the baseline particulate emission rates for these emission units as generally discussed in Section

[41] The baseline emission rates for the roof monitor are based on emissions factors from AP-42 for uncontrolled emission with application of 90 and 99 percent capture efficiencies for the refining process and the charging and tapping processes, respectively, being provided by the ESP control system on the furnaces in the baseline period before 1996 (2022 application, Section 5.5.2.2). While the application cites to Appendix C in the original application for the Project as support for these values for capture efficiency, this appendix only uses these assumed values of capture efficiency when calculating baseline emission rates for the Project. This appendix does not actually provide technical support for these values for capture efficiency being representative of the levels of capture efficiency that were achieved for particulate emissions of the basic oxygen furnaces in the baseline period for the Project. Appendix C also does not provide support for the higher levels of capture efficiency (95% and 99.9%) that it uses for operation and emissions for the basic oxygen furnaces with the Project.

[42] It should generally be noted that the sections of the 2022 application that provide the explanation or basis for the emission factors used in the application are not the sections in which prescribed emission factors are proposed for certain units. The basis for the different emission factors is typically provided earlier in the application in the sections of the application where baseline emission rates are addressed. For example, the particulate emission rates or factors for the roof monitor on the blast furnace casthouse are discussed in Section 5.2.3.3 (2022 application, p. 5-3); the proposed prescribed emission factors for this emission point, which are the same numerically, are provided later in Section 5.5.1.2 without further discussion (2022 application, p. 5-14 and 5-15).

[43] The emission factors that the 2022 application proposes to be prescribed for particulate emissions from the roof monitor on the basic oxygen furnaces may be appropriate at the present time given the installation of a baghouse control system on these furnaces. Nonetheless, for a revised permit to be issued that prescribes emission factors for emission from the roof monitor, the application must show that those factors are representative with the emission control measures that are required by the permit. It must also be recognized that those prescribed factors would not be representative of emissions before the new baghouse system was installed and operation of this system was required. As such, particulate emissions factors that are representative of particulate emissions circa 1996, before installation of the baghouse system on the furnaces, should be used in the revised netting analyses for PM and PM_{10}.

5.2.2.11, 5.2.2.13 and 5.2.2.14 of the application. In these sections, the application explained that these emission factors reflect emission factors from a report prepared by the Illinois EPA in 1991, i.e., "Illinois EPA 1991 EIS PM/PM_{10}." This is not sufficient to show that the emission factors that are proposed as prescribed factors are representative. In this regard, the statement that these factors were taken from a historic report prepared by the Illinois EPA does not show that this report included information showing why these factors should be considered representative and can be prescribed by a revised permit.

Mag-Lime Silo:

For the Mag-Lime Silo, a prescribed emission rate of 0.009 pounds/hour is proposed (2022 application, Section 5.5.4.2). As explained in the application, this unit, which stores the reagent used in desulfurization of iron in the basic oxygen furnace shop, was overlooked in the original permitting of the Project (2022 application, Section 5.4.4 and Footnote 34, p. 5-16 and 5-17). US Steel elected not to address its baseline emissions in the revised netting analyses for PM and PM_{10} because emissions are low, i.e., potential annual emissions less than 0.1 tons. However, the application does not include calculations explaining how US Steel determined that potential particulate emissions of this unit are less than 0.1 tons/year, much less information showing that a prescribed emission rate of 0.009 pounds/hour should be considered representative of the emissions of this unit.[44]

[44] The application also does not explain how US Steel determined that the potential annual particulate emissions of the Mag-Lime Silo are less than 0.1 tons. In this regard, the application does not include calculations that identify any assumptions about operation of this unit or the control of its emissions made by US Steel when calculating the potential emissions of this unit. For example, for particulate matter, was the outlet emission rate of the filter that is part of this unit assumed to be less than the regulatory limit of 0.03 grains per dry standard cubic foot pursuant to 35 IAC 212.308 and 212.313?

9. FOR THE ROOF MONITOR OF THE CASTHOUSE, THE APPLICATION DOES NOT SHOW THAT THE METHODOLOGY THAT IS PROPOSED TO BE PRESCRIBED FOR THE DETERMINATION OF NOx AND VOM EMISSIONS WOULD BE REPRESENTATIVE

Overview of This Denial Point, with Information As Required or Specified by Section 39(a) of the Act for Denial of a Permit

1. *The Sections of the Act which may be violated if a revised permit were granted as requested:* Sections 9(a), 9.1(d), 39(a)*, 39(a)**, 39(a)***, 39.5(5)(i), 39.5(7)(a). 39.5(10)(a)(iv) and 39.5(13)(c)(v).

2. *The provision of the regulations under the Act which may be violated if the revised permit were granted as requested:* 35 IAC 201.160(a), 203.123, 203.128, 204.400 and 204.560.

3. *The specific type of information, if any, which the Agency deems the applicant did not provide the Agency:* Relative to the revision to Permit 95010001 that is requested to establish a certain "prescribed emission determination methodology" for the uncaptured NOx and VOM emissions of the blast furnace casthouse, the 2022 application does not include information justifying the future use of such proposed methodology for the purpose of determining compliance with the revised limitations for the NOx and VOM emissions of the blast furnace casthouse that are requested. In particular, the 2022 application does not include information showing that the proposed methodology should be considered representative, accurate and appropriate. In this regard, the 2022 application does not show that changes in the levels of captured NOx and VOM emissions, as measured by emission testing, would be due to actual changes in the overall level of NOx emissions from the casthouse rather than other causes. For example, changes in the levels of measured NOx or VOM emissions could be due to changes in the manner of operation of either the iron making/tapping processes or the baghouse control systems as they function to capture NOx and VOM emissions. Changes in the levels of measured emissions could also be due to the variation in the results of emission testing that may be present with the applicable reference test methods.

4. *A statement of specific reasons why the Act and the regulations might not be met if a revised permit were granted as requested:* Absent information as described above, the 2022 application does not include the necessary information to allow a revised permit to be proposed for the Project, much less issued, that would determine future uncaptured NOx and VOM emissions of the blast furnace casthouse based on the methodology proposed in the 2022 application. The 2022 application does not show that the proposed prescribed methodology would appropriately be relied upon for the purpose of addressing the future uncaptured NOx and VOM emissions of the blast furnace casthouse.

Discussion

For the NOx and VOM emissions of the roof monitor on the casthouse on the blast furnaces (i.e., uncaptured emissions, which do not pass through a control device), the 2022 application proposes a prescribed emission calculation methodology that involves the results of emission testing for the main baghouse for the casthouse and an assumed capture efficiency of 95 percent.[45] For example, for NOx emissions from the roof monitor, the application requests that,

> Prescribed emissions factors consistent with the approach described in Section 3 [Discussion of Permit Conditions Used to Restrict PTE] are provided herein. USS Granite City is proposing a prescribed emissions calculation methodology for NOx emissions from the blast furnace casthouse roof monitor based on application of 95% capture emissions to the NOx stack test result for the blast furnace casthouse baghouse.
>
> 2022 application, Section 6.5.1.2, Prescribed Emission Factors for Blast Furnaces Operations, p 6-9.

The application does not show that the "proposed methodology" would result in NOx and VOM emissions rates for the roof monitor that would be representative. In this regard, the proposed methodology would yield emission rates for the roof monitor that would be related directly to the measured emissions of the main baghouse on the casthouse. However, it would not address the effect of variation in capture efficiency on emissions. That is, with the proposed methodology, if emissions from the baghouse measured by a particular test were "lower," the calculated emission rate of the roof monitor would also be lower. The methodology would not address a situation in which the emissions measured by testing are lower because the capture efficiency of the baghouse system during testing was also lower. In this situation, there would actually be more emissions through the roof monitor. As such, unlike specific emission rates for NOx and VOM that would be prescribed in a revised permit, the "proposed methodology" would not address the NOx and VOM emissions from the roof monitor in a way that can reasonably be considered to be representative on an ongoing basis.[46, 47]

[45] With the proposed methodology, the NOx or VOM emission rate for the uncaptured emissions of the casthouse would be derived from the emission rate of the main baghouse measured by periodic testing using the following formula:

[{Measured rate of the baghouse (lbs/ton) ÷ 0.95} x 0.05] = Calculated rate for the monitor (lbs/ton)

[46] This issue would not be present with an appropriate prescribed emission factor. As such, a factor would not change based on the results of periodic testing, the factor could be reviewed when processing the application to confirm that it was conservatively developed so as to be representative on an ongoing basis.

[47] Section 7.5.1.2 of the 2022 application, which addresses the proposed calculation methodology for the VOM emissions from the roof monitor on the casthouse, erroneously refers to the results of emissions testing of the main baghouse system on the casthouse for NOx rather than testing for VOM.

10. THE APPLICATION DOES NOT INCLUDE NECESSARY SUPPORT FOR THE EMISSION FACTORS THAT ARE PROPOSED AS PRESCRIBED FACTORS FOR CERTAIN UNITS.

Overview of This Denial Point, with Information As Required or Specified by Section 39(a) of the Act for Denial of a Permit

1. *The Sections of the Act which may be violated if a revised permit were granted as requested:* Sections 9(a), 9.1(d), 39(a)*, 39(a)**, 39.5(5)(i), 39.5(7)(a), 39.5(10(a)(iv) and 39.5(13)(c)(v).

2. *The provision of the regulations under the Act which may be violated if the revised permit were granted as requested:* 35 IAC 201.160(a), 203.123, 203.128, 204.400 and 204.560.

3. *The specific type of information, if any, which the Agency deems the applicant did not provide the Agency:* Relative to the revisions to Permit 95010001 that are requested to establish certain "prescribed emission factors" as specifically proposed by the 2022 application, the application does not include information justifying the future use of such proposed factors for the purpose of determining compliance with the revised limitations for the emissions of the Project-affected units that are requested. In particular, as the proposed factors are derived from emissions factors developed by USEPA, the 2022 application does not include information showing that the factors that were derived and are now proposed should be considered representative, accurate and appropriate. For example, for the blast furnace casthouse, the application proposes a prescribed emission factors for uncaptured emissions of particulate that are based on factors in USEPA's *Compilation of Air Pollutant Emission Factors*, AP-42, and achievement of at least 95 percent capture efficiency by the particulate control systems on the casthouse (i.e., 5 percent of the particulate emission being uncaptured). However, as support for reliance on these systems achieving at least 95 percent capture efficiency, the application only refers to a single memorandum by USEPA staff and a consultant.

4. *A statement of specific reasons why the Act and the regulations might not be met if a revised permit were granted as requested:* Absent information as described above, the 2022 application does not include necessary information to allow a revised permit to be proposed for the Project, much less issued, that would determine future emissions of the subject emission units and emission points based on the factors proposed in the application. The application does not show that the proposed prescribed factors would appropriately be relied upon for the purpose of enforceably limiting the future emissions of the emission units and emission points for which they are proposed.

Discussion

The 2022 application does not include relevant supporting information for certain emission factors used in the application, as follows. Absent this information the Illinois EPA cannot assess whether the prescribed emission factors proposed for these units should be considered representative.

Blast Furnace Casthouse Roof Monitor:
The prescribed particulate emission factors proposed for the roof monitor on the blast furnace casthouse (i.e., the uncaptured emissions from the casthouse) are identical to the baseline emission rates. These rates are based on emission factors from AP-42 for uncontrolled emissions with application of a 95 percent capture efficiency for the baghouse control systems on the casthouse. The application only references a single memorandum from 2019 by various USEPA staff and a consultant as support for achievement of 95 percent capture efficiency (2022 application, Section 5.2.3). Further support is needed for a prescribed emission factor based on achievement of 95 percent capture.

Slag Pits:
For particulate emissions from quenching of slag, the 2022 application does not include a copy of the "EPA assessment" that is the basis of the emission factors and material showing how the selected emission factors were derived from this assessment. For emissions from transfer of slag, the application does not include a copy of the calculations by which the emission factors were developed from the formulas provided in AP-42, Section 13.2.4. The application also does not address whether the emission factors rely on control by the application of water or the presence of residual moisture and, if so, the basis for the assumed levels of control efficiency. (2022 application, Section 5.2.2.5, p 5-4).

Iron Pellet Screen:
For the Iron Pellet Screen, the proposed prescribed emission factor for PM and PM_{10} emissions is identical to the baseline emission rates (2022 application, Section 5.2.2.16). While the emission factor for uncontrolled emissions for screening of crushed stone in Table 11-19.2-2 in AP-42 is identified as the basis of this emission rate, a control efficiency of 85 percent is applied, reducing the factor that is actually used to 15 percent of the cited AP-42 factor. The application does not describe the means by which the particulate emissions of this screen are controlled or reduced to show that 85 percent control of particulate emissions is achieved for the Iron Pellet Screen.[48]
In addition, AP-42 lists two emission factors for screening of crushed stone, one for PM and one for PM_{10}. The emission factor for PM is about three times the factor for PM_{10} (0.025 pounds/ton ÷ 0.0087 pounds/ton = 2.87, ~ 3). The 2022 application does not show that for screening of iron ore pellets, an emission factor that was developed for PM_{10} is directly transferable to PM emissions.

[48] The CAAPP permit, Condition 7.4.2 indicates that the Iron Pellet Screen is not served by emission control equipment.

11. THE DETERMINATIONS OF PARTICULATE EMISSIONS FROM HANDLING OF COKE, IRON PELLETS AND LIMESTONE ARE NOT SUPPORTED AND CANNOT BE CONFIRMED

Overview of This Denial Point, with Information As Required or Specified by Section 39(a) of the Act for Denial of a Permit

1. *The Sections of the Act which may be violated if a revised permit were granted as requested:* Sections 9(a), 9.1(d), 39(a)*, 39(a)** and 39(a)***.

2. *The provision of the regulations under the Act which may be violated if the revised permit were granted as requested:* 35 IAC 201.152*,35 IAC 201.160(a).

3. *The specific type of information, if any, which the Agency deems the applicant did not provide the Agency:* For handling of coke, iron pellets and limestone, the baseline emissions of particulate matter (PM) and particulate matter-10 (PM-10) provided in the 2022 application are both 17.2 tons/year. The information for baseline emissions from handling these materials is not accompanied by supporting information. The application does not explicitly list the various units whose emissions are being addressed and describe the nature of the various units relative to their emissions of PM and PM-10. Data is not provided for the annual amounts of various materials that were handled by these units. Data is also not provided for the emission factors used to calculate annual emissions, the sources or basis of those factors, and why those factors should be considered representative of the emissions of the various types of units being addressed.

4. *A statement of specific reasons why the Act and the regulations might not be met if a revised permit were granted as requested:* Absent information as described above, the 2022 application does not include the necessary information to allow a revised permit to be proposed for the Project, much less issued, that would restrict future PM and PM-10 emissions of the subject units. The issuance of a revised permit with limitations for the future emissions of these units that are practically enforceable necessarily requires that the application include supporting information as discussed above. For example, the Illinois EPA needs information on how baseline emissions were determined to confirm that the baseline emissions were reasonably determined. This information is also needed to determine what limitations on emissions should be set in the revised permit and if the permit should require any specific practices to assure emissions are controlled to levels relied upon in the calculations of baseline emissions. Finally, this information is needed so appropriate permit conditions can be developed setting forth how compliance with the limitations is to be demonstrated.

Discussion

With regard to baseline particulate emissions, the determination of baseline emissions from handling of coke, iron pellets and limestone provided in the revised netting analysis cannot be independently confirmed. In this regard, the 2022 application does not provide needed supporting information for the “corrected” determinations of baseline particulate emissions of

these operations as it is not accompanied by detailed calculations for the emissions from handling each material. (2022 application, Table 5-5. "Pre-project Actual Emissions and Summary of Proposed Changes to Pre-Project PM Emissions Factors for Affected Emission Units" and Table 5-6, "Pre-project Actual Emissions and Summary of Proposed Changes to Pre-Project PM_{10} Emissions Factors for Affected Emission Units.")[49]

With regard to emissions with the Project, the 2022 application does not include information for particulate emissions from handling of coke, iron pellets and limestone. Since the by-product coke oven batteries were not shut down until 2015, emission information is needed for handling of coal for the period of operation with the Project before the batteries were shut down. Likewise for coke, emission information is needed to address handling of coke before US Steel constructed the conveyor system to receive coke directly from the heat recovery coke production facility built by Gateway.[50]

[49] Tables 5-5 and 5-6 do refer to "Table F-3 of the 1995 application" for these material handling operations. A copy of this table is provided in Appendix B of the 2022 application. However, this table only appears to address PM_{10} emissions, for which it provides annual emissions in tons/year. This table does not include calculations and background information showing how the annual emissions of PM_{10} were determined. Finally, the data for annual emissions of material handling operations appears to rely on the "PM10 SIP" requiring a 90 percent reduction from uncontrolled emissions without providing any support for this assumption.

[50] As this new system was constructed as part of a different project, i.e., the construction of the Gateway facility, rather than the Production Increase Project, US Steel should not address emissions that are specifically associated with this new system.

12. THE REQUESTED CHANGES TO THE GROUPING OF UNITS IN THE PERMIT FOR CONSISTENCY WITH THE GROUPINGS OF UNITS IN THE CAAPP PERMIT WOULD NOT ADDRESS ALL DIFFERENCES IN THE GROUPINGS OF UNITS

Overview of This Denial Point, with Information As Required or Specified by Section 39(a) of the Act for Denial of a Permit

1. *The Sections of the Act which may be violated if a revised permit were granted as requested:* Sections 9(a), 39(a)*, 39(a)**, 39(a)***, 39.5(5)(i), 39.5(7)(a), 39.5(10)(a)(iv) and 39.5(13)(c)(v).

2. *The provision of the regulations under the Act which may be violated if the revised permit were granted as requested:* 35 IAC 201.152* and 201.160(a).

3. *The specific type of information, if any, which the Agency deems the applicant did not provide the Agency:* The 2022 application requests certain changes to Permit 95010001 because the areas or sections of the CAAPP permit for the Granite City Works, Permit 96030056, in which certain emission units are addressed are not the same as those in Permit 95010001. Most notably, in Permit 95010001, discrete material handling and processing operations are addressed with the units with which they are associated. For example, handling of fluxes and alloy materials for the BOFs is addressed with the provisions of the permit for the BOF Shop. In the CAAPP Permit, handling of fluxes and alloy materials for the BOFs and other discrete material handling and processing operations are addressed in a separate section of the permit (Section 7.1) rather than with Blast Furnace Operations (Section 7.4), the BOF Shop (Section 7.5), or Continuous Casting Operations (Section 7.6). While it is reasonable for Permit 95010001 to be revised so that the placement of units in this permit is the same as their placement in the CAAPP permit, several concerns are posed by the specific changes to Permit 95010001 that are requested to accomplish this. In particular, the 2022 application requests that Permit 95010001 be revised to address the "Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy)" with other ancillary operations in the BOF Shop, rather than with the Continuous Casting Operations. This change would be appropriate as these units would be placed with other units that are subject to the Iron and Steel NESHAP, 40 CFR 63 Subpart FFFF, as they are BOF Shop ancillary operations. However, the application also requests that the permit be revised to refer to these units as "Baghouse 2 for Argon Stirring and Ladle Metallurgy Facility." This change would not be appropriate as it would refer to the baghouse serving these units and its emissions rather than to the units themselves and their emissions. The application also does not request any changes to Permit 95010001 for the "Deslagging Station and Material HS [Handling System]." In the CAAPP permit, these units are currently addressed twice, both with the discrete material handling operations (Section 7.1) and with continuous casting operations (Section 7.6). More importantly, the placement of these units in Permit 95010001 should be directed by the emission standards that apply to these units. These units would be appropriately addressed with BOF Shop Operations (Section 7.5) as they entail either a "skimming station" or "ladle metallurgy" for purposes of the Iron and Steel NESHAP. Finally, for "Ladle Drying/Preheating," the application does not request revisions to Permit 95010001 although the CAAPP permit addresses these emission units both with BOF Shop Operations (Section 7.5) and with other Project-affected fuel burning units (Condition 5.6.2(a)(ii)). In Permit 95010001, these units are currently only addressed as Project-affected fuel burning units.

4. *A statement of specific reasons why the Act and the regulations might not be met if a revised permit were granted as requested:* As related to the location in permits where certain emission units are addressed, the 2022 application does not request all revisions that are known to be appropriate to Permit 95010001, and, by means of Integrated Processing of the revisions to Permit 95010001, are appropriate to the CAAPP permit for the facility. For certain units, the application would not address differences in where the units are addressed by the two permits and the related emission standards and requirements that may apply to those units. As related to the naming of units, the Applicant requests a change that is improper as well as unnecessary. As such, if Permit 95010001 were revised with the placement of units in the permit shifted as requested by the 2022 application, it would preclude Integrated Processing of the revised permit. This is because the revision of Permit 95010001 would otherwise allow discrepancies or errors in the provisions for certain units in the current CAAPP permit, which have now been identified and are within the potential scope of the revisions to Permit 95010001, to be perpetuated by the amendments to the CAAPP permit that would be authorized.

Discussion

As addressed in Section 2.2.2 of the 2022 application, US Steel generally requests changes to the organization of Permit 95010001 because the areas or sections of the CAAPP permit in which certain units are addressed are different than those in Permit 95010001. Most notably, in Permit 95010001, discrete material handling and processing operations are addressed with either the blast furnace operations, operations in the basic oxygen furnace shop or the continuous casting operations, based upon the area with which they were considered to be associated. In the CAAPP permit, these discrete material handling and processing operations are generally addressed in a separate section of the permit, Section 7.1, "Material Handling and Processing Operations." In addition, in the CAAPP permit, the "Argon Stirring Station and Material Handling Tripper" was addressed with units in the basic oxygen furnace shop in Section 7.5 of the CAAPP permit rather than with the continuous casting operations as in Permit 95010001.

While it is reasonable for there to be consistency in the groupings or categorization of emission units in Permit 95010001 and the CAAPP permit, as generally requested by US Steel, several concerns are posed, as discussed below, by the specific changes to Permit 95010001 that have been requested.

Requested Changes for the "Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy)"**:**

As explained in Section 11.1.2 of the 2022 application, US Steel requests that the "Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy)" now be addressed in Permit 950100001 with operations in the Basic Oxygen Furnace Shop. The application also requests that this unit be identified as "Baghouse 2 for Argon Stirring and Ladle Metallurgy Facility." However, the application does not actually identify the specific units that would be addressed by the proposed new term. In this regard, the application is not accompanied by an itemized list of the equipment and activities that would be covered by this new term or a diagram that identifies this equipment and activities. US Steel's request also does not explain how the requested revision to Permit 95010001 would do what has generally been requested as the proposed new

term would refer to a "Material Handling Tripper." As the 2022 application requests changes to terminology in Permit 95010001, the changes should act to better identify the emission units that would be addressed, improving the specificity and clarity of the revised permit.[51, 52]

Absence of A Request for Revisions for the "Deslagging Station and Material HS"**:**
The 2022 application does not request any revisions to Permit 95010001 with respect to the Deslagging Station and Material HS (Handling System).[53] These emission units are currently addressed in Permit 95010001 with continuous casting operations (Permit 95010001, Condition 20 and Table 3). In the CAAPP permit, a "Steel Deslagging Station" is identified as one of the continuous casting operations (CAAPP permit, Condition 7.6.2(a)).[54] The 2022 application does not explain why this steel deslagging operation should not appropriately be categorized as slag skimming and addressed with the other slag skimming operations in the basic oxygen furnace shop. In this regard, for the argon stirring station, US Steel does explain in Section 11.1.2 of the 2022 application that this station should be addressed with operations in the basic oxygen furnace shop rather than with continuous casting operations. This is because this station is a "BOPF shop ancillary operation" for purpose of the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Integrated Iron and Steel Manufacturing Facilities, 40 CFR 63 Subpart FFFFF (2022 application, Section 11.1.2). US Steel does not explain why the current placement in Permit 95010001 of the steel deslagging station with continuous casting is appropriate and this station should not also be addressed with other BOPF shop ancillary operations. Alternatively, US Steel does not request that this station be addressed with other

[51] For example, the proposed new term would not make clear that the basic oxygen furnace shop actually has two ladle stirring stations and one ladle metallurgy furnace, all served by Baghouse 2.
[52] The requested change to the terminology for these emission unit(s) is also problematic as it would refer to a control device, Baghouse 2, rather than to the equipment or activities that generate emissions. Applied literally, the proposed term would only address captured emissions; it would not address the uncaptured emissions, which elude capture for control by the baghouse.
[53] For example, in Section 5.2, the 2022 application does not identify any updates or revisions to the pre-project actual emissions of the steel deslagging station and associated material handling system. Likewise, Appendix B – Emission Calculations does not identify any changes from the 1996 netting analyses that involve these units (Appendix B – Emission Calculations, USS Granite City – 1996 Production Increase Project: Revised PM PSD Net Emissions Increase Analysis and Revised PM10 PSD Net Emissions Increase Analysis).
[54] The presence of a deslagging station that is physically located in the continuous casting building is indicated in the pending application for renewal of the CAAPP permit. This application indicates that the particulate emissions of this station are controlled.

> Deslagging Station:
> Molten steel from the BOF is transferred directly from the BOFs to the continuous casting building. The first operation carried out in this building is the skimming of slag from the surface of the molten steel. Slag removed by this operation is skimmed into slag pots for disposal. Baghouse #1 is used to control emissions from this process.
>
> CAAPP Renewal Application, Appendix D: Process Descriptions, Section 7.6 Continuous Casting, Deslagging Station, p. D-56.

BOPF shop ancillary operations.[55] Slag skimming is one of the operations that 40 CFR 63.7852 defines as being "Basic oxygen process furnace shop ancillary operations."[56, 57]

For the "Deslagging Station and Material HS," the 2022 application also does not request revisions to Permit 95010001 as the CAAPP permit currently limits particulate emissions of this operation twice, once as a continuous casting operation and again as a material handling operation. In this regard, the CAAPP permit limits the particulate emissions of a "Deslagging Station and associated Material Handling System (Condition 7.6.6(a). As indicated by a reference in this condition, the CAAPP permit also limits emissions of a "Material HS and Deslagging Station" (Condition 7.1.6(b)(i)) in Section 7.1 of the CAAPP permit, where discrete material handling and processing operations are addressed. The 2022 application does not request revisions to Permit 95010001 to facilitate amendment of the CAAPP permit to appropriately address the emissions of this deslagging station and the associated material handling system. In the absence of such revisions, the current CAAPP permit would suggest that the revised netting analyses for particulate should address the emissions of these units twice, once as deslagging and once as material handling. On the other hand, if Permit 95010001 would address emissions of these units in this way, the consolidated emission limits for continuous casting and discrete material handling operations would be inappropriate as emissions of the deslagging station and the associated material handling system would be accounted for twice.[58]

---

[55] The proper categorization of this steel deslagging station is important when considering US Steel's request for consolidation of the emission limits currently set by Permit 95010001. As a general matter, any new, "consolidated" limits set by a revised permit must be developed to apply to sensible groupings of units. The groupings of units should facilitate identification in the revised permit of the regulatory requirements that apply to various units. This is especially true as the consolidated limits would rely on certain applicable regulatory requirements, e.g., the work practices and operational monitoring requirements under 40 CFR 63 CFR Subpart FFFFF, to assure consistent operation of emission units so as to keep short-term emissions at or below the established emission rates for the units.

[56] For this steel deslagging station, there is a potential compliance issue relative to the NESHAP, 40 CFR 63 Subpart FFFFF. The CAAPP permit indicates that the emissions of this station are not controlled (CAAPP permit, Condition 7.6.2). On the other hand, if its emissions are controlled by Baghouse 2, the direct applicability of the NESHAP to this station becomes a minor matter. This is because Baghouse 2 is directly subject to requirements of 40 CFR 63 Subpart FFFFF as it controls emissions from "ladle metallurgy." Ladle metallurgy is defined by 40 CFR 63.7852 as "… a secondary steelmaking process that is performed typically in a ladle after initial refining in a basic oxygen furnace to adjust or amend the chemical and/or mechanical properties of steel. This definition does not include vacuum degassing."

[57] It is also noteworthy that as the steel deslagging station is identified as a continuous casting operation by Permit 95010001, the permit applies 35 IAC 212.458(b)(8), which sets a limit of 5 percent, 6-minute average, for the opacity of emissions from the various continuous casting operations (Permit 95010001, Condition 19). However, Permit 95010001 omits the introductory language for this standard that provides that it does not apply to fugitive emissions. The introductory language is present in the CAAPP permit, which addresses the standards that apply to both fugitive and non-fugitive emissions of continuous casting operations (Permit 96030056, Conditions 7.6.3((b), (b)(ii) and (c)).

[58] If there was not actually a material handling system associated with the steel deslagging station, this could be readily addressed in the application for revisions of Permit 95010001. The application could acknowledge the error in the original application, as reflected in the permit that was issued, accompanied by an accurate diagram for the deslagging station as it existed in 1995 and as it now exists. In this regard,

For “Ladle Drying/Preheating,” Absence of Any Request for Changes**:**
For “Ladle Drying/Preheating,” the 2022 application does not request any changes to Permit 95010001 to maintain consistency with the approach to these units in the CAAPP permit. In Permit 95010001, these emission units are addressed with other Project-affected fuel burning units (Permit 95010001, Table 4, Certain Fuel Combustion Units). In the CAAPP permit, these units are addressed in Section 7.5 as “Basic Oxygen Processes” with other units in the Basic Oxygen Furnace Shop, as well as elsewhere in the permit with other Project-affected fuel burning units (e.g., Conditions 5.6.2((ii) and (iii)). In addition, the CAAPP permit sets a limit for the total NOx emissions of the BOF Shop (Condition 7.5.6(b)). In the absence of appropriate changes to the CAAPP permit, since the ladle drying/preheating takes place in the basic oxygen furnace shop, the limit for the NOx emissions of the basic oxygen furnace shop would apply to the sum of the NOx emissions of the basic oxygen furnaces and the ladle dryers/preheaters.

it is perhaps noteworthy that Permit 95010001 does not identify the material(s) that are handled by the material handling operations associated with the steel deslagging station.

13. THE 2022 APPLICATION DOES NOT REQUEST REVISIONS TO PERMIT 95010001 AND, INDIRECTLY, TO THE CAAPP PERMIT THAT WOULD ALSO BE NECESSARY AS THIS APPLICATION REQUESTS THAT THE REVISED PERMIT PRESCRIBE EMISSION FACTORS FOR CERTAIN UNITS

Overview of This Denial Point, with Information As Required or Specified by Section 39(a) of the Act for Denial of a Permit

1. *The Sections of the Act which may be violated if a revised permit were granted as requested:* Sections 9(a), 39(a)*, 39(a)**, 39(a)***, 39.5(5)(i), 39.5(7)(a), 39.5(10(a)(iv) and 39.5(13)(c)(v).

2. *The provision of the regulations under the Act which may be violated if the revised permit were granted as requested:* 35 IAC 201.160(a).

3. *The specific type of information, if any, which the Agency deems the applicant did not provide the Agency:* The 2022 application does not request that the revision to Permit 95010001 add condition(s) generally setting forth how compliance with annual emission limitations set by Permit 95010001 is to be determined. While revisions are requested to establish certain "prescribed emission factors" and "prescribed emission determination methodology," the application does not request related revisions to Permit 95010001 to generally address the procedures that are to be followed when determining compliance with the limitations on annual emissions set by Permit 95010001. In this regard, it is noteworthy that, if it were not stayed, Condition 5.13 of the CAAPP permit for the Granite City Works, Permit 96030056, would address the general procedures for how compliance with limitations on annual emissions set by Permit 95010001 is to be determined. (That condition is currently stayed following an appeal to the Pollution Control Board, PCB 2013-53.) That condition would generally require that compliance with limitations on annual emission be determined using "appropriate emission factors." However, that condition does not address nor would it provide for use of prescribed factors or methodology to determine compliance with limitations on annual emissions, as is being requested by the 2022 application.

4. *A statement of specific reasons why the Act and the regulations might not be met if a revised permit were granted as requested:* If a revised version of Permit 95010001 were issued that provided for use of prescribed emission factors and methodology without condition(s) generally setting forth how compliance with limitations for annual emissions in Permit 95010001 is to be determined for emission units which the permit establishes prescribed emission factors and methodology (similar to CAAPP Condition 5.13 as it currently addresses use of appropriate emission factors), the limitations on annual emissions in the revised permit would not be enforceable as a practical matter. In this regard, at this time, CAAPP Condition 5.13, which addresses the use of appropriate emission factors in determining compliance with annual emission limitations, cannot be relied upon for this purpose. As well as currently being stayed, that condition only provides for use of appropriate emission factors. It does not provide for the use of prescribed emissions factors or prescribed emission determination methodologies. Moreover, in the absence of a request in the 2022 application for suitable condition(s) generally addressing how compliance with limitations on annual emissions is to be determined, the

application does not show that the revision to Permit 95010001 that is requested would meet the criteria for Integrated Processing, as the application also specifically requests. That is, the 2022 application would not show that the request for a revised permit would provide for compliance requirements substantially equivalent to those provided for by the CAAPP since the application does not request that the revised permit include requirements substantially equivalent to those that would have been provided by CAAPP Condition 5.13 if it were not stayed.

Discussion

The 2022 application does not request revisions to general provisions in Permit 95010001 that would enable revisions to the CAAPP permit for the Granite City Works, Permit 96030056, to be made by administrative amendment to allow prescribed emission factors to be used to determine ongoing emissions of certain emission units. In this regard, the CAAPP permit currently provides that "appropriate emission factors" shall be used when determining emissions to evaluate compliance with the emission limits for process units set by Permit 95010001. Permit 95010001 does not specify how emissions are to be determined for this purpose, much less specify that, for certain emission units and pollutants, prescribed emission factors are to be used.[59] Accordingly, the procedures to determine compliance with the emission limits set by Permit 95010001 were established in the CAAPP permit for the Granite City Works. This was necessary because the emission limits set by Permit 95010001 are applicable requirements under the CAAPP. The procedures that were established in the current CAAPP permit do not provide for the use of prescribed emission factors. Rather, the CAAPP permit generally requires US Steel to use "appropriate emission factors," i.e., emission factors that do not understate emissions, with the primary responsibility for the appropriateness of the factors that are used placed on US Steel.[60] The CAAPP permit also provides for recordkeeping and reporting by US Steel so that the Illinois EPA and interested parties can know and may review for the emission factors that are being used. However, the 2022 application simply requests revisions to Permit 95010001 to require use of prescribed emission factors for certain units. The application does not address the fact that the CAAPP permit currently does not accommodate the use of prescribed emission factors to calculate emissions but instead requires use of "appropriate emission factors."[61]

[59] Condition 39(a) of Permit 95010001 did require "one-time testing" for various pollutant for certain emission units within 270 days of the date that this permit was initially issued. Additional time was subsequently provided to complete testing for the particulate emissions of a boiler when burning blast furnace gas. Unfortunately, the permit did not require testing of the NOx and VOM emissions of the BOFs. That testing was subsequently required by the CAAPP permit issued for the facility.

[60] This approach is consistent with a basic principle of the Title V permit program, as reflected in the CAAPP, that the responsibility for showing compliance with applicable air pollution control requirements for a facility lies with the source or Permittee for the facility, and not with the permitting authority.

[61] It should also be noted that in PCB 2013-53, the appeal that is pending before the Pollution Control Board for CAAPP permit 96030056, US Steel challenged Condition 5.13, General Procedures for Certain Permit Limits on Emissions. Condition 5.13 is relevant to the requested revisions of Permit 95010001 as it specifies procedures by which compliance is to be generally determined with the emission factor limits and annual emission limits set by Permit 95010001for process units. In addition to not proposing revisions to Permit 95010001 to accommodate use of prescribed emissions factors, the 2022 application does not address related revisions to Condition 5.13 of Permit 96030056 to potentially facilitate resolution of PCB 2013-53 as Condition 5.13 is challenged in this appeal.

14. THE 2022 APPLICATION DOES NOT ADDRESS THE AMENDMENT TO THE CAAPP PERMIT AUTHORIZED BY CONSTRUCTION PERMIT 11050006, AS IS RELEVANT FOR THE REQUESTED INTEGRATED PROCESSING OF THE REVISION TO PERMIT 95010001

Overview of This Denial Point, with Information As Required or Specified by Section 39(a) of the Act for Denial of a Permit

1. *The Sections of the Act which may be violated if a revised permit were granted as requested:* Sections 9(a), 9.1(d), 39(a)*, 39(a)**, 39(a)***, 39.5(5)(i), 39.5(7)(a), 39.5(10)(a)(iv) and 39.5(13)(c)(v).

2. *The provision of the regulations under the Act which may be violated if the revised permit were granted as requested:* 35 IAC 201.160(a).

3. *The specific type of information, if any, which the Agency deems the applicant did not provide the Agency:* The 2022 application was not accompanied by an application for an administrative amendment to incorporate changes to the CAAPP permit for the Granite City Works, Permit 96030056, that are authorized by Construction Permit 11050006, issued April 1, 2013. That construction permit addresses the baghouse control system installed on the BOFs to improve control of the particulate emissions of these furnaces from charging and tapping. As that construction permit was subject to Integrated Processing, it provides for certain changes to then be made in the CAAPP permit to the requirements for the BOFs as needed to accommodate the use of both this new baghouse control system and the existing electrostatic precipitator (ESP) system for control of emissions. However, US Steel has not initiated a revision to the CAAPP permit to incorporate changes as authorized by Permit 11050006 by submitting an application for an administrative amendment of the CAAPP permit.

4. *A statement of specific reasons why the Act and the regulations might not be met if a revised permit were granted as requested:* Absent the administrative amendment of the CAAPP permit as authorized by Construction Permit 11050006, as the 2022 application requests Integrated Processing, the application requests that revision of Permit 95010001 authorize changes to the current CAAPP permit. As such, the application effectively requests that separate from the revisions that are specifically requested by the application, the Illinois EPA reissue a CAAPP permit that, as related to the BOFs, contains provisions that are no longer accurate. For example, the description of the BOFs in CAAPP Conditions 7.5.1 and 7.5.2 does not indicate the use of the baghouse control system on the BOFs; only the ESP system is addressed. In addition, CAAPP Condition 7.5.5-1 does not address the corrective action procedures for baghouses required by 40 CFR 63.7800(b)(4). The addition of the baghouse system would be appropriately addressed in the CAAPP permit by the earlier amendment authorized by Construction Permit 11050006. As such, it would be contrary to the CAAPP to authorize further revisions to the CAAPP permit by means of Integrated Processing, as is requested by the 2022 application, without first making the revisions to the CAAPP permit authorized by Permit 11050006. Otherwise, the amendment of the CAAPP permit authorized by means of the revision of Permit 95010001 would be deficient. For the BOFs, as such a CAAPP permit, would not address certain applicable requirements, the

permit would not contain provisions to assure compliance with all applicable requirements. It would also continue to include requirements that, as addressed by Permit 11050006, would have become obsolete with the addition of the baghouse control system.

Discussion

The 2022 application does not identify the version of the Clean Air Act Permit Program (CAAPP) permit for the Granite City Works, Permit 96030056, that would be eligible for administrative amendment pursuant to the Integrated Processing of the revisions to Permit 95010001 that are requested. This is relevant because the Illinois EPA has already issued a construction permit with Integrated Processing, i.e., Construction Permit 11050006, issued April 1, 2013. This permit addresses the addition of a baghouse system to improve control of particulate emissions of the basic oxygen furnaces from charging and tapping of the furnaces. With the addition of this new system, the furnaces have three points of emissions, i.e., the new baghouse, the historic ESP, and the roof monitor on the furnace shop.[62] Certain work practices that were required by Permit 95010001 for control of particulate emissions of the furnaces with only an ESP system conflicted with the use of the baghouse system or would no longer be appropriate when emissions were also controlled with the new system. To address the fact that these work practices were also present in the CAAPP permit for the facility, Construction Permit 11050006 was subject to Integrated Processing and allowed certain changes to be made to the CAAPP permit by administrative amendment.[63] This was intended to enable use of the new baghouse system for improved control of particulate emissions in compliance with the CAAPP permit without the need for a subsequent permit proceeding to modify the CAAPP permit. However, US Steel has not initiated action for the Illinois EPA to actually issue an amended CAAPP permit with changes as authorized by Permit 11050006.[64]

Section 39.5(13)(a) of the Illinois Environmental Protection Act provides that "The Agency shall take final action **on a request** for an administrative permit amendment within 60 days after **the**

[62] The new baghouse system required a construction permit because this system would affect the requirements that then existed for control of particulate emissions of the basic oxygen furnaces, including their emissions of lead. For purposes of NSR, the construction permit was issued based on the new baghouse system being a project that would reduce the emissions of particulate and lead from these furnaces rather than increase these emissions. The permit was also based on this new system not increasing the emissions of other pollutants from these furnaces. As such, the construction permit for the new baghouse system, Permit 11050006, did not set limits for emissions from the baghouse system. This permit also did not lower the existing limits for the emissions of the basic oxygen furnaces.

[63] To address the changes to the CAAPP permit that would be needed for use of the new baghouse system, Permit 11050006 provides for replacement of Section 7.5 of the CAAPP permit, which addresses the basic oxygen furnace shop, including the basic oxygen furnaces, in its entirety. The new version of Section 7.5 addresses the basic oxygen furnace shop with the new baghouse system. Given the extent of the changes to Section 7.5 that were needed to accommodate addition of a baghouse to the particulate control system for the basic oxygen furnaces, this approach was taken to Permit 11050006 to provide accuracy, clarity and simplicity in the revisions to the CAAPP permit that were being authorized.

[64] The 2022 application does address the addition of the baghouse control system for the basic oxygen furnaces as related to the emission of the furnaces. US Steel does not propose separate limits set for the individual emission points for these furnaces. Instead, the application requests that the revised permit set overall limits for the emissions from the control systems of the basic oxygen furnaces.

receipt of the request." (Emphasis added.) Accordingly, in the absence of a formal request from US Steel to the Illinois EPA to initiate the administrative amendment of the CAAPP permit contemplated by Permit 11050006, the 2022 application can only request Integrated Processing to allow administrative amendments of the current CAAPP permit, as has actually been physically issued by the Illinois EPA.[65, 66]

[65] The timing of the physical issuance of a revised CAAPP permit by the Illinois EPA is critical as a procedural matter because it starts the period within which the Permittee may appeal such action to the Pollution Control Board. Moreover, in PCB 2013-62, US Steel has already appealed certain elements of the changes to the CAAPP permit that are addressed by the administrative amendment to the CAAPP permit authorized pursuant to Permit 11050006.

Given this appeal, the Illinois EPA would not "reinstate" those provisions when issuing the amended CAAPP permit. Instead, it is expected that the amended CAAPP permit would contain notes that explain that the appealed provisions continue to be present in the that existing CAAPP permit as they were appealed. Nevertheless, it is possible that US Steel would appeal those notes in the amended permit as they would acknowledge the continued existence of the appealed provisions.

[66] Concerns are posed by certain conditions in existing Construction Permit 11050006 and the related amendments to CAAPP Permit 96030056 that it authorizes. The 2022 application is not accompanied by a request for changes to Permit 11050006 or a proposal for how to address these concerns so that they would not be perpetuated in the amended CAAPP permit. One concern is that the deadlines in Permit 11050006 for performing emission testing on the new baghouse and completing certain other actions were based on the basic oxygen furnaces being in routine use once the construction of the new baghouse system was completed. The permit did not contemplate the over two yearlong interruption in production that began in December 2015. US Steel undertook this interruption in production in response to the poor markets for domestic steel at that time. As such, although failures to meet certain deadlines in Permit 11050006 likely were reasonable, it is not clear that they would be excused as being due to *force majeur* (i.e., event(s) that could not reasonably be anticipated or controlled by the source).

The other concern with existing Construction Permit 11050006 and the related amendments to CAAPP Permit 96030056 is that they overlook the role of the existing ESP control system in controlling particulate emissions from charging and tapping of the basic oxygen furnaces. Instead, Permit 11050006 incorrectly indicates that the new baghouse system will control emissions from charging and tapping of the furnaces and the existing ESP system will control emissions from the refining process. In fact, the new baghouse system was constructed to improve control of emissions from charging and tapping, with capture hoods to collect particulate emissions that are not captured by the hoods that serve the ESP system. This is perhaps most clearly shown in the 2010 Memorandum of Understanding between US Steel and the Illinois EPA (MOU) as this MOU addresses improvement in the control of emissions from charging of the furnaces. Section 4(d) of the MOU acknowledges the presence of the existing control for charging with the ESP. It also indicates that control of emissions from charging could be improved by ducting either some or all of these emissions to a new baghouse system. In any case, the errors in the description of the new baghouse system for the basic oxygen furnaces in Permit 11050006 should also be corrected so that erroneous information is not perpetuated in the amendments to the CAAPP permit.

15. THE 2022 APPLICATION WOULD NOT CLARIFY THE RELATIONSHIP BETWEEN FUGITIVE DUST CONTROL MEASURES REQUIRED BY PERMIT 95010001 AND MEASURES REQUIRED BY 35 IAC PART 212 SUBPART K

Overview of This Denial Point, with Information As Required or Specified by Section 39(a) of the Act for Denial of a Permit

1. *The Sections of the Act which may be violated if a revised permit were granted as requested:* Sections 9(a), 9.1(d), 39(a)*, 39(a)**, 39(a)***, 39.5(5)(i), 39.5(7)(a), 39.5(10)(a)(iv) and 39.5(13)(c)(v).

2. *The provision of the regulations under the Act which may be violated if the revised permit were granted as requested:* 35 IAC 201.160(a).

3. *The specific type of information, if any, which the Agency deems the applicant did not provide the Agency:* As related to practices to reduce emissions of fugitive dust from roadways, parking areas and open areas at the Granite City Works and certain public roadways near this facility, the 2022 application does not propose revisions to clarify the interplay between the associated recordkeeping and reporting that are required by Permit 95010001 and the associated recordkeeping and reporting that are required by Board rules. In this regard, except for Condition 25, Permit 95010001 does not address the Board's rules for control of emissions of fugitive dust. (Condition 25 addresses 35 IAC 212.316(e)(1), which limits the opacity of emissions from roadways and parking areas at the facility to no more than 5 percent, average of four vehicle passes, 3 opacity readings for each pass.) While the CAAPP permit for the facility addresses requirements in Board rules for control of fugitive dust, it is unclear whether the requirements for recordkeeping and reporting in 35 IAC 212.316(g) are applicable for the public roadways for which specific measures to reduce emissions of fugitive dust are required by Permit 95010001. This is because Condition 7.13.9(a) in Part 7.0 of the CAAPP permit, which contains "Unit Specific Conditions for Specific Emission Units," provides that the requirements of 35 IAC 212.316(g) apply for "… any fugitive particulate matter emission unit subject to 35 IAC 212.316," without further elaboration on whether public roads are subject to 35 IAC 212.316. However, Condition 5.3.2(c)(ii) in Part 5.0 of the CAAPP permit, which contains "Overall Source Conditions," explicitly applies the requirements for Fugitive Particulate Matter Operating Programs, 35 IAC 212.309, 212.310 and 212.312, to the public roadways for which measures to reduce emissions of fugitive dust are required. Accordingly, for the subject public roadways, the CAAPP permit indirectly indicates that the requirements of 35 IAC 212.316(g) also apply.

4. *A statement of specific reasons why the Act and the regulations might not be met if a revised permit were granted as requested:* Absent clarifying information as described above, the 2022 application does not include the necessary information to allow a revision to Permit 95010001 to be proposed, much less issued, for the Project with Integrated Processing, as is also requested by the application. This is because the amendment of the CAAPP permit that would be authorized by means of the requested revision of Permit 95010001 would be deficient. For roadways, parking areas and other open areas, such an amended CAAPP permit, would not clearly delineate the standards for opacity of emissions pursuant to Board rules that apply to the different

categories of emission units (e.g., 5 percent for roadways and parking areas at the facility, 10 percent for storage piles, and 20 percent for the on-site landfill). In addition, if provisions of 35 IAC 212.316 should not be applied to public roadways, as they are not part of the Granite City Works, such an amended CAAPP permit would improperly perpetuate errors in the current CAAPP permit regarding applicability of Board rules.

Discussion

For roadways, parking areas, and open access areas, Conditions 23, 24, 26, 27, 28, 29 and 30 of Permit 95010001 require implementation of control measures for emissions of fugitive dust. The 2022 application does not make clear the relationship between these requirements established by permit and state regulatory requirements for fugitive emissions in 35 IAC Part 212 Subpart K.[67] In particular, Condition 29 requires daily recordkeeping for the implementation of required measures for on-site dust control. However, it does not address the relationship between these permit-mandated records and the recordkeeping required by 35 IAC 212.316(g)(2).[68] At the same time, Permit 95010001 does address one requirement of 35 IAC Part 212 Subpart K as Condition 25 restates the requirement of 35 IAC 212.316(e)(1), which provides that the opacity of fugitive particulate matter emissions from any roadway or parking area at the Granite City Works shall not exceed 5 percent.[69] That Permit 95010001 does not currently deal with

[67] Incidentally, the CAAPP permit for the Granite City Works appears to erroneously apply the requirements of 35 IAC Part 212 Subpart K, to the requirements for off-site dust control in Permit 95010001. These regulatory requirements, including that subject sources must be operated under the provisions of an operating program designed to significantly reduce fugitive particulate matter emissions, are applicable to US Steel for sources of fugitive dust at the Granite City Works. However, 35 IAC 212.302 appears to provide that the various emission standards and control requirements in 35 IAC Part 212 Subpart K, other than the general standard for the opacity of fugitive emissions in 35 IAC 212.301, apply for emission units for fugitive dust at certain types of facilities, including manufacturing facilities. Accordingly, these regulatory requirements would not apply to off-site roadways and the compliance procedures for the control measures for off-site roadways should instead be established by permit.

[68] For example, for roadways and parking areas at a steel mill in Granite City (i.e., the Granite City Works), 35 IAC 212.316(g)(2) requires the owner or operator to keep the following detailed records related to the application of control measures for these units:

> 35 IAC 212.316(g)(2) …
>
> D) For each application of water or chemical solution to roadways by truck: the name and location of the roadway controlled, application rate of each truck, frequency of each application, width of each application, identification of each truck used, total quantity of water or chemical used for each application and, for each application of chemical solution, the concentration and identity of the chemical;
> E) For application of physical or chemical control agents: the name of the agent, application rate and frequency, and total quantity of agent, and, if diluted, percent of concentration, used each day;
> F) A log recording incidents when control measures were not used and a statement of explanation.

[69] In Condition 31, Permit 95010001 also refers to 35 IAC Part 212 Subpart U, which also addresses fugitive emissions. For certain facilities, including the Granite City Works, it requires that the owner or operator prepare a contingency measure plan for reductions in particulate emissions that could be implemented in the event of an exceedance of the NAAQS for PM10, 24-hour average. Incidentally, Illinois has never needed to implement the contingency plans required by 35 IAC Part 212 Subpart U.

regulatory requirements for fugitive dust is an issue as Integrated Processing of a revision of this permit requires that the compliance procedures in the revised permit be consistent with those required by the CAAPP.

16. THE 2022 APPLICATION DOES NOT ADDRESS CHANGES TO THE CAAPP PERMIT THAT ARE NEEDED DUE TO REVISIONS TO 40 CFR 63 SUBPART FFFFF, AS COULD BE EXPEDITED BY INTEGRATED PROCESSING OF PERMIT 95010001

Overview of This Denial Point, with Information As Required or Specified by Section 39(a) of the Act for Denial of a Permit

1. *The Sections of the Act which may be violated if a revised permit were granted as requested:* Sections 9(a), 39(a)*, 39(a)**, 39.5(5)(i), 39.5(7)(a), 39.5(10(a)(iv) and 39.5(13)(c)(v).

2. *The provision of the regulations under the Act which may be violated if the revised permit were granted as requested:* 35 IAC 201.160(a) .

3. *The specific type of information, if any, which the Agency deems the applicant did not provide the Agency:* The 2022 application does not address or identify changes to Permit 95010001 and, by means of Integrated Processing of the revision to Permit 95010001, the changes to the CAAPP permit for the Granite City Works, Permit 96030056, that are appropriate as a result of certain revisions of the Iron and Steel NESHAP, 40 CFR 63 Subpart FFFFF. Those revisions, which took effect in January 2022, provide that the emission standards in 40 CFR 63 Subpart FFFFF apply at all times. The prior exemptions from these standards for a subject unit during periods of startup, shutdown and malfunction no longer apply. The provisions of 40 CFR 63 Subpart FFFFF are relevant to Permit 95010001 as it directly or indirectly relies on these rules for the compliance procedures that accompany the permit limitations for the particulate emissions of the NESHAP-subject units, as needed to make those limitations enforceable as a practical matter. For the BOFs, Permit 95010001 directly relies on 40 CFR 63 Subpart FFFFF as Condition 9 refers to applicable provisions of 40 CFR 63 Subpart FFFFF for the work practices, opacity limits, operational limits, emission testing, operational monitoring, recordkeeping and reporting that are required. For the blast furnace casthouse and units other than the BOFs that are subject to 40 CFR 63 Subpart FFFFF, the applicable compliance provisions of this NESHAP are currently indirectly relied upon as those requirements are addressed in the CAAPP permit for the facility,. (For the BOFs, the CAAPP permit also addresses the applicable compliance procedures of 40 CFR 63 Subpart FFFFF.)

4. *A statement of specific reasons why the Act and the regulations might not be met if a revised permit were granted as requested:* Absent explicit recognition in the 2022 application of the recent revisions to 40 CFR 63 Subpart FFFFF, the version of Permit 96030056 that would be authorized by means of the Integrated Processing of revised Permit 95010001 could continue to reflect the historic version of 40 CFR 63 Subpart FFFFFF, prior to the revisions related to startup, shutdown and malfunction. For example, the current CAAPP permit addresses provisions of 40 CFR 63 Subpart FFFFF that required startup, shutdown and malfunction plans that were removed in the revision of these rules. (Refer to CAAPP Condition 7.4.5-2(a) for the “affected blast furnaces and casthouses [sic]” and CAAPP Condition 7.5.5-2(a) “for BOF [sic].”) This would be an impediment to Integrated Processing of a revision to Permit 95010001 if the revised permit would not provide for compliance requirements that are substantially equivalent to those

required by the CAAPP. It would clearly be contrary to the compliance requirements of the CAAPP if for the casthouse and the BOFs, the amended CAAPP permit that would be authorized be issued by means of Integrated Processing would still include provisions of the historic version of 40 CFR 63 Subpart FFFFF that have ceased to apply.

Discussion

The 2022 application does not address revisions to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Integrated Iron and Steel Manufacturing Facilities, 40 CFR 63 Subpart FFFFF, made by USEPA in July 2020. (85 Federal Register, pages 42,074 – 42,130, July 13, 2020). Among other revisions to 40 CFR 63 Subpart FFFFF, USEPA acted to remove exemptions from the emission and opacity limits in this NESHAP for periods of startup, shutdown and malfunction (SSM). Accordingly, effective January 12, 2022, the emission and opacity limits of this NESHAP became applicable at all times. The requirements of this NESHAP that formerly dealt with SSM ceased to be applicable. Notably, subject sources would no longer be required to keep startup, shutdown and malfunction plans detailing the procedures for operating and maintaining subject emission unit(s) during periods of SSM, as had been required by 40 CFR 63 Subpart FFFFF as it had applied 40 CFR 63.6(e)(3) in the general provisions of the NESHAP regulations to subject sources,

These revisions to 40 CFR 63 Subpart FFFFF are relevant for Permit 95010001 and the revisions to this permit requested by the 2022 application. This is because Permit 95010001 relies on the applicable compliance procedures of 40 CFR 63 Subpart FFFFF (i.e., requirements for emission testing, opacity observations operational monitoring and recordkeeping), to verify consistent operation of the casthouse, the basic oxygen furnaces and other NESHAP-subject units and their emission controls, for the purposes of assuring compliance with the emission limits set by this permit for their emissions of particulate. This reliance occurs as the emission limits that are set or would be set by a revised permit would be restated in the CAAPP permit for the Granite City Works, Permit 96030056. The provision currently in CAAPP Permit 96030056 that reflect the exceptions to the requirements of 40 CFR 63 Subpart FFFFF for SSM create a break or interruption in this reliance on the NESHAP for purposes of enforceability of permit limits for emissions, even if the actual nature and effect of this break or interruption is uncertain. Any concern over such interruptions would be eliminated if the former provisions of the NESHAP regulations, which USEPA acted to strike in July 2020, were also no longer present in the CAAPP permit.[70]

[70] From a legal and practical perspective, the continued presence of the former provisions of 40 CFR 63 Subpart FFFFF in the CAAPP permit would be problematic. Would US Steel have to maintain startup, shutdown and malfunction plans as related to particulate emissions of NESHAP-subject units relative to permit limits for particulate emissions? Would the continued presence of these provisions in the CAAPP permit throw Integrated Processing of Permit 95010001 into question as the compliance procedures that would accompany the limits for particulate emissions in revised Permit 95010001 would not be consistent with the procedures required by the CAAPP? Would US Steel and the Illinois EPA have to delineate and then implement a secondary version of the compliance procedures that would deal with emissions of particulate from NESHAP-subject units during SSM events?

17. THE 2022 APPLICATION DOES NOT ADDRESS CHANGES TO THE CAAPP PERMIT THAT HAVE RESULTED FROM SHUTDOWN OF EMISSION UNITS, AS IS RELEVANT FOR THE REQUESTED INTEGRATED PROCESSING OF THE REVISION TO PERMIT 95010001

Overview of This Denial Point, with Information As Required or Specified by Section 39(a) of the Act for Denial of a Permit

1. *The Sections of the Act which may be violated if a revised permit were granted as requested:* Sections 9(a), 39(a)*, 39(a)**, 39(a)***, 39.5(5)(i), 39.5(7)(a), 39.5(10(a)(iv) and 39.5(13)(c)(v).

2. *The provision of the regulations under the Act which may be violated if the revised permit were granted as requested:* 35 IAC 201.160(a).

3. *The specific type of information, if any, which the Agency deems the applicant did not provide the Agency: T*he 2022 application does not identify or address changes to the CAAPP permit for the facility, Permit 96030056, that result from the permanent shutdown of certain emission units at the facility. US Steel has also not taken other action to initiate issuance of a revision of Permit 96030056 that would remove provisions for emission units that are now permanently shutdown. In this regard, for example, Permit 96030056 currently includes provisions addressing the two by-product recovery coke oven batteries at the facility that were permanently shut down in 2015.

4. *A statement of specific reasons why the Act and the regulations might not be met if a revised permit were granted as requested:* Absent information in the 2022 application or other appropriate action by US Steel, as addressed above, the application does not include the necessary information to enable a revision to Permit 95010001 to be issued with Integrated Processing. This is because the application would not show that such a revision to Permit 95010001 would meet the criteria for Integrated Processing, as is specifically requested by the application. That is, the 2022 application would not show that the revisions to Permit 95010001 would provide for procedural and compliance requirements in Permit 96030056 that are substantially equivalent to those provided for by the CAAPP. The application would not support subsequent amendment of Permit 96030056 by means of Integrated Processing that would remove provisions for units that are now shutdown. Instead, absent an appropriate request, the application, would only support issuance of an amended CAPPP permit that would include the current provision for units that are now shut down. In this regard, the Integrated Processing of a construction permit only allows for subsequent amendments to a CAAPP permit as provided for by the construction permit. The Illinois EPA is not given independent authority to revise a CAAPP permit to remove provisions for units that are now shut down but are not otherwise the subject of the construction permit application.

Discussion

The 2022 application does not identify changes to the CAAPP permit for the Granite City Works, Permit 96030056, that are a consequence of permanent shut down of emission units, as generally addressed by Condition 9.11 of the CAAPP permit.

> Condition 9.11 Permanent Shutdown
> This permit only covers emission units and control equipment while physically present at the indicated source location(s). Unless this permit specifically provides for equipment relocation, this permit is void for the operation or activity of any item of equipment on the date it is removed from the permitted location(s) or permanently shutdown. …

While the 2022 application acknowledges that the by-product coke ovens at the Granite City Works have been shut down, this application does not separately address the consequences for the current CAAPP permit. The shutdown of these batteries was accompanied by the shutdown of coal and coke handling operations, the coke by-products plant, the handling of coke by-products, and possibly certain wastewater treatment processes.[71, 72] In addition, although not shut down, Boilers 11 and 12, Ladle Dryer/Preheaters and Slab Reheat Furnaces are no longer able to use COG as fuel since COG is no longer produced at the facility. As such, provisions in the CAAPP permit that identify or address the use of COG in these units are no longer necessary.[73] It would be improper for the revised version of the CAAPP permit authorized by means of the Integrated Processing of a revision to Permit 95010001 to still physically include provisions that should no longer be present in the revised CAAPP permit given the permanent shutdown of the emission units that were subject to those provisions.[74] The responsibility to identify provisions in

---

[71] The elimination of COG also affected the applicability of emission standards to certain units. For example, 35 IAC 212.458(b)(23) is no longer applicable, to ladle dryers/preheaters, contrary to what is stated in Condition 7.5.3-1 of the CAAPP permit.

[72] US Steel's current application for renewal of CAAPP Permit 96030056, which was received by the Illinois EPA on December 3, 2013, also does not address shut down of the by-product coke oven batteries and other related operations at the facility. This application only acknowledges that changes to the CAAPP permit will be needed in the future to address the addition of the baghouse to the particulate control system for the basic oxygen furnaces when construction of the baghouse is complete.

> The existing equipment descriptions for the individual processes at GCW (Granite City Works) in the CAAPP permit sections 7.1 to 7.4 and 7.6 to 7.13 are generally accurate. However, the Basic Oxygen Furnace process described in the CAAPP permit condition 7.5 will eventually need to be updated with the new secondary baghouse added as part of the Emission Reduction Project (Construction Permit No. 11050006) once construction is complete.
>
> Application for Renewal of CAAPP Permit 95030056, Section 2.2.2, "Process Changes."

[73] Irrespective of whether certain provisions in the CAAPP permit related to use of COG are still necessary, Condition 5.6 of the CAAPP permit limits the SO_2 emissions of these units from use of COG. (This condition restates limits from Federally Enforceable State Operating Permit 94120017, originally issued December 12, 1994.) The absence of COG does not act to excuse US Steel from required recordkeeping and periodic reporting for emissions of SO_2 and PM_{10} from these units from use of COG (CAAPP permit, Conditions 5.9(e) and 5.10.3). It also does not excuse US Steel from required operational monitoring for the use and sulfur content of COG (CAAPP permit, Conditions 5.6(a) and 7.3.9(f)). In this regard, the emission units addressed by CAAPP Condition 5.6, which are addressed by these requirements for operational monitoring, recordkeeping and reporting, have not been shut down.

[74] A fundamental requirement of the CAAPP is that applications for CAAPP permits must be truthful, accurate and complete. In this regard, Section 39.5(5)(e) of the Environmental Protection Act provides that "Each submitted CAAPP application shall be certified for truth, accuracy, and completeness by a

the CAAPP permit that should not be carried forward initially falls on US Steel as it is the CAAPP Permittee for the Granite City Works.[75] Moreover, as the 2022 application requests Integrated Processing of the requested revisions to Permit 95010001, the subsequent revisions to the CAAPP permit that would be authorized by the revisions to Permit 95010001 must fulfill the requirement that a CAAPP permit issued for a source accurately identify or address the emission units that constitute the source is being permitted.

responsible official in accordance with applicable regulations." Section 10(a)(i) of the Act provides that one of the standards of issuance for a CAAPP permit by the Illinois EPA is that "… the applicant has submitted a complete and certified application for a permit, permit modification, or permit renewal consistent with subsection 5 and 14 of this Section [Section 39.5 of the Act], as applicable, and applicable regulations." The requirement for an application to be truthful, accurate and complete is applicable to US Steel's current request for revisions to Permit 95010001 as it includes a request for Administrative Amendment to the CAAPP permit for the Granite City Works by means of Integrated Processing under the CAAPP. The scope of this requirement's applicability is not limited to only certain types of CAAPP applications, such as applications for initial CAAPP permits or renewals of CAAPP permits.

[75] As US Steel is the Permittee for a CAAPP source, it must periodically report compliance or noncompliance with each of the requirements set forth in the CAAPP permit. If US Steel believes that it is "in compliance" with regard to certain requirements in the CAAPP permit because those requirements have been affected by Condition 9.11 of the CAAPP Permit, it is appropriate for US Steel to request appropriate changes to the CAAPP permit by means of an appropriate application for amendment or modification of the CAAPP permit. This is especially true as certain requirements in the CAAPP permit that relate to use of COG apply to emission units that have not been shut down.

18. THE EVALUATION OF BEST AVAILABLE CONTROL TECHNOLOGY (BACT) IN THE 2022 APPLICATION FOR CARBON MONOXIDE (CO) IS NOT SUFFICIENT AND DOES NOT ADEQUATELY SUPPORT US STEEL'S PROPOSAL FOR BACT

Overview of This Denial Point, with Information As Required or Specified by Section 39(a) of the Act for Denial of a Permit

1. *The Sections of the Act which may be violated if a revised permit were ranted as requested:* Sections 9(a), 9(b)(2), 9.1(d), 39(a)*, 39(a)** and 39(a)***.

2. *The provision of the regulations under the Act which may be violated if the revised permit were granted as requested:* 35 IAC 201.152*, 201.152***, 201.160(a), 204.280, 204.330, 204.810, 204.820 and 204.1100(c).

3. *The specific type of information, if any, which the Agency deems the applicant did not provide the Agency:* For the blast furnace casthouse, for which BACT for CO must now be set as it has been realized that the casthouse emits CO, the BACT demonstration in the 2022 application does not show that options for BACT for CO other than add-on control devices were considered. For the blast furnace stoves, for which BACT for CO must now be reevaluated as increases in permitted emissions are requested, the application is not accompanied by diagrams and cost data supporting the claim that it is not feasible to conduct emission testing by USEPA reference methods for the CO emissions of the stoves. This information is necessary for the stoves if BACT for CO is to not be set as a numerical standard. (The 2022 application requests that the revised permit recognize CO emissions from the casthouse of about 300 tons/year, of which about 100 tons/year would be the increase from the Production Increase Project; the requested increase in permitted CO emissions from burning blast furnace gas (BFG) in the blast furnace stoves is almost 10,000 tons/year, with an overall increase, also considering the BFG flares and boilers, of more than 20,000 tons/year.) For both the casthouse and the blast furnace stoves, the BACT demonstrations in the application do not include descriptions or documentation for the investigations that were conducted into available options for control of CO.

4. *A statement of specific reasons why the Act and the regulations might not be met if a revised permit were granted as requested:* Absent information as addressed above, the BACT demonstrations in the 2022 application for CO are not complete. They do not show that BACT would be utilized for CO with changes in permitted CO emissions of the Project as requested by the application. As such, they cannot be relied upon to conclude that BACT is utilized for CO for the casthouse and blast furnace stoves, much less, for the Illinois EPA to set appropriate requirements as BACT for CO in a revision to Permit 95010001.

Discussion

The evaluation of Best Available Control Technology (BACT) for CO in Section 8 of the 2022 application lacks necessary information to support US Steel's proposal for BACT for CO for the emissions units for which this must be determined or redetermined under the PSD program as a consequence of the requested revisions to Permit 95010001. The evaluation addresses BACT for

CO for the casthouse for which BACT must now be determined as it is now recognized that the casthouse emits CO. It also addresses BACT for CO for the blast furnace stoves as the 2022 application requests that the revision of Permit 95010001 allow for more emissions of CO from these units.

The Scope of the Evaluation

As explained in the 2022 application, consistent with the definition of BACT in Section 169(3) of the Clean Air Act (42 US Code Section 7479(3) and as confirmed by USEPA guidance, a determination of BACT must consider options to control or reduce emissions of an emission unit besides add-on control devices.

> In the BACT analyses herein, the term "available" is used, consistent with U.S. EPA guidance to refer to any control strategy that is potentially applicable to the source type in question (i.e., a technology or control option that has a practical potential for application to the source category in general). These may include fuel cleaning, inherently lower polluting processes, and end of pipe control devices. All identified control strategies that are not inconsistent with the fundamental purpose and basic design of the proposed [sic] facility are listed in this step.
>
> 2022 application, Section 8.2.1.4, "Available Control Options," p. 8-4.

For the casthouse, when identifying control options, the BACT evaluation only identifies end-of-pipe or "add-on control" control options. The evaluation does not identify other process-related control options such as work practices (2022 application, Section 8.2.3.3). In contrast, for the blast furnace stoves, the evaluation identifies both add-on control options and a process-related control option. i.e., "Work Practice Standards, including good combustion practices" (2022 application, Section 8.2.2.3). The evaluation does not explain why process-related control options are not available for the casthouse.[76]

Support Provided for the Scope of the BACT Evaluation

[76] Incidentally, with regard to the blast furnace stoves, the evaluation does not explain why "good combustion practices" are considered to be a type of work practice standard rather than a separate control option. In Section 8.2.2.6 "Step 5 - Establish CO BACT," the evaluation proposes operational monitoring for temperature and oxygen levels to confirm operation of the stoves for efficient combustion of fuel, thereby maintaining CO emissions within the level that is achievable given the nature of the physical and operational design of the stoves. The evaluation also separately proposes the less prescriptive practices that are more often considered to constitute good combustion practices. For example, Section 8.2.2.6 also proposes to, "Conduct annual adjustment and tune-up to include, **at a minimum**, inspecting, adjusting, cleaning, or replacing instrumentation and operational control system components and inspecting the air-to-fuel ratio control system and adjusting as **appropriate** for **proper** operation." [Emphasis added.]
Moreover, this statement of what would constitute "good combustion practices" for the stoves would be problematic as it would not be enforceable given the various qualifications, as highlighted, on the actions that are required actions to be taken.

For both the casthouse and the blast furnace stoves, the BACT evaluation in the 2022 application is not accompanied by supporting documentation for the investigation that was conducted into available control options. Instead, the evaluation simply states that a review of available control options was conducted. For example, for the casthouse, the evaluation states:

> Based on a review for BACT determinations in U.S. EPA's RBLC (RACT/BACT/LAER Clearinghouse) database and other literature, the control options that are potentially available to control CO emissions from the blast furnace casthouse are:
>
> - Capture system and thermal incineration and
> - Capture system and catalytic incineration.
>
> 2022 application, Section 8.2.3.3, p. 8-8.

When a BACT evaluation is submitted, it may be appropriate or necessary[77] for the application to also include documentary support for the review of available control options that was conducted. In this regard, BACT evaluations commonly include copies of information from the RBLC that is potentially relevant to the determination of BACT that must be made. Further explanation is also provided if some of that information is not considered applicable to the units that are the subject of the BACT determination. Likewise, as there is relevant information in the literature, especially as it is addresses available control options for the subject pollutant, copies of that information should be included in a BACT evaluation. This information enables the Illinois EPA, the USEPA and interested parties to confirm that the review of available control options for a BACT evaluation was thorough and can be relied upon to have reasonably identified potentially available control options for BACT.

Support Provided for Work Practices As BACT for the Blast Furnace Stoves

For the blast furnace stoves, the BACT evaluation for CO in the 2022 application proposes that BACT reflect certain good combustion practices for CO, rather than numerical emission standards. [78] However, the 2022 Application is not accompanied by supporting documentation to

[77] For the 2022 application, this information is considered necessary. BACT determinations for the CO emissions of casthouses for blast furnaces and blast furnace stoves are uncommon. The Illinois EPA does not have the ability based simply on its own experience and knowledge to confirm that the potential control options for CO BACT were reasonably identified in the BACT evaluations in the application.
[78] The definition of BACT at 35 IAC 204.280 provides that:

> If the Agency [Illinois EPA] determines that technological or economic limitations on the application of measurement methodology to a particular emission units would make the imposition of an emission standard infeasible, a design, equipment, work practice, operational standard or combination thereof, may be prescribed instead to satisfy the requirement for the application of BACT. Such standard shall, to the degree possible, set further the emission reduction achievable by implementation of such design, equipment, work practice or operation, and shall provide for compliance by means that achieve equivalent results.

support the claim that it is infeasible to measure their CO emissions so that BACT should not be set as a numerical emission standard.[79]

Further support is needed for the claim that measurement or testing of emissions of the blast furnace stoves is infeasible. While certain information about the stoves is provided, the application does not directly address the technological issues or costs that would be entailed to install suitable ports for testing on one or both sets of blast furnace stoves. For example, the application does not include diagrams for the existing ductwork of the stoves to address whether the configuration of this ductwork would accommodate installation of test ports at a location that would satisfy USEPA Reference Method 1. The application also does not show how the refractory lining on the stacks or their age, approximately one hundred years old, would present significant technical challenges and costs so that the installation of test ports at a suitable location should be considered infeasible. The application also does not show that there are other challenges that would need to be addressed or issues that should be considered, such as requirements of the Occupational Safety and Health Administration (OSHA), that would affect the technical feasibility and cost of installing suitable test ports on the stoves.

[79] With respect to BACT for the blast furnace stoves, the 2022 application indicates:

> USS Granite City is proposing work practice requirements rather than numeric limits as BACT. Numeric emission limitations are not proposed because direct measurement of emissions --*i.e.*, use of U.S. EPA reference test methods—is not feasible for any of the fuel emissions units subject to the BACT requirements for CO emissions. In particular, for the stack serving the blast furnace A stoves, there is no sampling port,[45] and for the stack serving the blast furnace B stoves there is no sampling port satisfying the location requirement in U.S. EPA Reference Method 1.[46] Each stack is refractory lined and is believed to be approximately one hundred years old.
> For the reasons presented above, numeric CO emission standards are not feasible for the blast furnace stoves.
>
> Footnote 45. For the one-time exhaust gas sampling event discussed in footnote 19 of this permit application, USS Granite City inserted a sampling probe into the stack through a pipe used to inject steam into the stack.
>
> Footnote 46. Appendix A-1 to 40 CFR part 60.
>
> 2022 application, Section 8.2.2.6 “Step 5 – Establish CO BACT,” p. 8-7.

19. THE APPLICATION DOES NOT ADDRESS BACT FOR SULFUR DIOXIDE (SO_2) AND CO FROM USE OF COKE OVEN GAS (COG) IN THE BLAST FURNACE STOVES

Overview of This Denial Point, with Information As Required or Specified by Section 39(a) of the Act for Denial of a Permit

1. *The Sections of the Act which may be violated if a revised permit were granted as requested:* Sections 9(a), 9.1(d), 39(a)* and 39(a)**.

2. *The provision of the regulations under the Act which may be violated if the revised permit were granted as requested:* 35 IAC 201.152*, 201.152***, 201.160(a), 204.280, 204.330, 204.810 and 204.1100(c).

3. *The specific type of information, if any, which the Agency deems the applicant did not provide the Agency:* The 2022 application does not include demonstrations of BACT for sulfur dioxide (SO_2) and CO from the burning of coke oven gas (COG) in Project-affected fuel burning units.

4. *A statement of specific reasons why the Act and the regulations might not be met if a revised permit were granted as requested:* Absent information as described above, the 2022 application does not allow a revision to Permit 95010001 to be issued for the Production Increase Project (Project)that considers baseline emissions from burning COG. This is because the application does not provide the demonstrations of BACT that is required as the Project is a major modification for SO_2 and CO under PSD. In this regard, unlike the initial permitting of the Project, the 2022 application now quantifies emissions of particulate, NOx and VOM from burning COG and these emissions are included in revised determinations of baseline emissions. (In 1996, the Project was permitted as a major modification for SO_2 and CO but did not quantitatively address emissions from burning COG.) If emissions from burning of COG are to be relied upon for the issuance of a revised permit, the 2022 application must also address the BACT requirements of PSD for the SO_2 and CO emissions from use of COG, as would have been applicable in 1996, when the Project commenced. The fact that the by-product recovery coke batteries at the Granite City Works were shutdown in 2015 and COG is no longer available at the facility, does not alter the applicable requirements under PSD that must be satisfied. PSD would be violated if a revised permit were issued for the Project based on revised NSR applicability analyses that considered use of COG, as contained in the 2022 application, absent demonstrations that the Project utilized BACT for emissions of SO_2 and CO from use of COG.

Discussion

The 2022 application does not demonstrate that Best Available Control Technology (BACT) was utilized as an aspect of the Project for the SO_2 and CO emissions of the blast furnace stoves, as required under the PSD program (e.g., 35 IAC 204.1100(c)). In this regard, unlike the original application, the 2022 application addresses emissions from use of coke oven gas (COG) as fuel in certain Project-affected units. (Refer to the revised netting analyses for the Project for particulate, NOx and VOM and in the 2022 application.) As the 2022 application now addresses emissions of certain pollutants from burning of COG in fuel-burning units, including the blast

furnace stoves, this application must also address the related consequence for emissions of SO_2 and CO under the PSD program from burning COG in the stoves. SO_2 and CO are pollutants for which the Project is a major modification subject to PSD. However, the 2022 application does not address BACT for SO_2 and CO as applied to use of COG in the stoves. As such, the 2022 application does not demonstrate that prior to February 2015, when the by-product recovery coke oven batteries at the Granite City Works were shut down and COG ceased to be available, BACT was being utilized for the SO_2 and CO emissions from use of COG in the stoves.

With respect to CO, it is relevant that the BACT demonstration in the 2022 application focuses on CO emissions from burning of fuels other than COG. For fuel burning units, the 2022 application states that “CO emissions of these units result primarily from incomplete combustion during the firing of BFG and natural gas.” This ignores the historic contribution of COG to the CO emissions of the stoves prior to February 2015. The 2022 application also does not state that, as of February 2015, it was no longer necessary to address CO emissions from use of COG because COG was no longer produced and available for use.

20. AS RELATED TO SO_2 EMISSIONS FROM USE OF BFG, THE 2022 APPLICATION IS INCONSISTENT WITH A PENDING 2008 APPLICATION

Overview of This Denial Point, with Information As Required or Specified by Section 39(a) of the Act for Denial of a Permit

1. *The Sections of the Act which may be violated if a revised permit were granted as requested:* Sections 9(a), 9(b)(2), 9.1(d), 39(a)*, 39(a)** and 39(a)***.

2. *The provision of the regulations under the Act which may be violated if the revised permit were granted as requested:* 201.160(a).

3. *The specific type of information, if any, which the Agency deems the applicant did not provide the Agency:* As related to emissions of sulfur dioxide (SO_2) from burning blast furnace gas (BFG), the 2022 application is inconsistent with and conflicts with an earlier application for revisions to Permit 95010001 that was received on February 8, 2008 (the "2008 application"). For the emissions of SO_2 from burning of BFG, the 2008 application requests increases in the emissions that are allowed by Permit 95010001. The 2022 application does not request such increases and does not request any changes to Permit 95010001 related to SO_2 emissions. The 2022 application does not even address the 2008 application to explain why the revisions to Permit 95010001 requested by the 2008 application are no longer needed. US Steel has also not taken other actions that would act to resolve the conflict between the 2022 application, which is being addressed in this proceeding, and the earlier 2008 application, which is still pending. For example, US Steel has not requested withdrawal of the 2008 application. In this regard, it is noteworthy that the approach taken in the 2022 application to SO_2 emissions from burning BFG is different from the approach that is taken for NOx, VOM and particulate. For example, for the BOFs for NOx and VOM, the 2022 application requests revisions to Permit 95010001 to increase permitted emissions so as to facilitate future compliance.

4. *A statement of specific reasons why the Act and the regulations might not be met if a revised permit were granted as requested:* The conflict between the 2008 application and the 2022 application is an impediment to revision of Permit 95010001 as requested by the 2022 application. Absent resolution of this conflict, either by appropriate information or request in the 2022 application or by other appropriate action by US Steel, the 2022 application should not be considered to show compliance with the SO_2 emission limits for burning BFG that are currently in Permit 95010001. As such, the 2022 application does not meet the standards for issuance of a construction permit.

Discussion

In 2008, US Steel applied for revisions to Permit 95010001 to increase permit limits for the sulfur content of BFG and the SO_2 emissions resulting from the use of BFG. That application (the 2008 application) was received on February 4, 2008. The 2022 application is inconsistent with and conflicts with the 2008 application. As such, these applications, as they currently exist, cannot be processed by the Illinois EPA absent appropriate action by US Steel on one or both of these applications, e.g., changes to the 2022 application so that it requests the same revisions to SO_2 emission limits for use of BFG as the 2008 application. In this regard, the 2022 application "… does not request any changes to the emission limits for SO_2 and lead emissions established in the Construction Permit 95010001." (2022 application, p. 2-2.) The 2008 application does request changes to the provisions of the permit for SO_2., as it is an "Application to modify to correct the emission factors used to develop the original application and permit in light of newly identified information on emissions and emission factors." (October 2008 application, p. 1-1.)

In particular, in the 2008 application:

> …US Steel seeks to revise the Production Increase Permit (95010001) to account for US Steel's revised method for calculating the SO_2 emissions from BFG combustion. This will increase the total allowable SO_2 emissions on an annual basis from combustion of BFG in the Production Increase Permit.
>
> 2008 application, pp. 2-2 and 2-3

The 2008 application specifically requests that the SO_2 emission factor limit for BFG be increased from 6.65 to 16.00 pounds/million cubic feet of gas burned. With the revised emission factor, the permitted SO_2 emissions from use of the 185,030 million cubic feet of BFG per year, as allowed by the permit, would increase from 615.22 to 1480.24 tons/year. However, the 2022 application provides that the limits for SO_2 for use of BFG should be unchanged. As such, the 2022 application indicates that for use of BFG the requested revised permit should continue to limit SO_2 emission to 6.65 pounds/million cubic feet burned and 615.22 tons/year.

Moreover, the existence of the 2008 application suggests that the revisions to SO_2 emission limits that it requested were needed at the time of that application. The 2022 application does not show that this was not the case, as it does not address historic SO_2 emissions from use of BFG to show that an SO_2 emission factor of 6.65 pounds/million cubic feet was appropriate when Permit 95010001 was originally issued in 1996 and that annual SO_2 emissions have never exceeded 615.22 tons/year.

21. AS RELATED TO EMISSION LIMITS FOR SO_2, LEAD AND CO, THE 2022 APPLICATION IS INCONSISTENT WITH PENDING BOARD APPEALS

Overview of This Denial Point, with Information As Required or Specified by Section 39(a) of the Act for Denial of a Permit

1. *The Sections of the Act which may be violated if a revised permit were granted as requested:* Sections 9(a), 39(a)*, 39(a)**, 39(a)***, 39.5(5)(i), 39.5(7)(a), 39.5(10)(a)(iv) and 39.5(13)(c)(v).

2. *The provision of the regulations under the Act which may be violated if the revised permit were granted as requested:* 35 IAC 201.160(a).

3. *The specific type of information, if any, which the Agency deems the applicant did not provide the Agency:* For various processes, the 2022 application does not request or propose appropriate changes to the current emission factor limits in Permit 95010001 for SO_2, lead and CO to resolve pending permit appeals (PCB 2013-52 and PCB 2013-62). For these pollutants, Permit 95010001 sets emission factor limits for the blast furnace casthouse and the slag pits for SO_2; for the BOFs for lead and CO; and for desulfurization and reladling for lead. Alternatively, the 2022 application does not indicate that the inclusion of the current emission factor limits in a revised permit is not expected to result in another appeal as these limits are now considered acceptable. For the BOFs for CO, the application also does not indicate that the current emission factor limit, which applies only to the stack emissions from the electrostatic precipitator (ESP), would still be considered acceptable if applied to stack emissions. That is, the current limit would still be acceptable if it applied in aggregate to the CO emissions from the stack of the ESP and the stack of the baghouse, which was subsequently installed to improve control of the particulate emissions of the BOFs (Construction Permit 11050006). This change would be appropriate as particulate emissions of the BOFs are now addressed by two control systems. (Besides particulate, these systems capture emissions of CO and other pollutants from the BOFs but only act to reduce particulate and lead emissions.)

4. *A statement of specific reasons why the Act and the regulations might not be met if a revised permit were granted as requested:* Absent information as described above, the 2022 application does not include information necessary for the Illinois EPA to include conditions in a revised permit to prevent noncompliance with certain current emission factor limits that apply to the subject processes. As the subject limits, as they are or, in the case of PCB 2013-62, would be present in the CAAPP permit, are currently the subject of appeals, it is reasonable for these limitations for the review of the application to be based on compliance not being achieved. Moreover, absent information as described above, the 2022 application does not show that, as the subject limits are appealed and could be stayed in any revised CAAPP permit, these limits should be considered to still meet the substantive requirements of the CAAPP. Finally, it is noteworthy that for the subject processes for the various emission factor limits for PM, PM-10, NOx and VOM, the application does request revisions to the emission factor limits. For those requested revisions, the 2022 application, page 2-3, explains that "USS Granite City anticipates that these revisions will

enable settlement of the permit appeals currently before the Board because they involve provisions of the permit addressing emission factors."

Discussion

As already mentioned, the 2022 application does not request any changes to the emissions limits for SO_2 and lead currently set by Permit 95010001. The application states, "This permit application also does not request any changes to the SO_2 and lead emission limits in Construction Permit No. 950100001, so SO_2 and lead emissions will not be discussed further." [2022 application, Section 2.2, "General Description of Requested Permit Revisions." p. 2-2.] [80, 81, 82] For CO, the 2022 application does request that the revised permit address emissions of CO from

[80] In Section 3 of the application, in which support for elimination of emission factor limits and use of group limits is generally provided, the application only addresses limits for particulate, NOx and VOM. For example, the application states that,

> The approach proposed by USS Granite City with respect to the PM, PM_{10}, NOx and VOM emissions caps to be used in any revised Construction Permit No. 95010001, including the proposed revisions to certain emission limitations, compliance demonstration requirements, and other permit conditions as discussed in detail in Sections 5 through 7 of the permit application ["Proposed Changes to Permit Terms for PM and PM_{10} Emissions Increases Analyses," "Proposed Changes to Permit Terms for NOx Emission Increases Analysis, and "Proposed Changes to Permit Terms for VOM Emission Increases Analyses," respectively] is consistent with policy and precedent and will improve the enforceability of the PTE limitations in Construction Permit No, 95010001. In particular, USS Granite City emphasizes that removal of certain conditions and provisions addressing emissions individual emission units or emission points, including both limits on annual emissions and provisions emission addressing emissions factors will not result in impairment of the enforceability of the PTE limitations.
>
> 2022 application, Section 3, "Discussion of Permit Conditions Used to Restrict PTE [Potential to Emit]," 3-3.]

[81] For process operations, Permit 95010001 currently limits SO_2 emissions from the casthouse and slag pits associated with the blast furnaces in pounds per ton of iron produced and tons per year. For the casthouse, the SO_2 emissions of the main baghouse for the casthouse, the baghouse for the iron spouts at the casthouse, and the uncaptured emissions from the casthouse are limited, respectively, to 0.2006, 0.0073, and 0.0104 pounds per ton of iron produced. The SO_2 emissions of the slag pits are limited to 0.0100 pounds per ton of iron produced. (Permit 95010001, Condition 5 and Table 1.)

Although the emission factor limits for the SO_2 emissions of the casthouse are not identified as Best Available Control Technology (BACT) by Permit 95010001, these limits are considered to be the determination of BACT for SO_2 and should have been identified as such in this permit. BACT is required for the casthouse for SO_2 because the Project was a major modification for SO_2 under the PSD program, as is stated in this permit. Accordingly, as Project included physical changes to the blast furnaces to increase their production capability, BACT is required for the SO_2 emissions of the casthouse.

[82] For operations in the basic oxygen furnace shop, Permit 95010001 currently limits lead emissions in pounds per hour and tons per year. For the basic oxygen furnaces, the lead emissions from the ESP stack and roof monitor are limited to 0.01934 and 0.0129 pounds per hour, respectively. The lead emissions from desulfurization and hot metal transfer are limited to 0.0133 pounds per hour. (Permit 95010001, Condition 18 and Table 2.) The permit does not address the lead emissions of the basic oxygen furnaces that are now captured and controlled by the new baghouse system nor does the 2022 application request any revisions to the permit to address the lead emissions of these furnaces that now occur from the stack of the baghouse.

the casthouse and raise the limits for CO emissions of Project-affected fuel burning units.[83] However, the application does not request revisions to the emission limits currently in Permit 95010001 for the CO emissions of the basic oxygen furnaces, i.e., the limits in pounds per ton of steel produced and in tons per year for the CO emissions of these furnaces through the ESP stack.[84,] As such, the application is not consistent with two pending permit appeals before the Board, PCB 0013-53 and PCB 0013-62, as it does not propose revisions to current permit limits for emissions of SO_2, CO and lead. As previously discussed, in these appeals, US Steel challenged all emission factor limits set by Permit 95010001 for individual process operations. US Steel has not amended these appeals so that they only address emission factor limits for PM, PM_{10}, NOx and VOM and no longer address the emission factor limits that are set for SO_2, CO and lead. In addition, in the 2022 application, US Steel does not explain why the emission factor limits in Permit 95010001 for SO_2, CO and lead that were appealed are no longer considered to be objectionable. That is, US Steel would not again challenge those limits as it has already done in PCB 0013-53 and PCB 0013-62 if a revision to Permit 95010001 were issued that continued to include the current emission factor limits.[85]

With regard to the CO emissions of the basic oxygen furnaces, the 2022 application also does not request revisions to Permit 95010001 as the current permit only addresses CO emissions from the "BOF ESP Stack." The application does not request that these limits be revised so that they address all stack emissions of the basic oxygen furnaces, e.g., CO emissions from both the stack of the new baghouse system and the stack of the ESP system. Moreover, as the 2022 application does not propose such revisions to the current limits for CO emissions of these furnaces, the application effectively requests a relaxation of the current limits. This is because the revised permit would not address the CO emissions of these furnaces that now occur through the baghouse stack. That is, the limits in the revised permit would not account for any CO emissions that are no longer being captured with the ESP system and are instead now being emitted from the baghouse system.[86]

---

[83] In the original application for Permit 95010001, the casthouse was not identified as a source of CO and information for CO emissions was not provided. The application also requests certain updates to the limits for CO emissions from use of blast furnace gas and natural gas in Project-affected fuel burning units to reflect new information for the CO emissions from burning these fuels.

[84] Permit 95010001 currently limits CO emissions of the basic oxygen furnaces through the ESP stack to 8.993 pounds per ton of liquid steel produced and 16,097.47 tons/year. (Permit 95010001, Condition 18, Table 2, Section 1, BOF ESP Stack.) The permit does not address CO emissions that are now captured by the new baghouse system and emitted from its stack or any uncaptured CO emissions, which occur through the roof monitor.

[85] If the subject emission factor limits were included in a revised permit, the Illinois EPA could explain that, if these limits in the revised permit were stayed pursuant to an appeal to the Pollution Control Board, the limits would continue to be enforceable pursuant to Permit 95010001 as issued before the revision of the permit and any appeal of the revised permit to the Board.

[86] The 2022 application also does not request revisions to Permit 95010001 to address uncaptured CO emissions of the basic oxygen furnaces or otherwise address the uncaptured CO emissions of these furnaces. This is not consistent with the approach taken for the casthouse on the blast furnaces. For the casthouse, the application requests that the revised permit limit the overall emissions of CO from the stacks on the control systems serving the casthouse. The application also includes information for the overall CO emissions of the casthouse, including other captured emissions and uncaptured emissions.

22. THE 2022 APPLICATION DOES NOT INCLUDE A SIGNED CERTIFICATION FOR THE ACCURACY AND COMPLETENESS OF THE APPLICATION

Overview of This Denial Point, with Information As Required or Specified by Section 39(a) of the Act for Denial of a Permit

1. *The Sections of the Act which may be violated if a revised permit were granted as requested:* Sections 39(a)* and 39.5(5)(e).

2. *The provision of the regulations under the Act which may be violated if the revised permit were granted as requested:* 35 IAC 270.401(f).

3. *The specific type of information, if any, which the Agency deems the applicant did not provide the Agency:* The 2022 application does not include a certification for the truth, accuracy and completeness of the application, as submitted on October 7, 2022. The certification in the 2022 application is a photocopy of an earlier certification dated February 25, 2020, that accompanied a prior application received on March 2, 2020, several years earlier. That certification cannot serve as the required certification. Also note that the 2022 application replaced the prior 2020 application. The transmittal letter accompanying the 2022 application states that, "Due to the nature of revisions throughout this application, the Illinois EPA should refer to this application for permit processing."

   With respect to the "certification" provided in US Steel's Comments responding to the Initial Draft Denial Letter, this was not sufficient to correct this omission. First, this certification, which is dated September 8, 2023, was an attachment to those comments and was not submitted as a supplement to the 2022 application. Second, the certification is not accompanied by an errata or other material correcting erroneous information in the application as either identified by the Illinois EPA in the Initial Draft Denial or identified by US Steel when developing its response to the Initial Draft Denial. Thus, even if the certification had been submitted as a supplement to the 2022 application, its truthfulness and validity would be questionable. The fact that the 2022 application was not certified puts the entire application under a cloud. In other words, as a matter of rule, absent an appropriate certification the Application is deficient. The Application cannot be considered creditable and should not be relied upon for making revisions to Permit 95010001.

As discussed in Section 8.2.3.7 of this permit application [BACT Evaluation for Blast Furnace Casthouse], USS Granite City is proposing a CO BACT emission limit of 70 lb/hr based on total emissions of these two baghouses [main casthouse baghouse and iron spout baghouse], assuming 95% capture efficiency for the capture system associated with the cast baghouse, as discussed in Section 5.2.3 of this permit application {A&B Blast Furnace Casthouse Roof Monitor Emissions PM_{10} Revised], the fugitive CO emissions from the casthouse roof monitor are 3.1 lb/hr. Total CO emissions from the casthouse roof monitor, including both baghouse and fugitive emissions are 73.1 lb/hr and 320 tons per year ("TPY").

2022 application, Section 4.4, "Updated CO Emissions Information for Blast Furnace Casthouse."

4. *A statement of specific reasons why the Act and the regulations might not be met if a revised permit were granted as requested:* The 2022 application does not include the certification required by the Act, the Illinois EPA's regulations, and the Board's regulations.

Discussion

The 2022 application does not include a signed certification for the truth, accuracy and completeness of this application as it was actually submitted in October 2022. This is required by 35 IAC 270.401(f) and Section 39.5(5)(e) of the Act. This is because the Application requests Integrated Processing for the revisions to Permit 95010001 that are being sought. In place of this certification, the 2022 application includes a photocopy of an earlier certification, dated February 25, 2020, which was submitted with a prior application (2022 application, "Appendix A – Application Forms (Copies of Previously Submitted Versions)"). However, the 2022 application is a revision of the earlier application and US Steel intends the 2022 application to replace the earlier application submitted in March 2020 in its entirety (2022 application, Cover Letter). Accordingly, the 2022 application must include a new certification for its truth, accuracy and completeness.

Appendix A: Listing of Sections of the Illinois Environmental Protection Act (Act) That Are Cited for the Different Denial Points Detailed in Attachment 1 As Sections of the Act Which May Be Violated If a Revised Permit Were To Be Granted As Requested by the 2022 Application

Note: The text of the Act (415 ILCS 5) is available on a website for Illinois Compiled Statutes maintained by the Illinois General Assembly: https://www.ilga.gov/legislation/ilcs/ilcs3.asp?ActID=1585&ChapterID=36

Section 9(a): General prohibition against air pollution as it provides that no person shall "Cause or threaten to allow the discharge or emission of any contaminant into the environment in any State … so as to violate regulations or standards adopted by the Board (Pollution Control Board) under this Act." For various denial points in the Denial Letter, this general provision of the Act is cited as a provision of the Act that may be violated if a revised construction permit were issued as requested in the 2022 application as such permit would threaten to allow violations of Board regulations.

Section 9(b)(2): Prohibition against violating conditions imposed by air pollution control permits. The introductory language of Section 9 and Subsections 9(b) and 9(b)(1) of the Act provide that, "No person shall … Construct, install and equipment, facility … of any type designated by the Board … without a permit granted by the Agency unless otherwise exempt by this Act or Board regulations…." For persons with permits, the prohibition against violating permit conditions is in Subsection 9(b)(2), serving to provide that no such person shall operate any equipment or facility, "In violation of any conditions imposed by such permit."

Section 9.1(d): Prohibition against violations of certain sections of the federal Clean Air Act, including Section 165 (Prevention of Significant Deterioration (PSD)) and Section 173 (Permit Requirements for Nonattainment New Source Review Programs).

Section 39(a)*: Standard under the Act for issuance of permits. The designation "Section 39(a)*" or "39(a)*" is used to refer to the second clause of the first sentence in Section 39(a) of the Act. This clause provides that "…it shall be the duty of the Agency to issue a permit upon proof by that the applicant that the facility, equipment, vehicle vessel, or aircraft will not cause a violation of this Act or regulations thereunder." In the Denial Letter, this provision of the Act is routinely cited as a provision that may be violated because the 2022 application does not include proof that the Act or air pollution control regulations would not be violated if a revised permit were issued as requested by the application.

Section 39(a)**: Permit procedures under the Act. The designation "Section 39(a)**" or "39(a)**" is used to refer to the fifth sentence of Section 39(a) of the Act as it addresses imposition of conditions on permits. In particular, this sentence provides that in granting permits, "In granting permits, the Agency

may impose such other conditions as may be necessary to accomplish the purposes of this Act, and as are not inconsistent with the regulations promulgated by the Board hereunder." (As addressed below, this Section of the Act also provides that the Illinois EPA may impose reasonable conditions in a permit related to an applicant's compliance history as necessary to correct, detect or prevent noncompliance.) For various points in the Denial Letter, this provision of the Act is cited as one that may be violated because the 2022 application does not include information that may be needed for the Illinois EPA to impose necessary permit conditions in a permit that would be revised as requested by the application.

Section 39(a)***: Permit procedures under the Act. The designation "Section 39(a)***" or "39(a)***" is used to refer to the fourth sentence of Section 39(a) of the Act as it provides, "In granting permits, the Agency may impose reasonable conditions in a permit specifically related to an applicant's past compliance history with this Act as necessary to correct, detect or prevent noncompliance." (As discussed above, the Act also provides that permits may include conditions as may be necessary to accomplish the purposes of the Act and as are not inconsistent with Board regulations.) For certain points in the Denial Letter, this provision of the Act is cited as one that may be violated because the 2022 application does not include information that may be needed for the Illinois EPA to impose conditions to enable or facilitate future compliance.

Section 39.5(5)(e): A paragraph in Subsection 39.5(5) of the Act, "Applications and Completeness," in Section 39.5 of the Act, "Clean Air Act Permit Program." This provision requires that "Each submitted CAAPP application shall be certified for truth, accuracy and completeness by a responsible official in accordance with applicable regulations [i.e., 35 IAC 270.102 and the definition of "responsible official at Subsection 39.5(1) of the Act]. This provision is applicable for the review of the 2022 application as US Steel requests in this application that the processing of the revised permit that is requested be subject to Integrated Processing. As a consequence, the procedural and substantive requirements of Section 39.5 of the Act apply to the 2022 application pursuant to Section 39.5(13)(c)(v) of the Act, which provides the authorization for Integrated Processing of a construction permit.

Section 39.5(5)(i): A paragraph in Subsection 39.5(5) of the Act, "Applications and Completeness," in Section 39.5 of the Act. As already explained, the procedural and substantive requirements of the CAAPP are applicable to the Illinois EPA's review of the 2022 application as US Steel has requested that this application and any resulting revised permit prepared pursuant to this application be subject to Integrated Processing. The first sentence in this provision requires that:

> Any applicant who fails to submit any relevant facts necessary to evaluate the subject source and its CAAPP application or has submitted incorrect information in a CAAPP application shall, upon becoming aware of such failure or incorrect submittal, submit supplementary facts or correct information to the Agency."

For several denial points, Subsection 39.5(5)(i) of the Act is identified as a provision of the Act that might be violated if a revised permit were issued as requested by the 2022 application because it does not include "relevant information" necessary for the evaluation of the application. That is, as

related to the particular applicable requirements, the application lacks information addressing the requirements, the information in the application addressing the requirement is insufficient, or the information in the application supports a finding that the requested revisions might not comply with the requirements. Note that as Subsection 39.5(5)(i) of the Act would not be satisfied by an application, a CAAPP permit cannot be issued pursuant to such application. This is because Subsection 39.5(10)(a)(iv), one of the standards for issuance of a CAAPP permit, would also not be satisfied.

Section 39.5(7)(a): A paragraph in Subsection 39.5(7) of the Act, "Permit Content," in Section 39.5 of the Act. This paragraph requires that "All CAAPP [Clean Air Act Permit Program] permits shall contain limitations and conditions and other enforceable terms and conditions, including but not limited to operational requirements, and schedules for achieving compliance at the earliest reasonable date, which are or will be required to accomplish the purposes and provisions of this Act and to assure compliance with all applicable requirements [emphasis added]." For various points in the denial letter, this provision is cited as a provision of the Act that may be violated because the 2022 application does not include information that may be needed for the Illinois EPA to impose necessary permit conditions in a revised version of Permit 95010001 that would be revised as requested by the application. This provision is relevant to the Illinois EPA's review of the 2022 application as US Steel has requested that the application and any resulting permit be subject to Integrated Processing. As provided by Sections 39.5(13)(a) and (a)(iv), as listed below, this makes the application subject to substantive requirements of the CAAPP. It is also noteworthy that, absent Integrated Processing, any revised construction permit that is issued pursuant to the 2022 application would not resolve US Steel's pending appeal of the current CAAPP permit for the Granite City Works (PCB 2013-53) or the related appeal of Construction Permit 11050006 (PCB 2013-62). Resolution of these appeals would require a separate CAAPP permit application and a permit proceeding to revise the CAAPP permit. Moreover, the revised CAAPP permit that would result from the CAAPP proceeding would not necessarily reflect the terms and conditions established in the earlier revision of Permit 95010001. As such, resolution of these appeals could require two more permit proceedings, i.e., a proceeding to modify the CAAPP permit and another proceeding for revisions to Permit 95010001 to address issues identified during the modification of the CAAPP permit.)

Section 39.5(10)(a)(iv): A paragraph in Subsection 39.5(1) of the Act. As Subsection 39.5(5)(i) of the Act would be violated if a revised permit were issued as requested, the 2022 application also would not satisfy Subsection 39.5(10)(a)(iv) of the Act, one of the standards for issuance of a permit under the CAAPP. This is because this application would not include all "relevant information." Subsections 39.5(10)(a) and (a)(iv) of the Act provide that:

> The Agency shall issue a CAAPP permit, permit modification, or permit renewal if all of the following conditions are met:
>
> …

(iv) The Agency has received a complete application and if necessary, has requested and received additional information from the application consistent with Subsection 5 of this Section and applicable regulations.

Section 39.5(13)(c)(v): Paragraphs (a) and (c)(v) in Subsection 39.5(13) of the Act, "Administrative Permit Amendments," in Section 39.5 of the Act. The designation "Section 39.5(13)(c)(v)" or "39.5(c)(v)" are used to refer to these paragraphs. These paragraphs contain the authorization for the Integrated Processing of a construction permit so as to allow the related revisions to the CAAPP permit to be made by administrative amendment, thereby avoiding the need for a subsequent modification of the CAAPP permit by either a minor or significant modification, as appropriate. These paragraphs of Subsection 39.5(10)(c) of the Act provide:

c. For purposes of this Section [Section 39.5 of the Act] the term "administrative amendment " shall be defined as a permit revision that can accomplish one or more of the changes described below:

…

v. Incorporates into the CAAPP permit the requirements from preconstruction review permits under a USEPA-approved program [i.e., Illinois construction permit program for sources of emissions and air pollution control equipment], provided the program meets procedural and compliance requirements substantially equivalent to those contained in this Section [emphasis added].

For various denial points in the denial letter, these paragraphs are cited as provisions of the Act that may be violated because the 2022 application is not sufficient for the Illinois EPA to impose necessary permit conditions in a new version of Permit 95010001 that would be revised as requested by the 2022 application. That is, this application does not include information that is necessary to enable such a revised permit to meet the compliance requirements, i.e., the substantive requirements, that must be satisfied by a CAAPP permit. For example, for certain emissions units, the Application requests that Permit 95010001 be revised to prescribe the actual emission factors that are to be used to determine compliance with limitations on annual emissions set by this permit. However, the application does not provide the supporting information that USEPA has found necessary for a permitting authority, e.g., the Illinois EPA, to set "prescribed emission factors" when issuing a Title V Permit. Similarly, the 2022 application requests certain revisions to the organization and terminology in Permit 95010001 for consistency with the CAAPP permit. However, the application does not request all such revisions that may be appropriate to reasonably achieve consistency in the organization and terminology of these permits.

Appendix B: Listing of Provisions in Subtitle B of Title 35 of the Illinois Administrative Code (IAC) That Are Cited for the Different Denial Points Detailed in Attachment 1 As Provisions Which May Be Violated If a Revised Permit Were To Be Granted As Requested by the 2022 Application

Note: The text of Illinois' regulations for control of air pollution (Illinois Administrative Code (IAC), Title 5, Subtitle B: Air Pollution, are available on a website maintained by the Board: https://pcb.illinois.gov/SLR/IPCBandIEPAEnvironmentalRegulationsTitle35

35 IAC Part 201, Permits and General Provisions

35 IAC 201.152*, Contents of Application for Construction Permit
This rule requires that applications for construction permits include certain data and information. The designation "201.152*" is used to refer to this rule as it requires this data and information to include "information concerning processes to which the emission unit or air pollution control equipment is related.

35 IAC 201.152**, Contents of Application for Construction Permit
This rule requires that applications for construction permits include certain data and information. The designation "201.152**" is used to refer to this rule as it requires this data and information to include "the quantities and types of raw materials to be used in the emission source or air pollution control equipment."

35 IAC 201.152***, Contents of Application for Construction Permit
This rule requires that applications for construction permit include certain data and information. The designation "201.152**" is used to refer to this rule as it requires this data and information include "… the nature, specific points of emissions and quantities of uncontrolled and controlled air contaminant emissions at the source that includes the emission unit or air pollution control equipment …."

~~35 IAC 201.159, Signatures~~
~~This rule requires applications for air pollution control permit submitted to the Illinois EPA to be signed. It provides that, "All applications and supplements thereto shall be signed by the owner and operator of the source, or their authorized agent, and shall be accompanied by evidence of authority to sign the application."~~

35 IAC 201.160(a)(1), Standards for Issuance
In 35 IAC 201.160(a) and (a)(1), the Pollution Control Board (Board) restates the standard of issuance in Section 39(a) of the Act for the Illinois EPA to issue a permit as applied specifically to air pollution control construction permits. This rule provides:

a) No construction permit shall be granted unless the applicant submits proof to the Agency that:

1) The emission unit or air pollution control equipment will be constructed or modified to operate so as not to cause a violation of the Act or of this Chapter [Title 35, Subtitle B, Chapter I)];

35 IAC Part 203, Major Stationary Sources Construction and Modification

(35 IAC Part 203 is potentially of concern for the Production Increase Project for emissions of NOx, VOM and particulate. This is because, in 1996, when Permit 95010001 was initially issued for this project, the Granite City Works was in areas that were designated nonattainment for the National Ambient Air Quality Stands (NAAQS) for ozone (emissions of NOx and VOM) and particulate matter (emissions of $PM_{2.5}$). The Granite City Works is still in an area that is designated nonattainment for ozone.)

35 IAC 203.123, Federally Enforceable (Definition)
This definition provides that "Federally Enforceable" means enforceable by the United States Environmental Protection Agency [USEPA].” This definition is cited as a basis for certain denial points as the 2022 application requests revisions to Permit 95010001 to set limitations that would take the place of limitations currently in Permit 95010001. However, the application does not include information showing that these proposed limitations should be considered enforceable as a practical matter.

35 IAC 203.128, Potential to Emit (Definition)
This definition of “potential to emit” is cited as a basis for denial points as related to the role of permit limitations, as distinguished from the physical and operational design of a stationary source, in restricting the potential emissions of emission units. 35 IAC 203.128, along with 35 IAC 203.123, are cited as a basis for denial as the 2022 application does not show that certain emission limitations that are proposed, which would replace emission limitations currently in Permit 95010001, should be considered enforceable as a practical matter. In this regard, the second sentence of this definition of “potential to emit” provides that:

Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design only if the limitation or the effect it would have on emissions is federally enforceable [emphasis added].

35 IAC 203.201, Prohibition
This provision requires an entity that would undertake a project that is "major" for a pollutant in an area that is designated a nonattainment area for the pollutant to comply with the substantive requirements of 35 IAC Part 203 for that pollutant. The various substantive requirements are then addressed later in Subpart C of 35 IAC Part 203. In this regard, the first two sentences of 35 IAC 203.201 provide:

> In any nonattainment area, no person shall cause or allow the construction of a new major stationary source or major modification that is major for the pollutant for which the area is designated a nonattainment area, except as in compliance with this Part [Part 203]for that pollutant. In areas designated nonattainment for ozone, this prohibition shall apply to new major stationary sources or major modifications of sources that emit volatile organic materials or nitrogen oxides.

As the revised NSR applicability analysis for NOx in the 2022 application does not show that the Production Increase Project would not have been a major modification for NOx with the increases in permitted NOx emissions that are being requested, 35 IAC 203.201 is cited as a basis for denial of this application. This is because the application also does not show that the substantive requirements of 35 IAC Part 203 would be fulfilled as the Project is now a major modification. For example, the 2022 application does not address the requirement in 35 IA3.302 that, as related to the role of emissions of NOx on air quality for ozone, an entity undertaking a major project for NOx in an ozone nonattainment area must provide emission offsets for NOx to compensate for the effect of the project's NOx emissions on ozone air quality.

35 IAC 203.203(b), Construction Permit Requirements and Application
For major projects that would be subject to 35 IAC Part 203, this rule sets forth the information that a permit application must contain. This rule provides that:

> Applications for construction permits required under this Section shall contain sufficient information to demonstrate compliance with 35 Ill. Adm. Code 201 [Permits and General Provisions] and the requirements of this Part [Part 203] including, but not limited to, Subpart C [Requirements for Major Stationary Sources in Nonattainment Areas, including the requirements for the Lowest Achievable Emission Rate (LAER) and the requirement to provide emission offsets].

35 IAC 203.208*, Net Emissions Determination – The Increase in Emissions from a Project
Among other aspects of "netting," this rule sets forth how the increases in emissions from a project should be addressed if a source elects to rely on netting with contemporaneous emissions decreases to show that a project would not be a major modification under 35 IAC Part 203. The first paragraph of this rule, referred to as "35 IAC 203 208*" is cited as a basis for denial of the 2022 application as the revised NSR applicability analysis for NOx in the application, which should address NOx emissions of the Production Increase Project, with the increases in permitted NO_X emissions that are now being requested. For certain units, this analysis does not show that the increases in NOx emissions from the Project have been properly addressed. For a project, itself, this rule provides that the increase in actual emissions due to the project should be addressed. However, since the amount of this increase should be determined during permitting,

i.e., before the project is implemented and the modified units begin normal operation with the project, 35 IAC 203.104(c) further provides that the Illinois EPA shall presume that the potential emissions of units with the project are equivalent to their actual emissions for purposes of permitting. (The circumstances are similar for permitting for a project that was improperly constructed without first obtaining a construction permit. This is because such source cannot rely on permit limitations in lieu of potential emissions absent enforceable limitations.) In particular, the first sentence in 35 IAC 203.208 provides:

> A net emissions increase is the amount by which the sum of any increase in actual emissions from a particular physical change or change in method of operation at a source [emphasis added], and any other increases and decreases in actual emissions at the source that are contemporaneous with the particular change and are otherwise creditable, exceeds zero.

35 IAC 203.208**, Net Emissions Determination - The Contemporaneous Time Period and Creditability of Emission Decreases

As discussed above, 35 IAC 203.208 lays out the requirement for a NSR Applicability Analysis if a source elects to rely on netting to show that a project would not be a major modification under 35 IAC Part 203. 35 IAC 203.208(a) and (c)(1), referred to as 35 IAC 203.208**, are also cited as a basis for denial of the 2022 application. This is because the revised NSR applicability analysis for NOx in the application, which addresses NOx emissions with the increases in permitted emissions that are being requested for certain units, would improperly rely on certain decreases in NOx emissions that are neither contemporaneous nor creditable. This is contrary to 35 203.208(a) and (c), which do not allow credit in the revised NSR applicability analysis for NOx based on decreases in emissions due to the shutdown of Boilers 1 through 10 and, due to the shutdown of the two by-product recovery coke oven batteries at the Granite City Works, coke oven gas (COG) no longer being available for use in Project-affected fuel burning units.as a fuel. These actions and the accompanying emission decreases occurred after the implementation of the Production Increase Project and were not contemplated by Permit 95010001. In particular, the introductory paragraph in 35 IAC 203.208 and paragraphs 35 IAC 203.208(a) and (c)(1) provide:

> A net emissions increase is the amount by which the sum of any increase in actual emissions from a particular physical change or change in method of operation at a source, and any other increases and decreases in actual emissions at the source that are contemporaneous with the particular change and are otherwise creditable, exceeds zero. The following steps determine whether the increase or decrease in emissions is available.
>
> a) Except for … [alternative provisions for projects in in serious and severe ozone nonattainment areas], an increase or decrease in actual emissions is contemporaneous only if it occurs between the date that an increase from a particular change occurs and the date five years before a timely and complete application is submitted for the particular change. …
>
> …

c) A decrease in actual emissions is creditable to the extent that:

1) It is federally enforceable at and after the time that actual construction on the particular change begins;

35 IAC 203.301, Lowest Achievable Emission Rate
For a project that is a major modification subject to 35 IAC Part 203, 35 IAC 203.301 sets forth the requirements for a permit application related to Lowest Achievable Emission Rate (LAER) for the emissions units for which LAER is required. 35 IAC 203.301(c) sets forth the requirement that LAER be demonstrated for such emission units. (Ongoing operation of LAER-subject units to comply with LAER is required by 35 IAC 203.601 once a permit is issued setting forth what LAER is for those units.) For the emission units and pollutant(s) for which LAER is required, 35 IAC 203.301(d) explicitly requires that the application include a detailed showing that the emission limitations proposed for the LAER-subject units would constitutes LAER. In this regard, these rules provide that:

c) Except as provided in subsection (e) or (f) below [Alternative provisions for projects ozone nonattainment areas that are classified as serious or severe nonattainment] the owner or operator of a major modification shall demonstrate that the control equipment and process measures applied to the major modification will produce LAER. This requirement applies to each emissions unit at which a net increase in emissions of the pollutant has occurred or would occur as a result of a physical change or change in the method of operation.

d) The owner or operator shall provide a detailed showing that the proposed emission limitations constitute LAER. Such demonstration shall include:

1) A description of the manner in which the proposed emission limitation was selected, including a detailed listing of information resources,

2) Alternative emission limitations, and

3) Such other reasonable information as the Agency may request as necessary to determine whether the proposed emission limitation is LAER.

35 IAC 203.302(a), Maintenance of Further Reasonable Progress and Emission Offsets
For a major project that is subject to 35 IAC Part 203 for a pollutant, this rule sets forth the basic requirement that project be accompanied by emission offsets. Emission offsets are enforceable reductions in the emissions of the subject pollutant, usually by existing source(s) other than the source at which the project would take place, that affect the quality of the ambient air that the emissions of the subject pollutant from the project would affect. The role of the offsets is to counterbalance the effect of the emissions of the subject pollutant from the project on ambient air quality that exceeds the applicable National Ambient Air Quality Standard. In this regard, 35 IAC 203.302(a) provides that:

a) The owner or operator of a new major source or major modification shall provide emission offsets equal to or greater than the allowable emissions from the source or the

net increase in emissions from the modification sufficient to allow the Agency to determine that the source or modification will not interfere with reasonable further progress as set forth in Section 173 of the Clean Air Act (42 U.S.C. 7401 et seq.).

35 IAC Part 204, Prevention of Significant Deterioration

(35 IAC Part 204 is of concern or potential concern for the Production Increase Project for emissions of NOx, SO_2, CO and lead. This is because, when Permit 95010001 was initially issued, the Granite City Works was in various areas that were designated attainment or unclassified, rather than nonattainment, for the NAAQS for CO, SO_2 and lead. It was also in an area designated as attainment or unclassified for the NAAQS for nitrogen dioxide (NO_2). The areas in which the Granite City Works is located are still designated attainment or unclassified for these pollutants. (After the NAAQS for lead was revised in 2008, an area that includes the Granite City Works was then designated nonattainment for lead in 2010. This area was later redesignated to attainment for lead in 2018.)

35 IAC 204.280, Best Available Control Technology (BACT) (Definition)
This definition reflects USEPA's guidance at 40 CFR 51.166(b)(12) for the meaning of this term. It is noteworthy that this definition provides that BACT is to reflect the maximum degree of reduction of emissions for the unit(s) and pollutant(s) for which it is required as determined to be achievable ".. through production processes or available methods, systems and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant." As such, in addition to the use of add-on air pollution control equipment, both a BACT demonstration and a BACT determination must consider approaches to reducing emissions other than tradition air pollution control equipment. In addition, this definition provides that while it is preferred that BACT be codified in a permit as an emission limitation or a limitation for visible emissions, "If the Agency determines that technological or economic limitations on the application of measurement methodology to a particular emissions unit would make the imposition of an emissions standard infeasible, a design, equipment, work practice, operational standard, or combination thereof, may be prescribed instead to satisfy the requirement for the application of BACT."

35 IAC 204.330, Complete (Definition)
For an application for a permit for a major project subject to PSD [Prevention of Significant Deterioration], this definition provides that, "'complete' means, that the application contains all of the information necessary for processing the application."

35 IAC 204.400, Federally Enforceable (Definition)
This definition of "federally enforceable" in 35 IAC Part 204 is similar to the definition at 35 IAC 203.123. This definition also expressly identifies certain limitations that are, by definition, considered enforceable by USEPA (e.g., "…requirements within the SIP, any permit requirements established under 40 CFR 52.21… or this Part [Part 204} or under regulations approved under 40 CFR 51 Subpart I …, including operating permits issued under a USEPA-approved program that is incorporated into the SIP and expressly requires adherence to any permit issued under such

program"). However, it does not provide that limitations in a construction permit are still federally enforceable even if they are not enforceable as a practical matter.

35 IAC 204.550*, Net Emissions Increase (Definition) – The Increase in Emissions from a Project
This provision, which is similar to at 35 IAC 203.208, "Net Emissions Determination," sets forth how the increases in emissions from a project should be addressed if a source elects to rely on netting to show that a project would not be a major modification under 35 IAC Part 204. 35 IAC 204.550(a)(1), referred to as 35 IAC 204.550*, is cited as a basis for denial of the 2022 application as the revised NSR applicability analysis for NOx in the application, which addresses NOx emissions with the increases in permitted emissions that are now being requested for certain units, does not show that certain increases in emissions from the project have been properly addressed. For a project itself, this rule, which did not become effective until October 12, 2021 (86 Federal Register 50459), provides that the increase in actual emissions due to the project should be addressed. However, the application does not address post-project actual emissions. As such, 35 IAC 204.600(a)(4) provides that the potential emissions of units with the project are to be used as their actual emissions for purposes of evaluating applicability of PSD. In 1996, when the Production Increase Project was initially permitted, the requirements for Net Emission Determinations and Net Emission Increase, under the NaNSR and PSD programs respectively, were essentially identical.

35 IAC 204.550**, Net Emissions Increase (Definition) - The Contemporaneous Time Period and Creditability of Emission Decreases
As discussed above, 35 IAC 204.550 lays out the requirement for a NSR Applicability Analysis if a source elects to rely on netting to show that a project would not be a major modification under 35 IAC Part 204. 35 IAC 204.550(b)(2)) and (e)(2), referred to as 35 IAC 203.208**, are also cited as a basis for denial of the 2022 application. This is because the revised NSR applicability analysis for NOx in the application, which addresses NOx emissions with the increases in permitted emissions that are being requested for certain units, would improperly rely on certain decreases in NOx emissions that are neither contemporaneous nor creditable. This is contrary to 35 204.208(b)(2)) and (c)(2), which do not allow credit in the revised NSR applicability analysis for NOx based on decreases in emissions due to the shutdown of Boilers 1 through 10 and the elimination of coke oven gas (COG) with the shutdown of the by-product recovery coke oven batteries at the facility. These actions and the resulting emission decreases occurred after the implementation of the Production Increase Project and were not contemplated by Permit 95010001. In particular, the introductory paragraph in 35 IAC 204.550(b) and (b)(2) and 35 IAC 204.550(e) and (e)(2) provide:

> b) An increase or decrease in actual emissions is contemporaneous with the increase from the particular change only if it occurs between:
>
> …
>
> 2) The date that the increase from the particular change occurs.
>
> e) A decrease in actual emissions is creditable only to the extent that:
>
> …

2) It is enforceable as a practical matter at and after the time that actual construction on the particular change begins;

35 IAC 204.560, Potential to Emit (Definition)
This definition of "potential to emit" is cited as a basis for denial points as related to the role of permit limitations, as distinguished from the physical and operational design of a stationary source, in restricting the potential emissions of emission units. 35 IAC 204.560, along with 35 IAC 204.400, are cited as a basis for denial as the 2022 application does not show that certain emission limitations that are proposed, which would replace emission limitations currently in Permit 95010001, should be considered enforceable as a practical matter. In this regard, this definition of "potential to emit" provides that:

> "Potential to emit" means the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable or legally and practicably enforceable (emphasis added) by a state or local air pollution control agency. Secondary emissions do not count in determining the potential to emit of a stationary source.

35 IAC 204.810(a)(3), Source Information
This rule, with the introductory language in 35 IAC 204.810 and 204.810(a), addresses the information that an applicant must include in a permit application if a determination of BACT is required for the requested permit to be issued. In this regard, they provide that:

> The owner or operator of a proposed major stationary source or major modification shall submit all information necessary to perform any analysis or make any determination required under this Part.
>
> a) With respect to a source or modification to which Sections 204.1100, 204.1110, 204.1130, and 204.1140 apply, such information shall include:
>
> …
>
> 3) A detailed description as to what system of continuous emission reduction is planned for the source or modification, emission estimates, and any other information necessary to determine that BACT, as applicable, would be applied.

35 IAC 204.820, Source Obligation
Any owner or operator who constructs or operates a source or modification not in accordance with the application submitted under this Part or with the terms of any approval to construct (emphasis added), or any owner or operator of a source or modification subject to this Part [35 IAC Part 204] who begins actual construction after September 4, 2020 without applying for and receiving approval under this Part, shall be subject to appropriate enforcement action.

35 IAC 204.1100(c), Control Technology Review
This rule sets forth the BACT requirement for a project that is a major project for pollutant(s) for purposes of Part 204. It provides that:

> A major modification shall apply BACT for each regulated NSR pollutant for which it would result in a significant net emissions increase at the source. This requirement applies to each proposed emissions unit at which a net emissions increase in the pollutant would occur as a result of a physical change or change in the method of operation in the unit.

35 IAC 204.1110, Source Impact Analysis
This rule requires that the applicant for a permit for a project that is a major project for pollutant(s) for purposes of Part 204 demonstrate that the project would not cause or contribute to violation(s) of the relevant National Ambient Air Quality Standard (NAAQS). In this regard, this rule provides that:

> The owner or operator of the proposed source or modification shall demonstrate that allowable emission increases from the proposed source or modification, in conjunction with all other applicable emissions increases [emphasis added] or reductions (including secondary emissions), would not cause or contribute to air pollution in violation of:
>
> a) Any NAAQS in any air quality control region; …

35 IAC 204.1130, Air Quality Analysis
This rule requires that an applicant for a permit for a project that is a major project for pollutant(s) for purposes of Part 204 address the ambient air quality in the area that the project would affect for those pollutant(s). In this regard, 35 IAC 204.1130(a)(1) addresses a "Preapplication Analysis," requiring that:

> 1) Any application for a permit under this Part [35 IAC Part 204] shall contain an analysis of ambient air quality in the area that the major stationary source or major modification would affect for each of the following pollutants:
>
> A) For the source, each pollutant that it would have the potential to emit in a significant amount;
>
> B) For the modification, each pollutant for which it would result in a significant net emissions increase.
>
> …
>
> 3) With respect to any such pollutant for which such a NAAQS does exist, the analysis shall contain continuous air quality monitoring data gathered for purposes of determining whether emissions of that pollutant would cause or contribute to a violation of the standard or any maximum allowable increase.
>
> 4) In general, the continuous air quality monitoring data that is required shall have been gathered over a period of at least one year and shall represent at least the year preceding receipt of the application. However, if the Agency determines that a

> complete and adequate analysis can be accomplished with monitoring data gathered over a period shorter than one year (but not less than four months), the data that is required shall have been gathered over at least that shorter period.
>
> …
>
> 35 IAC Part 270 Clean Air Act Permit Program Procedures

35 IAC 270.401(f), General Application Information (Certification)
This rule expands upon the certification that Clean Air Act Permit Program (CAAPP) applications must contain pursuant to Subsection 39.5(5)(f) of the Act, requiring that such certifications by a responsible official for the source must be based upon information and belief after reasonable inquiry. It provides that:

> A CAAPP application shall contain a certification by a responsible official that, based on information and belief formed by the responsible official after reasonable inquiry, the statements and information in the application are true, accurate, and complete. This certification shall be dated and signed by the responsible official.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-3397
JB PRITZKER, GOVERNOR JOHN J. KIM, DIRECTOR

Notification of Denial Of Application

May 8, 2024

Re: United States Steel Corporation – Granite City Works:
Denial of an Application for Revisions to a Construction Permit/PSD Approval for a Production Increase Project at its Granite City Mill[1]

Source Identification No.: 119813AAI
Permit No. 95010001, initially issued January 26, 2006
Application for Revision: Initially received March 2, 2020, revised application received October 7, 2022

On May 8, 2024, the Illinois Environmental Protection Agency (Illinois EPA) denied the above-reference application for revisions to Permit 95010001, a construction permit that was initially issued in 1996 for a "Production Increase Project" at the Granite City Works.

Thank you for participating in the comment period on the proposed denial of this application. The Illinois EPA has prepared a Responsiveness Summary addressing comments submitted during the public period. The letter denying this application and the Responsiveness Summary are available by the following means:

1. On the Illinois EPA's website:

   https://epa.illinois.gov/public-notices/boa-notices/archive.html

2. For viewing at the following repository:

   Illinois EPA
   1021 N. Grand Ave., East
   Springfield, Illinois 62794
   (217)782-7027

[1] In the application, United States Steel also asks that the requested revisions of Permit 95010001 be processed by the Illinois EPA with "Integrated Processing," as is allowed by Section 39.5(13)(a) and (c)(v) of the Illinois Environmental Protection Act.

3. By contacting the Illinois EPA by either phone or email to obtain copies of documents free of charge:

Illinois EPA
Sarah Brubaker, Office of Community Relations
217-786-0790 Desk line
866-273-5488 TDD
Sarah.Brubaker@illinois.gov

Questions about the public comment period and the Illinois EPA's decision to deny the application should be directed to:

Sarah Brubaker, Community Relations Coordinator
Illinois Environmental Protection Agency
Office of Community Relations
1021 North Grand Avenue, East
P.O. Box 19276
Springfield, Illinois 62794-9506

217-786-0790 Desk line
866-273-5488 TDD

Sarah.Brubaker@illinois.gov

Members of the public and entities that participated in the public comment process on either draft of the denial of this application, and that are either aggrieved or have an interest that is (or may be) adversely affected by this denial, may petition the Illinois Pollution Control Board (Board) to review the denial of the Application. (See, Section 40.3(a)(2) of the Illinois Environmental Protection Act (415 ILCS 5/40.3(a)(2)). The denial of this application, as discussed above, is allowed under Illinois rules for Prevention of Significant Deterioration (PSD) as the Illinois EPA has denied an application for revisions to a PSD approval.

The procedures governing appeals are contained in Section 40.3 of the Act, "Review process for PSD permits," and in the Illinois Administrative Code (IAC), i.e., 35 IAC Part 101 "General Rules," and 35 IAC Part 105 Subpart F, "PSD Permit Appeals." Unless the Board, the hearing officer, the Clerk, or the Board's procedural rules provide otherwise, all documents must be filed electronically through Clerk's Office On-Line (COOL). See, 35 IAC 101.302. If allowed by the Board, the hearing officer, the Clerk, or the Board's procedural rules to file an appeal by US mail, it should be sent in a timely manner to:

Pollution Control Board, Attention: Clerk
100 West Randolph Street
James R. Thompson Center, Suite 11-500
Chicago, Illinois 60601-3218

If you have any question about the denial of his application, please contact Sarah Brubaker, (217)786-0790.

Sincerely,

Brad Frost
Manager, Office of Community Relations
Illinois EPA

cc: Application File 95010001

Illinois Environmental Protection Agency
Springfield, Illinois
Bureau of Air, Permit Section

May 8, 2024

Responsiveness Summary for Comments on the Proposed Denial of an Application* from United States Steel Corporation – Granite City Works for Revisions to a Construction Permit/PSD Approval Issued for a Production Increase Project at its Iron and Steel Mill in Granite City

Source Identification No.: 119813AAI
Permit No. 95010001, initially issued January 25, 1996
Application for Revision: Initially received March 2, 2020
Revised application received October 7, 2022

* In this permit application, US Steel asks that the requested revisions of Permit 95010001 be processed by the Illinois EPA with "Integrated Processing," as is allowed by Section 39.5(13)(a) and (c)(v) of the Illinois Environmental Protection Act (Act). Integrated Processing of the revised permit would allow changes to the Clean Air Act Permit Program (CAAPP) permit for the Granite City Works, as would be set forth in the revised permit, to subsequently be made by means of an Administrative Amendment of the CAAPP permit. Integrated Processing would require that the revision of the permit provide for compliance requirements that are substantially equivalent to those that are required in CAAPP permits. The processing of the permit must also be subject to procedural requirements that are substantially equivalent to those that apply for issuance of CAAPP permits, including an opportunity for USEPA to review and comment upon a proposed version of the revised permit following completion of a public comment period on the draft of the revised permit.

Table of Contents

1. Decision

On May 8, 2024, the Illinois Environmental Protection Agency (Illinois EPA) denied an application submitted by US Steel for revisions to Permit 95010001, a construction permit that was initially issued in 1996 for a “Production Increase Project” at the Granite City Works.

2. Background

United States Steel - Granite City Works (US Steel) applied to the Illinois EPA for revisions to an air pollution control construction permit (Permit 95010001) for a project at its Granite City Works, the iron and steel mill in Granite City. This project (the “Production Increase Project” or “Project”) involved increases in the permitted production of iron and steel by this facility. As this facility is a source of emissions, Permit 95010001 provided approval for the Project under both Illinois’ construction permit programs for sources of emissions and the Prevention of Significant Deterioration (PSD) program under the federal Clean Air Act. This permit was originally issued in January 1996 to National Steel Corporation (National Steel), the former owner of the facility. This permit was transferred to US Steel after it became the owner of the facility. This proposed denial involves US Steel’s application submittal of October 7, 2022 (the “Application”), which submittal revised or replaced an earlier submittal from 2020. As the Illinois EPA has denied the Application, Permit 95010001 should be expected to continue in effect as it now exists until and unless action is taken to revise this permit based on a subsequent application submitted by US Steel.

A key reason that revisions to Permit 95010001 are needed is that emission testing conducted in 2014 on the two basic oxygen furnaces (BOFs), in which steel is produced, showed their emissions of nitrogen oxides (NOx), as well as their emissions of volatile organic material (VOM), are higher than is allowed by this permit. This is because, in 1996, the initial application for Permit 95010001 understated the NOx and VOM emissions of the BOFs and the emission limits in Permit 95010001 were based on information in the original application. US Steel has worked to prepare an application for revisions to Permit 95010001 that would allow more emissions of NOx and VOM from the BOFs.

The Application also addresses other issues that are now posed by how the Project was initially permitted and subsequent changes that have occurred at the facility. Notably, the emissions of carbon monoxide (CO) of certain units have also been found to be higher than stated in

the initial application. A baghouse control system has been installed for the BOFs to improve control of particulate emissions from charging and tapping of these furnaces. The byproduct coke oven batteries formerly at the facility were shut down in 2015. The requested revisions do not include increases in the permitted production of iron and steel by the facility as allowed by this permit as initially issued in 1996.

The Illinois EPA made a preliminary determination that the Application, as revised by US Steel and submitted to the Illinois EPA in 2022 should be denied. For some of the requested revisions to Permit 95010001, the Application should be denied because it does not show that the revisions would comply with the relevant regulatory requirements and USEPA policy that apply for the revisions to Permit 95010001 that are requested. For other requested revisions, the Application does not include the information needed to support those revisions or enable those revisions to be made. In addition, the application should be denied because it would not allow for processing of a revised permit with Integrated Processing, as has been requested.

More information about the Granite City Works and the Application is available in either of the project summaries that the Illinois EPA prepared to accompany the public comment periods on the Illinois EPA's preliminary determination that the Application should be denied. These project summaries describe the basis of the Illinois EPA's planned action on the application. They include information about the Granite City Works and the ambient air quality in the area in which it is located. They also include information about the Project and the New Source Review (NSR) rules that applied to the Project as initially addressed by Construction Permit 95010001, including the PSD rules, which were applied to the Project as it is a major PSD modification for emissions of sulfur dioxide (SO_2) and CO. The improvement to the particulate matter emission control system for the BOFs, which was first addressed in 2011 by Construction Permit 11050006, is also discussed in the project summaries. Finally, the project summaries also provide an overview of the principal reasons the Illinois EPA was proposing to deny the Application.

3. Comment Period

As already explained, upon review of the Application, as US Steel supplemented or replaced its permit application for revisions to Permit 95010001 in October 2022, the Illinois EPA made a preliminary determination that the Application did not meet the standard for

issuance of a revised version of Construction Permit 95010001 as requested by the Application. The Illinois EPA then prepared a draft of its planned action to deny the Application so that the public, as well as US Steel and the USEPA, could review and comment upon it.

Due to the nature of the requested revisions to Permit 95010001, as this permit also provides the PSD approval for the Project, the Illinois EPA held a public comment period on its preliminary determination that the Application should be denied. As the preliminary determination was that the application should be denied, a draft for the denial letter was prepared setting forth and explaining the reasons why, as a preliminary matter, the Illinois EPA had determined that the Application should be denied. The actual public comment period then enabled the public, as well as US Steel and the USEPA, to consider and comment on both the planned denial of the Application and the draft of the planned letter by which the Application would be denied.

In fact, the Illinois EPA held two public comment periods on the planned denial of the application. The first comment period began with the publication of a notice on the Illinois EPA’s Public Notice webpage on July 21, 2023. This comment period ended on September 11, 2023. It addressed an “initial” draft denial letter. The second comment period began on December 8, 2023, and ended on January 8, 2024. It addressed a revised draft denial letter. The second public comment period was held in response to a comment that was received on the initial draft denial letter. The revised draft denial letter more clearly sets forth the sections of the Illinois Environmental Protection Act (Act), the provision(s) of the Illinois’ regulations (Title 35 Subtitle B: Air Pollution of the Illinois Administrative Code), and the reasons that would be the basis for the Illinois EPA’s proposed denial of the Application.

4. For Additional Information and Copies Of Documents

Questions about the public comment period and the Illinois EPA’s decision to deny the Application should be directed to:

Sarah Brubaker, Community Relations Coordinator
Illinois Environmental Protection Agency
Office of Community Relations
1021 North Grand Avenue, East
P.O. Box 19276
Springfield, Illinois 62794-9506

217-786-0790 Desk line
866-273-5488 TDD

sarah.brubaker@illinois.gov

The letter denying the Application, this Responsiveness Summary and the documents prepared for the public comment periods are available at the Illinois EPA's internet site at https://epa.illinois.gov/public-notices/boa-notices/archive.html. Copies of these documents may also be obtained by contacting the Illinois EPA at the telephone numbers listed above.

5. Appeal Provisions

Members of the public and entities that participated in the public comment process on either draft of the denial of the Application, and who are either aggrieved or have an interest that is (or may be) adversely affected by the denial of the Application, may petition the Illinois Pollution Control Board (Board) to review the denial of the Application. (See, Section 40.3(a)(2) of the Act (415 ILCS 5/40.3(a)(2)).

The procedures governing appeals are contained in Section 40.3 of the Act, "Review process for PSD permits,"[1] and in the Illinois

[1] The Illinois EPA's actions and determinations under Illinois' PSD program are subject to greater deference in an appeal than has traditionally been afforded by the Board in other appeals of permit actions. The relevant language at Section 40.3(a)(2) of the Act was modeled after USEPA's regulations at 40 CFR Part 124, "Procedures for Decision Making." The language provides that an appeal of the Illinois EPA's action must show why its reasoning as to any issue raised was "clearly erroneous" or, alternatively, must show why some discretionary or policy decision made by the Illinois EPA warrants review by the Board. In 35 IAC 105.614 of its rules, the Board provides that decisions on PSD permit applications are to be upheld by the Board "if the technical decisions contained in the permit reflect considered

Administrative Code (IAC), i.e., 35 IAC Part 101 “General Rules,” and 35 IAC Part 105 Subpart F, “PSD Permit Appeals.” Unless the Board, the hearing officer, the Clerk, or the Board’s procedural rules provide otherwise, all documents must be filed electronically through Clerk’s Office On-Line (COOL). See, 35 IAC 101.302. If allowed by the Board, the hearing officer, the Clerk, or the Board’s procedural rules to file an appeal by US mail, it should be sent in a timely manner to:

Pollution Control Board, Attn: Clerk
100 West Randolph Street
James R. Thompson Center, Suite 11-500
Chicago, Illinois 60601-3218

judgment by the Agency.” Additional discussion of the relevant standard of review was set forth in the Board’s *First Notice Opinion and Order, In the Matter of Proposed New Part 204, et. al.*, R19-1, March 5, 2020, pp. 63 through 65.

6. Comments from the Public (Parties Other Than US Steel), with Responses by the Illinois EPA

C1. In their comments, the American Bottoms Conservancy (ABC), the Piasa Palisades Group of the Illinois Chapter of the Sierra Club, and the Metro East Green Alliance express support for the proposed denial of the Application, for the reasons set forth in the draft denial letter.

The Illinois EPA appreciates these expressions of support for the denial of this Application.

C2. In its comments, ABC explains that it objects to the use of "group limits"[2] in any future air pollution control permit that would be issued for the Granite City Works. In this regard, in its 2022 Application, US Steel requested that Permit 95010001 be revised to replace certain emission limits for individual emission units or emission points with "group limits," i.e., permit limits set for the emissions of a group of emission units.
The comment disputes the appropriateness of the three permits cited in the Application as support for the use of group limits. It observes that these permits, which were issued for sources and projects in other jurisdictions, present circumstances that are or were different than those of the Granite City Works. For example, the permit for *Shell Offshore* addressed emissions from seasonal activities for oil exploration conducted with the Kulluk, a drill rig on a towed barge, in the Arctic Ocean north of Alaska.[3] As the circumstances of these sources and projects differ in key respects from those of the Granite City Works, those permits should not be looked at as precedents for the use of group limits in the permitting of the Granite City Works.

---

[2] As used for this matter, "group limits" refer to limits for the emissions of groups of related but different emission units, rather than to individual emission units or emission points or to similar units (e.g., a pair of basic oxygen furnaces (BOFs) that operate in parallel and share emission control systems). For example, the Application requests that Permit 95010001 be revised to limit the overall emissions of a group of units that includes the casthouse for the two blast furnaces and other ancillary units involved in production of iron. The permit currently sets separate limits for the emissions of the casthouse, the emissions from charging the blast furnaces, and the emissions from activities at the slag pits.

[3] As observed in this comment, the Kulluk is no longer in use. In fact, it was damaged as a consequence of a storm and subsequently scrapped.

The Illinois EPA appreciates the concern expressed in this comment. As set forth in the denial letter, one of the reasons that the Illinois EPA denied the Application is that US Steel proposed the replacement of limits for emissions of particulate matter (PM), particulate matter$_{10}$ (PM_{10}), nitrogen oxides (NOx) and volatile organic material (VOM) from the blast furnace casthouse and from the basic oxygen furnaces (BOFs) with limits that would apply to the combined emissions of these units and the associated iron or steel making operations. For example, for the BOF shop, the Application requests that Permit 95010001 be revised to set limits for the combined emissions of these pollutants from these furnaces and other operations in the BOF shop involved in making steel, i.e., the desulfurization and reladling of iron, slag skimming, and ladle metallurgy operations. The Application does not show that it is appropriate for the casthouse and the BOFs, as they are principal emissions at the facility, to simply replace the current permit limits for their emissions with group limits.

C3. In its comments, ABC explains that it "… continues to maintain that US Steel should [be] using continuous monitoring to ensure compliance with emission limits."

The Illinois EPA appreciates the spirit of this general comment. However, it is not appropriate for the Illinois EPA to substantively respond to this comment because the Illinois EPA has denied the Application. The means by which US Steel must verify compliance with permit limitations for emissions would be appropriate for consideration in the future if a new or revised permit is proposed for the facility that would set permit limitations for emissions. At that time, the appropriateness of continuous emissions or operational monitoring, or alternatively, for units and operations that do not have stacks, prescribed emission factors could be assessed for specific emission units and operations relative to the limits for emissions of different pollutants that are intended for such units and operations.

C4. A meeting for the community is requested to better understand the reasons for the proposed denial of the Application.

It was not appropriate for the Illinois EPA to participate in a meeting for the purpose identified in this comment. The reasons for the proposed denial of the Application were detailed in the initial draft denial letter prepared by the Illinois EPA and made available for public review and comment. The draft denial letter was accompanied by a project summary providing relevant background

information for this proposed action and generally discussed the reasons why the preliminary determination of the Illinois EPA was that the Application should be denied. Moreover, these commenters also expressed support for the denial of this Application. Given these circumstances, it would not be proper for the Illinois EPA to expend resources in a general meeting as requested by this comment.[4]

C5. A meeting for the community is requested to better understand the public health impacts increased emissions would have created. A meeting would be an opportunity for the Illinois EPA to educate the community on why the denial of this Application is in the best interests of human health.

It was not appropriate for the Illinois EPA to participate in a meeting for the purposes described forth in this comment. As detailed in the draft denial letters, the Illinois EPA proposed that the Application be denied because it does not show that the requested revision to Permit 95010001 would comply with the requirements of applicable regulations and policy. Notably, the Application does not show that the requested increase in permitted NOx emissions of the BOFs would not result in the Production Increase Project (the "Project") becoming a major modification for purposes of the Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NaNSR) programs, rather than a modification that was not major, as the Project was originally permitted. The Application did not address the applicable substantive requirements of PSD and NaNSR for a project that would be a major modification for NOx.[5]

---

[4] It should also be noted that the Illinois EPA has provided further explanation of the reasons for denial of the Application in the Revised Draft Denial Letter that was prepared and made available for review and comment by the public. As US Steel has submitted comments opposing the proposed denial of the Application, this responsive summary also provides further explanation of the reasons why the Application should be denied as this document provides responses to US Steel's comments.

[5] In addition, the Application was denied because it does not support or adequately support representations or requests made in the Application. Notably, the Application does not support the claim that process measures had been considered as a control alternative for Best Available Control Technology (BACT) for the carbon monoxide (CO) emissions of the blast furnace casthouse and blast furnaces stoves, for which the Application requests increases in permitted emissions. The Application also does not provide support for the emission factors and emissions determination methodology for certain emission units and emission points for which the Application requests that the Illinois EPA now prescribe the use of such factors or method in the revised permit. The

The Application was not denied because of possible health impacts from increases in the permitted emissions of the Granite City Works. In this regard, the Application did not directly address the impacts on human health of the requested revisions to certain emission limits in Permit 95010001 nor was this necessary under the applicable laws, rules or policy governing the requested revisions of Permit 95010001.[6] Rather, US Steel was required in the Application to explain why the requested revisions to the permit should be considered to maintain or enable compliance with applicable substantive and procedural requirements governing emissions of the Granite City Works. For reasons as now set forth in the denial letter, the Illinois EPA has found that US Steel did not make the necessary showings in the Application. Impacts on public health, if any, from the requested increases in the permitted emissions of certain units at the facility were not one of the reasons for denial of the Application.

C6. A meeting of the Illinois EPA with community residents, labor groups and individuals, like us, fighting for a cleaner, safer, more sustainable world is requested to begin a serious discussion about transition to “green steel,” i.e., steel that is produced without the utilization of fossil fuels.

It would not be appropriate for the Illinois EPA to participate in a meeting as requested or discussed by this comment. The Application requests revisions to an air pollution control construction permit that was originally issued in 1996 for increases in the production of iron and steel by the Granite City Works. As such, the laws, rules and policy that apply to the processing of the Application are those for permitting of sources

---

Application was also denied because it does not request revisions and was not accompanied by other actions to facilitate consistency between the revisions to Permit 95010001 that were requested, the Clean Air Act Permit Program (CAAPP) permit for the operation of the Granite City Works, and the emission units and activities at the Granite City Works as are now actually present. Finally, the Application did not adequately address or resolve permit appeals pending before the Pollution Control Board that involve certain provisions currently in Permit 96030056, the CAAPP permit for the Granite City Works.

[6] This is consistent with a fundamental principle in regulation of emissions. That is, sources should control or reduce their emissions of air contaminants as it is practical and reasonable to do so. It is not appropriate for a source to simply be held to levels of emissions that are accompanied by concentrations of contaminants in the atmosphere that can be accommodated without any environmental impacts that would be considered excessive compared to the National Ambient Air Quality Standards (NAAQS) or established values for the concentrations of contaminants in the air. It is desirable for the ambient air to be as clean as is reasonably practical.

of emissions. When taking action on the Application, these laws, rules and policies did not provide for the broader consideration of the matters for which this comment requests that the Illinois EPA meet with the public and other parties.

Notwithstanding this request for a meeting, the Illinois EPA generally supports the development and transition to steel manufacturing processes that have lower impacts on the environment, including, both directly and indirectly, lower emissions of greenhouse gases. It is also desirable that the disruptions from this transition happen in a way that reduces impacts on local communities and on society generally.[7]

[7] It should also be noted the production of recycled steel from scrap in electric arc furnaces does not yet eliminate the demand for iron produced from ore, as is made in blast furnaces. This is because "new iron" may be needed to maintain levels of undesirable, tramp elements, such as copper and tin, in the steel produced by electric arc furnaces within acceptable levels.

7. Comments from United States Steel - Granite City Works (US Steel) with Responses by the Illinois EPA

Explanatory Preface by the Illinois EPA

Organization

US Steel's comments are generally addressed in the order in which US Steel made them. Major headings are generally identified with Roman numerals as used by US Steel (e.g., I, II, …). As US Steel further subdivided its comments, those headings are generally identified by letters, as used by US Steel (e.g., A, B,…). As US Steel's comments appeared to address specific denial points, the Illinois EPA has added an identification of the relevant denial point(s) to the headings provided by US Steel.

US Steel did not provide headings or numeric designations for its initial comments or preamble, which were presented in a series of paragraphs, each with comment(s). Accordingly, these comments have been identified under the heading of "Preamble." An attempt was not made to provide references to the specific denial points, if any, that might be relevant for these comments.

Certain refinements have been to the organization of US Steel's comments to improve clarity of both the comments and the Illinois EPA's response. As the Illinois EPA concluded that comments should be further separated or subdivided for clarity and ease of response, each such "sub-comment" is further identified using conventional numbers (i.e., 1, 2, …) or, as US Steel subdivided its comments and the Illinois EPA further subdivided them, with the letter assigned by US Steel and a conventional number (e.g., A1, A2, …). For these comments that have been subdivided of further subdivided by the Illinois EPA, the headings for the comments were added by the Illinois EPA. Similarly, for the preamble, the comments have also been subdivided (i.e., P1, P2, …), with headings added by the Illinois EPA.

US Steel's Comments

The substance of the comments submitted by US Steel is reflected in this Responsiveness Summary. The Illinois EPA has taken great care to assure that the issues, facts, observations and other matters raised or addressed by US Steel in its comments are accurately conveyed in this document. In this regard, this document reflects each substantive comment made by US Steel. In addition, the Illinois EPA has not combined, consolidated or paraphrased US Steel's comments as is both permissible and acceptable when a responsiveness summary is prepared. However, the wording of US Steel's comments in this document is not necessarily that of the comments as provided by US Steel. As is

appropriate in a responsiveness summary prepared by the Illinois EPA following a public comment period for a planned action on a permit application, in this document, US Steel's comments have been reworded for purposes of consistency, accuracy and simplification.[8] This was done to facilitate understanding of the comments and the responses provided by the Illinois EPA.

General Responses by the Illinois EPA

US Steel's comments repeat, in some cases almost verbatim, certain arguments or statements in multiple comments, these arguments or statements. These statement or arguments may be addressed collectively by the Illinois EPA, with a general response. For example, US Steel's comments claim several times that certain emission factors that are at issue in the denial of the Application have been both accepted and prescribed by Illinois EPA for a period of nearly thirty years for all purposes pertaining to the permitting of the Production Increase Project. Each time this claim is made in US Steel's comments, the Illinois EPA has not fully responded to this claim, which the Illinois EPA considers irrelevant and , perhaps inaccurate. Instead, in Section 8A and Section 8B of this Responsiveness Summary, after the responses to the non-repetitive comments here in Section 7 of this document, the Illinois EPA provides common, "general responses" to also address these statements and arguments.

US Steel's Comments with Responses by the Illinois EPA

P. PRELIMINARY COMMENTS

P1. Request That the Illinois EPA Reconsider its Preliminary Decision and Work with US Steel

United States Steel - Granite City Works (US Steel) requests that the Illinois EPA reconsider its preliminary decision and work with US Steel on resolving any outstanding issues.

Now that the Application has been denied, the Illinois EPA would be pleased to work with US Steel on the issues identified in the Denial

[8] For example, the Production Increase Project, which is the subject of Permit 95010001, is simply referred to as the "Project." The permit application or submittal that US Steel made in October 2020 is simply referred to as the "Application."

Letter, as those issues are amenable to resolution by means of permitting. In this regard, it was important that the deficiencies in the permit application received by the Illinois EPA on October 7, 2022 (the "Application") and the issues that would need to be addressed in a new or revised application for revision to Permit 95010001 to be formally set forth in a denial of the Application.

P2. Request That the Illinois EPA Meet with US Steel In the Interest of Reaching Resolution on Many of the Issues Raised by the Draft Denial

US Steel also requests to meet with Illinois EPA in the interest of reaching resolution considering many of the reasons that Illinois EPA raises in its proposed denial were not known to US Steel until it received the draft denial letter (or very shortly beforehand) notwithstanding the parties met several times to discuss the permit application submitted in 2020. The Illinois EPA did not notify US Steel of any deficiency in the Application or information submitted in such Application pursuant to 35 Illinois Administrative Code (IAC) 201.158 or 204.1300 or Subsection 39.5(5) of the Act. Many of the issues, as explained in US Steel's comments, could have been efficiently resolved if the Illinois EPA raised them during the years while the permit application was pending as is customary.

The fact that US Steel was not informed of certain deficiencies in the Application prior to the release of the Initial Draft Denial Letter is not a valid reason for the Illinois EPA to not have proceeded with denial of the Application.[9] The Illinois EPA is not required to notify an applicant for a state construction permit, including a PSD approval, of deficiencies in a permit application before denying an application. Moreover, the inability or failure of US Steel to foresee certain deficiencies with the Application, as claimed in certain comments, is certainly not an appropriate basis for the Illinois EPA to not have proceeded with denial of the Application.[10]

---

[9] It is noteworthy that US Steel was informed by telephone in December 2022 that a revised permit could not be issued based on the Application. This was because the Application did not show or prove that the Project would not become a major modification for NOx with the requested revision to Permit 95010001 to increase the Permitted NOx emissions of the Basic Oxygen Furnaces (BOFs).* This is the overarching deficiency in the Application.

*** Molten iron from the blast furnaces at the facility, along with scrap metal, are processed in the BOFs to make steel.**

[10] It is also noteworthy that the Application requests substantive revisions to Permit 95010001 as this permit provides the PSD approval for the Project and also requests Integrated Processing of this revised permit. Accordingly, issuance of a revision to Permit 95010001 that is effective is

P3. The Application Requests Revisions of an Issued Permit, Not a New Permit

The Application is for a revision to an issued PSD permit, which was originally issued to National Steel Corporation (National Steel) in 1996 for a Production Increase Project (the "Project") at the Granite City Works. The Application is not a request for a new major modification. Therefore, the scope of the review is more limited and the permitting process is substantially different than when compared to the permitting process for a new major modification.

This comment does nothing to suggest that the Application should not be denied. This comment also downplays the revisions to Permit 95010001 that are entailed by the revisions of Permit 95010001 that are or should be requested by the Application, understating the complexity of a permit proceeding that would revise Permit 95010001. Most significantly, the Illinois EPA's review of the Application has concluded that the revised netting analysis for emissions of nitrogen oxides (NOx) in the Application does not show the Project should not have been originally permitted by National Steel Corporation (National Steel) in 1996 as a major modification for NOx for purposes of New Source Review (NSR). In this regard, the Application does not show that permitting of a "new major modification" is not needed for NOx under both the NSR programs for Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NaNSR). Given the other issues that are now posed for the Project, revision of Permit 95010001 is more complex than if the Project had been properly permitted initially or corrections had been pursued shortly after Permit 95010001 was initially issued.[11]

---

not possible simply by resolution of issues with the Illinois EPA, absent opportunity for USEPA and other interested parties to provide their input. Moreover, as other parties will have an opportunity to provide their input on any revisions to Permit 95010001, the denial of the Application was an appropriate action to inform these other parties of the limited progress that had been made through the informal discussions between US Steel and the Illinois EPA about revisions to Permit 95010001.

[11] There are other reasons why the revisions to Permit 95010001 that are encompassed by the revisions of Permit 95010001 that are or should be requested by the Application would be more complex that an application for a proposed new source or modification. For example, US Steel also seeks revisions to Permit 95010001 to increase permitted emissions of carbon monoxide (CO), which are also greater than initially represented by National Steel. The Granite City Works, i.e., the facility, is now subject to the Clean Air Act Permit Program (CAAPP). The CAAPP permit issued for the facility, Permit 96030056, included

P4. Revised Draft Denial Letter Does More Than Clarify the Initial Draft Denial Letter

The Illinois EPA does more than "clarify" its previous notice of intent to deny the application; but instead raises new bases for its objections. Instead of working with US Steel on addressing any concerns, the Illinois EPA appears to be doubling down on its insistence to deny the Application. In response to US Steel initial comments of September 2023, Illinois EPA's bases for intending to deny the Application have changed and have become a moving target. Again, US Steel would prefer to work collaboratively with the Illinois EPA to address its concerns and to issue a revision of Permit 95010001 that complies with statutory and regulatory requirements; rather than searching for hypothetical and potential reasons why a revised permit should not be issued.

This comment is not relevant to the denial of the Application. It is appropriate that in the Revised Draft Denial Letter, the Illinois EPA take notice of US Steel's initial comments of September 2023. Moreover, this comment is disingenuous as the reason that the Illinois EPA prepared a Revised Draft Denial Letter was in response to a comment by US Steel on the Initial Draft Denial Letter. In that comment, US Steel claimed that the Initial Draft Denial Letter was deficient because it did not include certain information as required by Section 39(a) of the Act.[12] To address this comment and assure that the planned denial of the

---

certain "emission factor limits" that have been appealed in PCB 2013-053 to the Illinois Pollution Control Board (Board) by US Steel. One aspect of this appeal is that Permit 96030056 reflects the emission factor limits for process units currently in Permit 95010001. Another construction permit, Permit 11050006, was issued in 2013 for the addition of a filter system or baghouse to improve control of particulate emissions of the BOFs. This permit has also been appealed to the Board (PCB 2013-062) as it restates the emissions factor limits for the BOFs established in Permit 95010001. The Application also requests that the revision of Permit 95010001 be handled with Integrated Processing. While this avoids sequential revisions to permits, first to Permit 95010001 and then to the CAAPP permit, it means that the revisions to Permit 95010001 must also meet substantive and procedural requirements under the CAAPP.

[12] In its comments of September 2023, US Steel indicates that the Initial Denial Letter is deficient as it does not include information as required by Section 39(a) of the Act when a state permit application is denied. This comment, as follows, also provides the relevant text of Section 39(a) of Act:

> **Section 39(a) of the Act further provides:**
>
> > **If the Agency denies any permit under this Section, the Agency shall transmit to the applicant within the time limitations of this Section specific, detailed statements as to the reasons the permit application was denied. Such statements shall include,**

Application would not be found invalid on procedural grounds, the Illinois EPA prepared the Revised Draft Denial Letter, which was then posted on December 8, 2023. This revised draft of the denial letter clearly provides the information that Section 39(a) of the Act specifies be provided when a permit application is denied.[13]

Two appendices were also added in the Revised Draft Denial Letter. These appendices list, respectively, the various provisions of the Act and the Illinois Code that are cited as the underlying bases for the various denial points, with brief descriptions of the provisions. These

---

> **but not be limited to, the following:**
>
> (i) **the Sections of this Act which may be violated if the permit were granted;**
>
> (ii) **the provision of the regulations, promulgated under this Act, which may be violated if the permit were granted;**
>
> (iii) **the specific type of information, if any, which the Agency deems the applicant did not provide the Agency; and**
>
> (iv) **a statement of specific reasons why the Act and the regulations might not be met if the permit were granted.**
>
> **For the various reasons set forth herein [in US Steel's Comments of September 2023], US Steel maintains that the draft permit denial does not satisfy the above requirements. To summarize the matters discussed in this comment: the Illinois EPA has not clearly specified how certain provisions of the Act and regulations might not be met if the permit were granted; for those areas where certain provisions of the Act and regulations are specified, Illinois EPA is incorrect that those provisions would be violated if the permit were granted; and where the Illinois EPA has asserted that information was not provided, US Steel is providing that information here, is directing the Illinois EPA to the information in the application, or describes why such information is not pertinent to the issues at hand. Accordingly, Illinois EPA should not issue the proposed permit denial. …**
>
> **US Steel's Comments of September 2023, p. 2 and 3.**

[13] The Illinois EPA also corrected certain errors in the Initial Draft Denial Letter. In particular, in its comments of September 2023, US Steel observed that while the Initial Draft Denial Letter identified Section 9.1 of the Act as a reason for the proposed denial of the Application, neither the denial letter nor the project summary explained how this provision might be violated by the revisions to Permit 95010001 that were requested by the Application. The Revised Draft Denial Letter identified subsection 9.1(d) of the Act, rather than Section 9.1 of the Act, as a provision of the Act that might be violated by the requested permit. Section 9.1(d) of the Act prohibits violations of the PSD and NaNSR programs, as it prohibits violations of Section 165 and Section 173 of the federal Clean Air Act.

appendices were added to the revised draft so that the Illinois EPA could explain certain relevant aspects of these provisions as they were cited in the Revised Draft Denial Letter without the need to do so for each denial point. In addition, as these appendices would provide basic explanations of the provisions of the Act and the Illinois Code that were identified as the bases for the planned denial, these explanations would potentially facilitate the review of and comments on the Revised Draft Denial Letter by individuals who are unfamiliar with or do not routinely refer to the Act or the Illinois Code.

As preparation of a revised version of the draft denial letter was effectively requested by US Steel in its initial comments, it is to be expected that that the Revised Draft Denial Letter elaborated and expanded upon the deficiencies in the Application. However, with minor exceptions, the text of the Initial Draft Denial Letter was carried over in the Revised Draft Denial Letter in the discussions for the various denial points in this draft letter.[14, 15]

P5. The PSD Program Is Forward Looking

The PSD program is forward looking. However, in its draft denial letter, the Illinois EPA is pursuing a path that would make US Steel retroactively address all potential operating scenarios under the facility's prior ownership and footprint, for which US Steel does not have the requisite information and for which US Steel is not responsible. Such an approach is inconsistent with the Clean Air Act and legal precedent.

---

[14] For example, as clearly stated in the Revised Draft Denial Letter, in this letter, Denial Point 3 is accompanied by a new denial point, Denial Point 3A. Denial Point 3 addresses the fact that the Application does not include a demonstration that the NOx emissions of Project-affected fuel burning units would not exceed the "future amount" indicated in the Application. Denial Point 3A addresses a related deficiency in the Application that was recognized while the Revised Draft Denial Letter was being prepared. This is, for the Project-affected fuel burning units, the Application also does not provide supporting data and calculations for the value for future NOx emissions provided in the Application.

[15] The Illinois EPA disagrees that the issuance of the Revised Draft Denial Letter improperly created a moving target for US Steel, as implied by this comment. The Illinois EPA could counter that US Steel has provided the Illinois EPA with a moving target as it refers to material in its comments that was not included in the Application. However, it is inherent in the draft-comment-response process that new information be introduced into a permit proceeding.

Moreover, permitting, especially for complex situations, like the requested revision of Permit 95010001, is by its nature a moving target. Any revision of Permit 95010001 will not be complete until a public comment period is held on a draft of the revised permit; USEPA has the opportunity to object to the proposed revised permit, as Integrated Processing is requested; and any appeals of the revised permit are concluded such that the permit becomes effective and can be relied upon by US Steel.

As this comment simply expresses US Steel's opinion as to what is provided for by the PSD program, this comment does nothing to show that the Application should not be denied. As explained in response to US Steel's specific comments with regard to applicability of PSD for emissions of NOx, US Steel's reading and approach to the key provision of the PSD program that is relevant to the Application and revision of Permit 95010001 is not correct. This provision, which addresses relaxations of permit limitations established for a source or project (i.e., increases in permitted emissions), as requested by the Application for the Project, requires that the permitting of the source or project in which such limitations were established be revisited. In this regard, the PSD program is not actually forward looking as claimed by this comment.

Moreover, the Application, itself, indicates that US Steel possesses information to retroactively revisit applicability of PSD for the Project, addressing the initial permitting of the Project where the limitations that are now of concern were established. In this regard, the Application requests certain increases in the baseline emissions of NOx, particulate and volatile organic material (VOM) prior to the Project, as well as increases in the NOx and VOM emissions for which other units are permitted with the Project. Finally, the legal precedents that US Steel cites do not address relaxations of established permit limitations. As such, these legal precedents are not relevant for the revisions to Permit 95010001 that are requested by the Application to increase the permitted emissions of certain units.

P6. In the Comments That Follow, US Steel Addresses the Illinois EPA's Stated Reasons for the Proposed Denial of the Application

US Steel addresses Illinois EPA's stated reasons for its proposed denial of the Application. In the subsequent comments, Sections II through XIII, US Steel addresses the denial points detailed in the draft denial letter, Attachment 1.

A response to this comment is not necessary as it is simply intended to be a guide as to what is subsequently provided in US Steel's comments. However, as this comment may be making a distinction between the comments in Section I of US Steel's comments and its subsequent comments, this comment is not supported nor is it necessarily relevant. Many of the comments made in Section I of US Steel's comments touch on or provide introductions to matters that US Steel only fully addresses in subsequent comments.

I. THE REQUESTED PERMIT REVISIONS WOULD NOT VIOLATE PROVISIONS OF THE ILLINOIS ENVIRONMENTAL PROTECTION ACT (ACT) OR THE REGULATIONS OF THE ILLINOIS POLLUTION CONTROL BOARD FOR AIR POLLUTION

A1. As Shown by Subsequent Comments, the Application Demonstrates That the Illinois EPA Should Proceed with Issuance of a Revised Permit

The Illinois EPA proposes to deny the Application, at least in part, because Illinois EPA preliminarily determined that Section 39(a) of the Illinois Environmental Protection Act *(Act) might be violated*. Section 39(a) states that "it shall be the duty of the Agency to issue … a permit upon proof by the applicant that the facility, equipment, vehicle, vessel, or aircraft will not cause a violation of this Act or of regulations hereunder." As set forth further in its comments, US Steel maintains that the Application demonstrates that the facility and equipment at issue in the Application will not cause a violation of the Act or the regulations thereunder. Therefore, it is Illinois EPA's duty, under the statute, to proceed with issuance of a revised permit.

As this general comment simply expresses US Steel's opinion as to what its other substantive comments "demonstrate" or "show," this comment does nothing to show that that the Application should not be denied. As explained by the Illinois EPA in response to US Steel's comments related to specific denial points, those comments did not show that the Application should not be denied. In particular, US Steel's other comments do not show that the Application provides <u>proof</u> that if the Permit 95010001 were revised and issued as requested, the emission units and activities that are affected by the Project and currently addressed by Permit 95010001 would not violate provisions of the Act or the Illinois Code.[16]

A2. US Steel's Subsequent Comments Are Such That the Application Should Not Be Denied

For the various reasons set forth in US Steel's comments, the Illinois EPA is incorrect that any provisions of the Act or the regulations

[16] It is also noteworthy that as Section 39(a) of the Act also addresses the information that the Illinois EPA must provide when it denies an application, the Act does not require a definitive determination that certain provisions of the Act or the Illinois Code are violated or will be violated if the requested permit were issued. In addition to the types of information that the Illinois EPA deems the applicant did not provide, Section 39(a) of the Act requires a denial letter to provide "…the Sections of the Act which <u>may</u> (emphasis added) be violated if the permit were granted," the provisions of the Illinois Code "… which <u>may</u> [emphasis added] be violated …;" and a statement of the specific reasons why the Act and the Illinois Code <u>might</u> [emphasis added] not be met … ."

thereunder for air pollution, i.e., Title 35: Environmental Protection, Subtitle B: Air Pollution, of Illinois Administrative Code (IAC), would be violated if the permit were granted; where the Illinois EPA has asserted that information was not provided to the Illinois EPA in the Application, US Steel is providing that information here, is directing the Illinois EPA to the information in the Application, or describes why such information is not pertinent to the issues at hand. Accordingly, Illinois EPA should not deny the Application.

Again, as this general comment simply expresses US Steel's opinion as to what its other, substantive comments "demonstrate" or "show," this comment does nothing to show that the Application should not be denied. In addition, this comment suggests, presumably related to the Revised Draft Denial Letter, that, "… where the Illinois EPA has asserted information was not provided to the Illinois EPA in the Application, US Steel is providing that information here [in certain of US Steel's comments]," it is not clear that this is sufficient to remedy a deficiency in the Application that would otherwise necessitate its denial. It is certainly appropriate for U.S. Steel's comments to direct the Illinois EPA's attention to the places in the Application where information that the Illinois EPA claims is missing from the Application is believed to be provided in the Application. Likewise, it is appropriate for comments to direct the Illinois EPA's attention to material for which it is entitled to take official notice, such as statutes, rules, USEPA rulemakings, determinations and guidance by USEPA, USEPA publications, and opinions and decisions of courts. However, it is not clear that where a permit application would have otherwise been found to be deficient and denied because certain necessary information was not included in the application, that an applicant can provide such information by providing it within its comment on a draft of a planned denial letter.[17]

A3. As Discussed in US Steel's Comments, Section XIII.A, It Would Be Inappropriate to Deny the Application Based on Certain Requirements of the Act Related to CAAPP Permits

The Illinois EPA proposes to deny the Application, at least in part, because the Illinois EPA has preliminarily determined that subsections 39.5(5)(i), 39.5(7)(a), 39.5(10)(a)(iv), 39.5(13)(a), and 39.5(c)(v) of the Act, pertaining to administrative amendment of Clean Air Act Permit Program ("CAAPP") permits, might be violated. Because the listed provisions of the Act relate only to the CAAPP, it would be

[17] **As US Steel suggests that some of its comments provide new information for the Application, it is fortunate that, at most, a handful of US Steel's comments attempt to do this. As a general matter, the denial of the Application does not hinge on these comments.**

inappropriate to deny the application for a revision of the construction permit and PSD approval based on a failure to satisfy these statutory provisions, as further discussed in Section XIII.A of US Steel's comments.

This comment does not show that the Application should not be denied. As explained in response to US Steel's Comment XIII.A, the Application would be denied because the Application would not meet the cited statutory provisions. In this regard, in addition to seeking revisions to Permit 95010001, the Application, itself, also requests that the revisions of Permit 95010001 that are sought be subject to Integrated Processing. This would authorize changes that are made to the provisions of Permit 95010001 to subsequently be made to Permit 96030056, the CAAPP permit for the facility, by Administrative Amendment of Permit 96030056. As a subsequent Administrative Amendment of the CAAPP permit would be authorized by the issuance of revised Permit 95010001, the subsequent amendment of the CAAPP permit would be a ministerial action by the Illinois EPA. Accordingly, the cited provisions of the Act related to CAAPP permitting are appropriately considered relative to the revisions of Permit 95010001 requested by the Application.

A4. The Denial of the Application Because 35 IAC 203.128 and 204.560 Might Be Violated Would BE Improper Because Thes Rules Are Definitions

The Illinois EPA proposes to deny the Application, at least in part, because Illinois EPA has preliminarily determined that 35 IAC 203.128 and 204.560 might be violated. The cited rules are definitions, not affirmative requirements, and cannot be violated.

This comment does not show that the Application should not be denied because these definitions of "potential to emit" are identified as a basis for denial. These definitions, which are in Illinois' NaNSR and PSD rules respectively, can be violated as the Application does not show that the revised limitations that are proposed by the Application would not be sufficient to restrict the emissions to the levels that that the Application proposes as their potential emissions. This is explained in Appendix B of the Revised Draft Denial Letter.[18]

---

[18] For example, as explained in Appendix B of the Revised Draft Denial Letter with respect to 35 IAC 204.560:

> **35 IAC 204.560, Potential to Emit (Definition)**
> **This definition of "potential to emit" is cited as a basis for denial points as related to the role of permit limitations, as distinguished from the physical and operational design of a stationary source, in restricting the potential emissions of emission units. 35 IAC 204.560, along with 35 IAC 204.400, are cited as a basis for denial as the 2022 application does not**

II. THE APPLICATION SATISFIES 35 IAC 201.159

1. The Applications Satisfies the Requirements of 35 IAC 201.159

In the draft denial letter, Attachment 1, the Illinois EPA asserts that the Application "does not include a signed certification for the truth, accuracy and completeness of this application as it was actually submitted in October 2022, as required by 35 IAC 201.159. (The Illinois EPA also observes that "… the 2022 application includes a photocopy of an earlier certification, dated February 25, 2020, which was submitted with a prior application.") This assertion is incorrect in several respects. The Illinois EPA misrepresents this rule, which provided as follows. There is no requirement for a certification of truth, accuracy, and completeness.

> All applications and supplements thereto shall be signed by the owner and operator of the source, or their authorized agent, and shall be accompanied by evidence of authority to sign the application.

This comment does not show that the Application should not be denied based on Denial Point 22 as addressed by the Illinois EPA's responses to US Steel's other comments on the denial point. However, in response to this comment, as 35 IAC 201.159 does not specifically require the signatory for an air pollution control permit application to certify to the truth, accuracy and completeness of an application, this rule is not cited in the Denial Letter as a provision of the Illinois Code that is basis for denial of the Application. This rule is also not otherwise discussed in the Denial

---

show that certain emission limitations that are proposed, which would replace emission limitations currently in Permit 95010001, should be considered enforceable as a practical matter. In this regard, this definition of "potential to emit" provides that: "Potential to emit" means the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design only if the limitation or the effect it would have on emissions is federally enforceable or legally and practicably enforceable (emphasis added) by a state or local air pollution control agency. Secondary emissions do not count in determining the potential to emit of a stationary source."

Revised Draft Denial Letter. Appendix B, p. Appendix B, Page 8.

Letter. In other words, the Illinois EPA has accepted the signature of Michael Patton, General Manager, Granite City Works, as provided in the cover letter for the Application, dated October 3, 2002, as sufficient to satisfy the requirements of 35 IAC 201.159.[19, 20]

2. The Application Should Be Considered a Continuation of the Permit Application That Was Initially Submitted in March 2020

The Application, which in the Draft Denial Letters, the Illinois EPA refers to as the "2022 application" is actually a construction permit application submitted on March 2, 2020. This permit application includes a completed 199-CAAPP form, with a certification signed and dated February 25, 2020, and a completed 197-FEE form, with a check for the application fee of $23,000 and a certification signed and dated February 25, 2020. A supplement to the permit application was submitted in October 2022. As required by 35 IAC 201.159, the supplement was signed by Michael Patton, the General Manager of the Granite City Works. No application fee was provided, as is appropriate for a supplement to a pending application for a construction permit.

The Application, i.e., the permit application received by the Illinois EPA in October 2022, is not, "…actually a construction permit application submitted on March 2, 2020," as claimed by this comment. It is also not a supplement to this March 2, 2020, permit application as also claimed by this comment. The Application differs significantly from the March 2020 permit application.[21] The Application addresses the

---

[19] As the Application must be denied for reasons other than 35 IAC 201.159, it is not necessary here for the Illinois EPA to discuss the certification or attestation an individual must make pursuant to 35 IAC 201.159 when he or she signs a permit application. The permit application forms that the Illinois EPA has developed for air pollution control construction permit applications, e.g., Form 199-CAAPP, "Construction Permit Application for a Proposed Project at a CAAPP Source," provide for the person who signs a permit application to certify to the truth, accuracy and completeness of the submittal. This must also be accompanied by evidence of the signatory's authority to sign the Application. For example, Form 199-CAAPP provides for submission of such associated evidence as it provides for the signatory for an application to certify that, "I am the responsible official for the source, as defined by Section 39.5(1) of the Environmental Protection Act.")

[20] It should also be noted that 35 IAC 201.159 provides that both applications and supplements thereto shall be signed.

[21] The Application, as submitted in October 2022, is different from the earlier permit application submitted in March 2020 in a number of respects that are more significant than the changes in organization. For example, the Application requests future permitted annual NOx emissions for the BOFs and Project-affected fuel burning units of 400 and 706 tons/year, respectively, compared to the earlier application, which requested future permitted NOx emissions of 304.3 and 632.5 tons/year, respectively.(Compare Table 6-8 of the Application

revisions to Permit 95010001 that are requested by US Steel without the need to refer to the earlier permit application except as one might want to compare the Application with the earlier application. As such, it is appropriate as both an administrative and a technical matter that the Application, i.e., the permit application submitted in October 2022 be considered to have completely replaced the earlier permit application submitted in March 2020.[22]

This approach to the Application is consistent with the position taken by US Steel in the cover letter submitted with the Application, which states:

> **In March of 2020, United States Steel Corporation – Granite City Works ("U. S. Steel") submitted an application to revise Construction Permit No. 95010001. US Steel and the Illinois EPA**

---

to that in Table 8-7 of the earlier application.) For Project-affected fuel burning units, the Application requests future permitted annual CO emissions of 26,659 tons, compared to the earlier application, which requested future permitted emissions of 19,343 tons/year. (Compare the information in Table 4-2 of the Application to that in Table 3-2 of the earlier application.) For the blast furnace casthouse, the Application includes an analysis of Best Available Control Technology (BACT) as must be established in the revision of Permit 95010001 if it is to provide a PSD approval for these emissions. (See the BACT analysis in Section 8.2.3 of the Application, which analysis was not present in Section 4 of the earlier application.) In this regard, the Application requests that the revision of Permit 95010001, which currently does not address the CO emission of the casthouse, provide for annual emissions of 320 tons/year from the casthouse. Unlike the earlier application, for Project-affected fuel burning units, the Application does not request that the revision of Permit 95010001 prescribe the emission factors that are to be used to determine CO emissions from such for which the Application considers that emissions testing is not feasible, such as the Blast Furnace Stoves, Blast Furnace Gas (BFG) Flare 1, and the Ladle Dryer/Preheaters, which are located in the BOF Shop. (Section 3.5.1.2 of earlier application.) The Application also requests changes to the names or identification of certain units and a control device used in Permit 95010001 and certain changes to the organization of Permit 95010001, as is initially discussed in Section 2.2.2 of the Application. The changes in the place in Permit 95010001 where certain units are addressed is requested so that the placement of units in Permit 95010001 is consistent with their placement in the CAAPP permit, Permit 960300056.

[22] Incidentally, it is appropriate for the Application to be considered a continuation of US Steel's effort to formally initiate action by the Illinois EPA to make certain revisions to Permit 95010001. In this regard, as an application fee, as specified by Section 9.12 of the Act accompanies an air pollution control construction permit application, the applicant is not required to again pay the fee for submittal of an application when a revised application is submitted to the Illinois EPA in response to a notification that the earlier application was incomplete. As such, the Illinois EPA is not denying the Application because it was not accompanied by an application fee since that fee was provided with the earlier March 2020 application.

have been in discussions regarding this application. U.S. Steel has updated the permit application to reflect those discussions. Due to the nature of the discussions throughout the application, the Illinois EPA should refer to this application revision for processing.

Letter, dated October 3, 2022, Michael Patton General Manager, Granite City Works, to Bill Marr, Manager, Permit Section, Bureau of Air, Illinois Environmental Protection Agency.

The Illinois EPA's approach to the Application is also consistent with the Application, itself. In the Application, Appendix A, "Application Forms (Copies of Previously Submitted Versions)" provides copies of the two application forms submitted with the 2020 permit application, "Fee Determination for Construction Permit Application," 197-FEE, and "Construction Permit Application for a Proposed Project at a CAAPP Source," Form 199-CAAPP. As such, while not providing a newly signed versions of Form 199-CAAPP, the Application acknowledged that this form needed to be part of the Application, the permit application submitted in October 2022.

3. The Illinois EPA Did Not Request a New Signature or Certification Prior to Posting the Initial Draft Denial Letter

While the Illinois EPA had the Application for months, and virtually met with US Steel to discuss the Application, the Illinois EPA never requested such a new signature or certification.

This observation does not mean that it is not appropriate for the Application to be denied based on the absence of the certification required by Subsection 39.5(5)(e) of the Act as to the accuracy of the Application. Because of the absence of this certification, the Application does not meet the standard for issuance of a permit in Section 39(a) of the Act.[23]

---

[23] That the Application did not include an appropriate signature* or certification was one of the last deficiencies in the Application to be identified. The implications of the form in the Application being a copy of the form from the March 2020 permit application, which was dated February 25, 2020, was not recognized earlier. When it was recognized, the Illinois EPA had already concluded that the Application should be denied based on other deficiencies. The decision was made to address this deficiency with regard to the certification for the Application in the Draft Denial Letter with the other deficiencies in the Application.
*** As explained above in response to another comment, the Illinois EPA has accepted the signature on the cover letter for the Application as satisfying 35 IAC 201.159.**

III. US STEEL PROVIDED A SIGNED CERTIFICATION OF TRUTH, ACCURACY, AND COMPLETENESS FOR THE APPLICATION WITH ITS COMMENTS OF SEPTEMBER 2023 (DENIAL POINT 22)

1. The Absence of a Signed Certification for the Truth, Accuracy and Completeness of the Application Is Not a Valid Basis for Denial

In the draft denial letters, Attachment 1, the Illinois EPA asserts that the Application "does not include a signed certification for the truth, accuracy and completeness of the Application as it was actually submitted in October 2022" and that such a certification is required by Section 39.5(5)(e) of the Act. This is not a valid basis for denial of the Application for the following reasons.

As explained in Comment II above, the Illinois EPA mischaracterizes the Application, as it was submitted in October 2022, as a new or separate permit application. However, it is merely a supplement to the permit application submitted in March 2020. In the transmittal letter for the supplement, and for administrative convenience US Steel suggested that Illinois EPA refer to the supplement rather than to the initial submittal from March 2020. This was because, as requested by the Illinois EPA following review of the March 2020 permit application, the sections of the permit application were reordered.[24] The cited provision of the Act requires that each submitted permit application include a certification, but it does not expressly require a separate certification for each supplement to a permit application.

As already discussed, as a technical matter, the Application replaced the permit application that was submitted by US Steel in March 2020. As this comment only addresses the reorganization of the Application, this comment misrepresents the extent of the changes between the permit application submitted in March 2020 and the Application. With respect to whether a new certification is needed when a pending permit application is replaced by a new application, the Application, itself, indicates that this is necessary. However, the Application provided a certification that was flawed as it had been provided for the earlier submittal and could not have addressed the contents of the Application, which was submitted more than two years later.

[24] For example, the sections summarizing changes to CO emissions and presenting proposed Best Available Control Technology ("BACT") determinations for CO emissions were Sections 3 and 4 of the March 2020 permit application and were Sections 4 and 8 of the application submitted in October 2022. In the two submittals, the relevant sections were appropriately identified in Section 1, "Introduction," and Section 2. "Overview of Requested Permit Revisions." (Footnote 1 of US Steel's Comments of January 2024.)

2. US Steel Has Provided the Required Certification with Its Comments

Nonetheless, without waiving any rights or defenses, with its September 2023 comments, US Steel provided to Illinois EPA a new certification of the truth, accuracy and completeness of the permit application that was submitted in October 2022. Accordingly, even if Illinois EPA's interpretation of Section 39.5(5)(e) of the Act were correct and a separate certification is required for each supplement to a pending permit application, that requirement was satisfied prior to the proposed denial and this claimed deficiency cannot form a valid basis for denial of the Application.[25]

However, the Illinois EPA asserts in the revised Draft Denial Letter that this was not sufficient, baselessly claiming that the certification or Application is somehow fraudulent (Per the Illinois EPA, "[t]hus, even if the certification had been submitted as a supplement to the 2022 application, its truthfulness and validity would be questionable.") The Illinois EPA then asserts that this puts the Application under a cloud. US Steel is unable to respond to these assertions because, frankly, they are absurd and are without merit. US Steel has worked collaboratively with Illinois EPA in responding to inquiries and requests.

This comment does not show that the Application should not be denied for reasons as set forth in Denial Point 22. This comment misrepresents this denial point as it selectively quotes from the Revised Draft Denial Letter and rearranges the order of the provisions that are referred to compared to their order in the Revised Draft Denial Letter. This comment also does not actually address, perhaps wittingly overlooking, the reasons that the Illinois EPA found the certification attached as Exhibit 1 to its comments of September 2023 to still be inadequate to remedy the deficiency in the Application. In this regard, as explained in the Revised Draft Denial Letter, the certification provided with US Steel's Comments of September 2023 is deficient for two reasons, as explained as follows:

> **With respect to the "certification" and "signature" provided in US Steel's Comments [of September 2020] responding to the Initial Draft Denial Letter, this certification was not sufficient to correct these omissions. First, this material, which is dated September 8, 2023, was an attachment to those comments and was not**

[25] Furthermore, this issue could easily have been avoided if Illinois EPA had simply made a request to US Steel to certify the Application, which US Steel has now done.

> **submitted as a supplement to the 2022 application. Second, the certification is not accompanied by an errata or other material correcting erroneous information in the application as either identified by the Illinois EPA in the Initial Draft Denial or identified by US Steel when developing its response to the Initial Draft Denial. Thus, even if the certification had been submitted as a supplement to the 2022 application, its truthfulness and validity would be questionable. The fact that the 2022 application was not certified and signed puts the entire application under a cloud. Revised Draft Denial Letter, Attachment 1, pp. 74 and 75.**

In response to the perhaps obvious question, why was the certification that US Steel submitted as Exhibit 1 of its comments of September 2023 not considered to be a supplement to the Application, this exhibit was provided "… with these comments." (US Steel, Comments of September 2023, p. 9.) This document was not actually submitted as a supplement to the Application.[26] By means of the Revised Draft Denial Letter, the Illinois EPA informed US Steel that Exhibit 1 of the September 2023 comments was not considered to be a supplement to the Application. US Steel did not proceed in light of the relevant discussion in the Revised Draft Denial Letter to actually submit the certification that it provided with its September 2023 comments as a supplement to the Application. Also, important, in US Steel's comments of September 2023, an error in the Application was acknowledged.[27, 28] However, the certification that was provided in the September 2023 comments did not acknowledge this error. Accordingly, the comments, themselves, contradicted the certification in Exhibit 1 as to the truth and accuracy of certain information in the Application was true, correct and current. Again, US Steel did not take advantage of the Revised Draft Denial Letter as it discussed this contradiction. US Steel did not act to actually supplement the Application with a certification that acknowledged errors in the Application related to the NOx emissions of Boilers 11 and 12, which had already been identified and

---

[26] While the Illinois EPA may add material that it prepares, obtains or receives to the administrative record associated with the review of a permit application, the Illinois EPA cannot by its independent actions alter or amend an application as submitted by the applicant.

[27] As related to NOx emissions from use of coke oven gas (COG) in Boilers 11 and 12, US Steel's comments acknowledge an error in the Application, as follows:

> **The emission factor basis listed in Table 6-4 of the permit application is a scrivener's error.**
> **US Steel, Comments of September 2023, p. 28.**

[28] Incidentally, US Steel's Comments of January 2024 acknowledged additional errors in the Application.

acknowledged elsewhere.[29]

Finally, in response to this comment as it expressed concern over the use of the phrase "under a cloud" in the draft denial letters, the meaning or implications that are intended by the Illinois EPA with the use of this phrase are explained in the Denial Letter. In this letter, the sentence in which the phrase "under a cloud" is used are followed by the following, "In other words, as a matter of rule, absent an appropriate certification, the Application is deficient. The Application cannot be considered creditable and should not be relied upon for purposes of making revisions to Permit 95010001."

IV. PURPORTED FAILURE TO BE CONSISTENT WITH PENDING BOARD APPEALS (DENIAL POINT 21)

1. Denial of the Application on This Denial Point Would Be Without Merit

In the draft denial letter, Attachment 1, Illinois EPA asserts that the application must be denied because it does not address all items that are currently under appeal with the Illinois Pollution Control Board (Board). In particular, the Illinois EPA claims, "the application is not consistent with two pending permit appeals before the Board, PCB 0013-53 and PCB 0013-62." Quite strikingly, Illinois EPA cites to no Board order or regulatory or statutory provision to support its assertion. This is for good reason, as there is none. The assertion is without merit. Although it is logical that Illinois EPA might inquire about contested provisions in the appeals before the Board that may appear to be absent in the Application, the absence of such mention is not grounds for denying the Application. While the Illinois EPA has concerns about the Application in the context of the pending permit appeals before the Board, the Illinois EPA cannot claim these concerns as a basis to deny the Application.

This comment does not show that the Application should not be denied based on Denial Point 21. Contrary to what is claimed in this comment, in the Revised Draft Denial Letter, the Illinois EPA did identify the

[29] Alternatively, US Steel did not submit a supplement to the Application to correct the error that had been identified, as is appropriate when an error in a pending permit application is identified. (The error in the Application is improperly characterized as a scrivener's error in US Steel's comments since this error could still be directly corrected by US Steel's own action.) Moreover, as the error in the Application, itself, indicated that NOx emissions of Boilers 11 and 12 had not been correctly calculated, this supplement also would need to include supporting documentation for the corrected emission calculations for these units.

statutory and regulatory provisions that would be the basis of denial of the Application on this denial point. In addition, this comment overlooks and does not respond to statements made in the Revised Draft Denial Letter that provide the reasons and explain why the Application would be denied based on this denial point, which involves emissions limitation for SO_2, lead and CO that are now in Permit 95010001 and are restated in Permit 96030056, the CAAPP permit for the facility. In particular, in this denial point as the reasons why the Application should be denied are specifically addressed, the Illinois EPA explains:

> **As the subject limits [limits for emissions of SO_2, lead and CO], as they are or, in the case of PCB 2013-62, would be present in the CAAPP permit, are currently the subject of appeals, it is reasonable for these limitations for the review of the application to be based on compliance not being achieved. Moreover, absent information as described above [information showing that "these limits are now considered acceptable" by US Steel], the 2022 application does not show that, as the subject limits are appealed and could be stayed in any revised CAAPP permit, these limits should be considered to still meet the substantive requirements of the CAAPP. Finally, it is noteworthy that for the subject processes for the various emission factor limits for PM, PM-10, NOx and VOM, the application does request revisions to the emission factor limits. For those requested revisions, the 2022 application, page 2-3, explains that "USS Granite City anticipates that these revisions will enable settlement of the permit appeals currently before the Board because they involve provisions of the permit addressing emission factors."**
> **Revised Draft Denial Letter, p. 71 and 72.**

As this denial point is further discussed, the Illinois EPA explains:

> **… the application is not consistent with two pending permit appeals before the Board, PCB 0013-53 and PCB 0013-62, as it does not propose revisions to current permit limits for emissions of SO_2, CO and lead. As previously discussed, in these appeals, US Steel challenged all emission factor limits set by Permit 95010001 for individual process operations. US Steel has not amended these appeals so that they only address emission factor limits for PM, PM_{10}, NOx and VOM and no longer address the t [sic] emission factor limits that are set for SO_2, CO and lead. In addition, in the 2022 application, US Steel does not explain why the emission factor limits in Permit 95010001 for SO_2, CO and lead that were appealed are no longer considered to be objectionable. That is, US Steel would not again challenge those limits as it has already done in PCB 0013-53 and PCB 0013-62 if a revision to Permit 95010001 were issued that continued to include the current emission factor**

limits.[Footnote] 84

[Footnote] 84. If the subject emission factor limits were included in a revised permit, the Illinois EPA could explain that, if these limits in the revised permit were stayed pursuant to an appeal to the Pollution Control Board, the limits would continue to be enforceable pursuant to Permit 95010001 as issued before the revision of the permit and any appeal of the revised permit to the Board.

Initial Draft Denial Letter, Attachment 1, p. 47, and Revised Draft Denial Letter, Attachment 1, p. 73.

In summary, the Illinois EPA provided support and explanation in the Draft Denial Letters for denial of the Application based on Denial Point 21. This comment does not even address this information to attempt to show that the Application should not denied based on this denial point.

2. US Steel Did Not Learn of this Concern during Informal Discussions with the Illinois EPA about the March 2020 Permit Application

The permit application submitted in March 2020 was pending for over 2 ½ years before US Steel submitted the Application in October 2022. During this time, the Illinois EPA and US Steel met in person and virtually on several occasions to discuss the PSD permit revisions, yet only in the Initial Draft Denial Letter released in July 2023 did US Steel learn of Illinois EPA's contention that US Steel was obligated to address in its application all items that are currently under appeal with the Board. US Steel's understanding from these discussions was that, with satisfactory issuance of the revised permit, the pending appeals could be dismissed in their entirety.

This observation is immaterial to the denial of the Application based on Denial Point 21.[30] The Illinois EPA is not required to inform or notify an applicant for a state air pollution control permit of deficiencies in its application before taking action to deny the application.

[30] For purposes of the denial of the Application, this deficiency in the Application was one of the last deficiencies that was identified by the Illinois EPA. In the discussions with US Steel about the 2020 application, the concerns addressed by this denial point were likely considered a minor matter that could be readily addressed during the development of a revised version of Permit 95010001 with submittal of an appropriate supplement to the Application by US Steel. However, when the Illinois EPA determined that it needed to begin the process to deny the Application, it was realized that the Application should also be denied as addressed with Denial Point 21.

V. PURPORTED INCONSISTENCY BETWEEN THIS PERMIT APPLICATION AND THE APPLICATION SUBMITTED IN 2008 REQUESTING REVISIONS RELATING TO SO_2 EMISSIONS (DENIAL POINT 20)

1. Information Now Shows That the Sulfur Content of Blast Furnace Gas (BFG) Is Such That Use of BFG Complies with the SO_2 Emissions Limitations Currently in Permit 95010001

In the draft denial letter, Attachment 1, the Illinois EPA asserts that the application must be denied because it, "… is inconsistent with" a separate permit application submitted in 2008. Unfortunately, the Illinois EPA has not acted on the 2008 application and it is still pending. That application was submitted pursuant to a consent decree (Consent Decree, *People of the State of Illinois v. United States Steel Corporation*, Third Judicial Circuit, Madison County, Decree No. 05-CH-750, December 18, 2007). The 2008 application was submitted based on limited information, as was available when it was submitted. Subsequent information indicates that when averaged over a year, the sulfur content of BFG is such that the limit currently in Permit 95010001 for emissions of sulfur dioxide (SO_2) in pounds/million cubic feet (mmcf) of BFG is appropriate.

This comment does not show that the Application should not be denied based on Denial Point 20. The assertion made in this comment for the sulfur content of BFG is not reflected in information provided in the Application.[31] Indeed, neither the Application nor this assertion is accompanied by data for the actual sulfur content of BFG that would confirm that the sulfur content of BFG is such that the SO_2 emissions from burning BFG comply with the existing limitations in Permit 95010001 (6.65 pounds SO_2/mmcf of BFG and 615.22 tons/year, per Condition 22 and

[31] With regard to this topic, the Application explains that it, "…does not request any changes to the emissions limits for SO_2 and lead established in Construction Permit 95010001." (Application, Section 2.2, "General Description of Requested Permit Revisions," p. 2-2.)

Table 4.)[32, 33]

2. The Act and the Illinois Code Do Not Require the Application to Include a Compliance Demonstration for the Current Emission Limitations

In its explanation of how the inconsistency between the application submitted in 2008 and the more recent application is a deficiency, the Illinois EPA claims that the Application "does not meet the standards for issuance of a construction permit" because it does not "show compliance with the SO_2 emission limits for burning BFG that are currently in Permit 95010001." Admittedly, the Application, which does not request any changes to any SO_2 emission limitations in Permit 95010001 does not include demonstration of compliance with these limitations. The Application does not include demonstrations of compliance with any of the dozens of other emission limits that apply to units and operations at the Granite City Works and are unrelated to the application. There is no provision in the Act or the Illinois Code requiring that an application for a construction permit include such compliance demonstrations.

---

[32] As explained in the Draft Denial Letters, data for the sulfur content of the BFG produced by the facility and the annual SO_2 emissions from burning BFG is needed for the period prior to 2007 that led up to the Consent Decree and the 2008 application, as well as for the period from 2008 to the present. This is because the sulfur content of BFG could have been higher so that the 2008 application for revision of Permit 95010001 was appropriate when it was submitted.

> **Moreover, the existence of the 2008 application suggests that the revisions to SO_2 emission limits that it requested were needed at the time of that application. The 2022 application does not show that this was not the case, as it does not address historic sulfur content of BFG to show that an SO_2 emission limitation for BFG of 6.65 pounds/million cubic feet was appropriate when Permit 95010001 was originally issued in 1996 and that annual SO_2 emissions have never exceeded 615.22 tons/year.**
>
> **Denial Letter, Attachment 1, Denial Point 20.**

[33] Incidentally, several things have interfered with work on the 2008 application. These include the amount of effort needed on the initial CAAPP permit for the facility. The first two CAAPP permits issued by the Illinois EPA had to be revised to address deficiencies identified by USEPA in its response to petitions requesting that it object to the permits that had been issued. Then, additional revisions to Permit 95010001 were found to be necessary, as US Steel is now trying to address with the current application. Work on the application for these revisions to this permit was also disrupted by an interruption in production of iron and steel by the facility. This interruption, which began in 2015 and lasted for over two years, meant that it was uncertain that the facility would resume production.

This comment also does not show that the Application should not be denied Based on Denial Point 20. US Steel, itself, has submitted conflicting information in its permit applications. The earlier application indicates that the limits currently in Permit 95010001 understate the SO_2 emissions from burning BFG and needs to be increased. The Application, as it explicitly states that changes to the relevant limits of SO_2 emissions currently in Permit 95010001 are not requested, indicates that revisions to these limits are not needed. In these circumstances, it is appropriate in the context of the Application for US Steel to resolve this conflict.[34] For example, the Application could have shown that the SO_2 emissions from burning BFG do not violate the current limits and the revisions to Permit 95010001 that are requested by the 2008 application are no longer needed. As such a showing has not been made in the Application and US Steel has not resolved this conflict by other means,[35] the Application does not meet the standard for issuance of a permit in Section 39(a) of the Act. That is, the Application does not provide proof that the SO_2 emissions from burning BFG do not violate the applicable limits currently in Permit 95010001. Therefore, the Application must be denied.[36]

3. Prior Discussions with the Illinois EPA

US Steel discussed this topic with the Illinois EPA during informal discussions concerning the application submitted in 2020. The Illinois EPA did not object to this development during those discussions. To now claim that this discrepancy serves as a basis to deny the application is disingenuous. US Steel cannot simply withdraw the 2008 application at this time but would do so following issuance of the requested revised permit and the termination of the Consent Decree. US Steel has indicated it would work with Illinois EPA on that process and remains

[34] As BFG is burned in Project-affected fuel burning units, the emissions of SO_2 from burning or use of BFG are within the scope of the revisions to Permit 95010001 requested by the Application. This is because the Application requests increases in the CO emissions of these fuel burning units from use of BFG.

[35] For example, this inconsistency could have been dealt with through the 2008 application. That application could have been supplemented with relevant data showing that the SO_2 emissions from burning BFG comply with the current limits in Permit 95010001. At most, the only revision to Permit 95010001 that now might be needed would be a clarification that the limit for the rate of SO_2 emissions from use of BFG addresses the annual average rate of emissions or in practice, the measured sulfur content of BFG on an annual average basis. However, this clarification has already been made in the CAAPP permit issued for the facility.

[36] In addition, if the Illinois EPA were to issue a revision to Permit 95010001 without directly addressing SO_2 emissions from burning BFG, the Illinois EPA would potentially be facilitating violation of the current limitations for those emissions. This would be contrary to Subsections 9(b)(2) and 9.1(d) of the Act.

committed to do so.

Informal discussions between an applicant for a construction permit and the Illinois EPA are not relevant to whether an application, as submitted by the applicant, meets the standard for issuance of a permit set by Section 39(a) of the Act. In this case, the Application does not provide proof that the SO_2 emissions from burning BFG do not violate the applicable limits currently in Permit 95010001. Therefore, the Application must be denied.[37, 38]

VI. THE APPLICATION IS SUFFICIENT AS TO THE PSD AIR QUALITY IMPACTS ANALYSIS FOR CARBON MONOXIDE (DENIAL POINTS 5 AND 5A)

1. Introduction

The PSD approval for the Project for carbon monoxide (CO) is provided by Permit 95010001.[39] As explained in the Application, information now

---

[37] US Steel has also not updated the 2008 application to show that that the revision to Permit 95010001 originally requested in that application is no longer needed based on the additional data that is now available for the sulfur content of BFG.

[38] This comment does not accurately describe the informal discussions between US Steel and the Illinois EPA on the revisions to Permit 95010001 that are now being requested by US Steel in the Application. As such, the Illinois EPA would contend that this comment is perhaps disingenuous. In these discussions, US Steel was informed that the existence of the 2008 application was an impediment to action on the requested revisions to Permit 95010001. US Steel was also informed that the Consent Decree would need to be revised to remove the provision that required the submittal of the 2008 application before Permit 95010001 could potentially be revised based on the March 2020 application. US Steel indicated that it was pursuing such action with the Illinois Attorney General's Office. However, the relevant requirement of the Consent Decree is unchanged and the 2008 application is still pending. In the informal discussions with the Illinois EPA, US Steel did not suggest that this matter would be dealt with after Permit 95010001 was revised, as now suggested. US Steel has also not explained how this could properly occur given the respective roles of the Attorney General's Office in any revisions to the Consent Decree and the Illinois EPA in any revisions to Permit 95010001.

[39] The Project was originally permitted as a major modification under the PSD program for emissions of CO and SO_2 because it involved physical and operational changes that would result in significant net increases in emissions of these pollutants. National Steel, then the owner/operator of the Granite City Works, submitted a PSD permit application for this project in 1995. The Illinois EPA granted a PSD approval for the Project in conjunction with issuance of Permit 95010001 on January 25, 1996, presumably determining

suggests that some of the data for CO emissions relied upon when Permit 95010001 was originally issued in 1996 was not representative. During the informal discussions between the Illinois EPA and US Steel, it was recognized that for Permit 95010001 to be revised to reflect appropriate data for CO emissions and allow for more emissions, the application for revisions to Permit 95010001 would need to include a new air quality impact analysis for CO. The Application includes such an analysis.

In the draft denial letter, Attachment 1, the Illinois EPA indicates that one basis for the denial of the application is that the CO air quality impact analysis in the Application, "cannot be relied upon because the inventory for the CO emissions of the source with the Project does not address all CO emissions or otherwise explain why the CO emissions of certain units need not be considered." In particular, the Illinois EPA indicates it has "concern" there may be some CO emissions from the BOF Shop Roof Monitor which are not reflected in the air quality impact analysis. The Illinois EPA also suggests that the analysis should consider the former by-product coke oven batteries, as the Application "does not explain why the air quality analysis does not consider the CO emissions of the former by-product coke oven batteries at the source." In addition, Illinois EPA asserts that the data for ambient background CO concentration used by US Steel, gathered by ambient air quality monitoring conducted by the Illinois EPA during three calendar years, i.e., 2016, 2017, and 2018, is "not necessarily appropriate as a representation of either current ambient air quality or the historic air quality at the time that the Project was originally permitted." None of these concerns detailed by Illinois EPA with respect to the air quality impact analysis in the Application are deficiencies that warrant denial of the Application.

As explained below, in the individual responses to US Steel's comments on the topics that are mentioned in this introductory comment, these comments do not show that the Application should not be denied for the deficiencies in the air quality impact analysis as detailed in Denial Points 5 and 5A.

Moreover, US Steel has not submitted comments related to Denial Point 5 as it addresses uncaptured CO emissions of the blast furnace casthouse, which occur through the roof monitor on the casthouse. In this regard, one of the reasons that the emissions data that was

---

that this application included all necessary information for issuance of such an approval. A key requirement of the PSD permit program, which Illinois EPA determined had been satisfied by National Steel's application, is an air quality impact analysis (40 CFR 52.21(k)). For pollutants like CO, for which the USEPA has adopted National Ambient Air Quality Standards (NAQQS), an applicant for a PSD permit must demonstrate that the project will not cause or contribute to a violation of the applicable NAAQS.

provided by National Steel and used in the original permitting of the Project was "not representative" was that the casthouse was not identified as a source of CO emissions. This omission is addressed by the Application as it provides data for both the captured and uncaptured emissions of the casthouse.[40] However, the uncaptured CO emissions of the casthouse are not addressed by the new air quality impact analysis for CO provided as part of the Application.[41] As such, the Application is clearly deficient. The Application requests revision of Permit 95010001 as it provides approval for the Project under the PSD program to address errors in the original permitting of the project, i.e., the use of data for CO emissions from use of BFG in Project-affected fuel burning units that is now known to understate emissions and the failure to recognize and address the casthouse as it emits CO. However, the Application does not fulfill a key requirement of the PSD program for this requested revision because the new air quality impact analysis in the Application does not address the uncaptured CO emissions of the casthouse that are elsewhere addressed in the Application.

2. Provisions of Statutes or Rules or of Guidance Documents Are Not Identified That Indicate That the Air Quality Impact Analysis Must Provide the Listed Information

The Illinois EPA does not identify any provision of the Act or the Illinois Code requiring that a request for revision of a PSD approval include any of the listed information, nor does the Illinois EPA point to even an application form or guidance document suggesting that such information be provided. Of course, Illinois EPA retains authority to request additional documentation in conjunction with a construction permit application pursuant to 35 IAC 201.152, but that was not done here.

In the Revised Draft Denial Letter, the provisions of the Act and the Illinois Code that are the basis of Denial Points 5 and 5A are identified, contrary to what is claimed by this comment. The

---

[40] The Application, Section 4.4, "Updated CO Emissions Information for the Blast Furnace Casthouse," p. 4-4, indicates that revised Permit 95010001 should provide for total annual CO emissions from the casthouse of 320 tons/year, with an allowance for 13.6 tons/year of CO emissions that would occur through the roof monitor. (As discussed in response to other comments, the Application improperly refers to the emissions that occur through roof monitors as fugitive emissions, rather than uncaptured emissions.)

[41] For the casthouse, the new air quality impact analysis for CO in the Application only addresses captured emissions, which occur through the vents of the casthouse baghouse and the iron spout baghouse. The analysis does not address uncaptured emissions, which occur through the roof monitor. (Refer to the Application, Appendix C, "Air Quality Modeling Report," the table entitled "US Steel Granite City Point Source Model Input.")

identified provisions of the Illinois Code include 35 IAC 204.1110 of Illinois' PSD rules, which provides the following.

> **[35 IAC Part 204] Section 204.1110 Source Impact Analysis**
> **The owner or operator of the proposed source or modification shall demonstrate that allowable emission increases from the proposed source or modification, in conjunction with all other [emphasis added] applicable emissions increases or reductions (including secondary emissions), would not cause or contribute to air pollution in violation of:**
>
> **a) Any NAAQS in any air quality control region; or**
>
> **b) Any applicable maximum allowable increase as set forth in Section 204.900 and/or Section 204.1200, as applicable, over the baseline concentration in any area.**

It is well established that an air quality impact analysis required under the PSD program must be based on accurate information for the emissions of relevant units for their emissions of the pollutant whose impacts are being analyzed. In the absence of such information, an air quality impact analysis cannot be relied upon as having made the showing with respect to impacts on air quality that is required to be made under the PSD program for issuance of a new PSD approval or for issuance of a revised PSD approval where the revisions would potentially increase the air quality impacts of a source or project. The Application, itself, discusses USEPA guidance relative to the information for background air quality used in a PSD air quality analysis.[42]

Finally, as discussed in General Response 1, Section 8A of this Responsiveness Summary, it is not necessary for there to be a

---

[42] The Modeling Report in the Application explain that:

> **The USEPA Monitoring Guidelines [Footnote] [6], other USEPA interpretative guidance, and USEPA administrative decisions clarify that representative, existing air quality monitoring data may be used to fulfill the PSD pre-construction monitoring requirements and establish background concentration needed for assessing NAAQS compliance, in lieu of monitoring data. USEPA's Monitoring Guidelines suggest specific criteria to determine representativeness of off-site data: *quality of data, currentness of the data, and monitor location*.**
>
> **[Footnote] [6] References: … 6. Ambient Monitoring Guidelines for Prevention of Significant Deterioration, EPA-450/4-87-007, USEPA, May 1987.**
>
> **Application, Appendix C, "Air Quality Modeling Report," Section 4.4, "Monitored Background Data."**

provision of the Act or the Illinois Code, or other guidance that specifies the particular information that must be included in an application for an air pollution control construction permit. The application must include information that is sufficient to provide proof that the facility or equipment that is the subject of the application will not violate applicable provisions of the Act and the Illinois Code. The Illinois EPA's ability to request additional information to remedy deficiencies in permit applications is not provided by 35 IAC 201.152. In the event of deficiencies in a permit application, including deficiencies in the air quality impact analysis for a new or revised PSD approval, the Illinois EPA is not required to request that the applicant submit a corrected air quality impact analysis, before proceeding to deny the application because the analysis is deficient.

3. The Original Permitting for the Project Did Not Address CO Emissions of the BOFs That Occur Through the Roof Monitor on the BOF Shop

As related to the possibility of CO emissions from the BOF Shop Roof Monitor, the Illinois EPA's prior determination for the original issuance of Permit 95010001 was that the Project would not cause or contribute to a violation of the NAAQS for CO was based on there not being CO emissions from this point.

This observation made in this comment is irrelevant as related to the adequacy air quality analysis for CO provided in the application. In the Illinois EPA's review of the new air quality impact for CO, which is necessarily part of the Application, the Illinois EPA is not required to and should not perpetuate what are now recognized as mistakes in the earlier air quality impact analysis for the Project submitted by National Steel.[43] In addition, as the Application requests revisions to the PSD approval for the Project to increase permitted CO emissions of Project-affected fuel burning units, the Application differs from National Steel's application. This analysis in the Application now also addresses the CO emissions of the blast furnace casthouse, which were not even recognized in 1996. Likewise, the

---

[43] For example, refer to the following statement by the Board in Chemrex, Incorporated v. Illinois Environmental Protection Agency, PCB 92-123, Order and Opinion, February 4, 1993, which, as a matter of principle, confirms that in its review of a new application, the Illinois EPA is not constrained to the decision that was made for an earlier application.

> **…the Board believes that the Agency is entitled to change its position, rather than maintain consistency with an incorrect eligibility determination, in light of the fact that there is no statutory provision, regulation or case law that addresses the issue at hand.**
>
> **PCB 92-123, Opinion and Order, February 4, 1993, p. 7.**

analysis must also address all CO emissions of the BOFs, including uncaptured emissions that occur through the roof monitor on the BOF Shop. As explained in General Response 1, Section 8A of this Responsiveness Summary, the Application may not simply rely on past actions or decisions by the Illinois EPA as proof that the revisions to Permit 95010001 that are requested would not violate relevant provisions of the Act and the Illinois Code.

4. The Scope of the Analysis Is Constrained by the Changes to Existing Terms in Permit 95010001 Requested by the Application

The Application does not request any changes to existing terms of Permit 95010001 relative to the CO emissions of the BOF Shop Roof Monitor.

This fact is immaterial under the PSD program. The scope of the air quality impact analysis that is necessary to support certain requested revisions of Permit 95010001 extends beyond the units for which increases in permitted CO emissions are requested. The "preliminary" air quality analysis for the Project (also referred to as the "Step 1" analysis), with the revisions to specific limits that are being requested, shows that the Project, by itself, would have CO air quality impacts on an 8-hour average that are "significant" under the PSD program. (Refer to the Application, Appendix C, "Air Quality Modeling Report," Section 6.1, "Significant Impact Analysis Results," Appendix C, p. 6-1 of the report.)[44] As such, a full air quality analysis (also referred to as a "Step 2" analysis) is required by the PSD program to support the requested increases in permitted CO emissions. In this analysis, the impact of a project on ambient air quality must be determined considering the emissions of 1) The project, itself;[45] 2) Other units at the facility; 3) Units at other facilities in the area around the facility at which the project would occur; and 4) Background ambient air quality as determined by ambient monitoring at a location that is representative of the location of the facility.[46]

---

[44] The applicable significant impact level under the PSD program for CO on an 8-hour average is 500 microgram/meter^3 (0.5 milligrams/meter^3). The role of significant impact levels is to determine whether a full air quality impact analysis must be performed under the PSD program. They are not indicative of an ambient concentration that should be of concern for its impacts on human health or the environment. For example, the NAAQS for CO on an 8-hour average (10,000 micrograms or 10 milligrams/meter^3) is 20 times more than the significant impact level.

[45] It is perhaps noteworthy that the new air quality impact analysis in the Application did address CO emissions from Ladle Dryer/Preheaters, which are located in the BOF Shop. The emissions of these units are from burning fuel and are released directly into the BOF Shop. It is conservatively assumed that all of their emissions are discharged to the ambient air through the roof monitor of the BOF Shop.

[46] The air quality impact analysis in the Application follows this hierarchical approach to air quality impact analyses. A full analysis is only provided for

5. The CO Emissions of the BOFs That Occur Through the Roof Monitor of the BOF Shop

The Illinois EPA has neither requested that the air quality impacts analysis for CO in the Application address CO emissions of the BOFs that occur through the BOF Shop Roof Monitor, nor has the Illinois EPA provided a quantitative estimate of those emissions. Accordingly, US Steel had no reasonable basis to know that the Illinois EPA had reconsidered its prior determination relating to emissions from the BOF Shop Roof Monitor. It was therefore reasonable for US Steel to conclude that its air quality impacts analysis, with revisions to the CO emission rates only for those emission points where the parties agreed that National Steel's modeled rates should be corrected, was sufficient for the purpose of requesting revisions to the permitted CO emissions from certain Project-affected fuel burning units.

This comment does not show that the Application should not be denied. As explained above, it is not necessary for the Illinois EPA to explain to an applicant for a PSD permit, including an applicant for a revised PSD permit, how to perform a PSD air quality analysis to show that a source or project would not cause or contribute to violations of the applicable NAAQS for a criteria pollutant for which the new or revised PSD approval is needed. There is an extensive body of USEPA guidance addressing how air quality impact analyses are to be conducted under the PSD program.

In addition, the Illinois EPA did, in fact, provide a quantitative estimate in the Draft Denial Letters for the CO emissions that occur through the Roof Monitor on the BOF Shop since estimates for these emissions can be readily made from information for the captured emissions of the BOFs, which occur through the stacks of the particulate control devices.[47] A permit applicant's expectations for the action that the Illinois EPA will take on a construction permit application are not relevant relative to whether the Illinois EPA determines that the application did not meet the statutory criterion

---

CO impacts on an 8-hour average. A full analysis is not provided for impacts on a 1-hour average, for which the Step 1 analysis shows impacts would not be significant.

[47] In Footnote 26 of the Revised Draft Denial Letter, the Illinois EPA provided an estimate, 16.1 tons/year, for the CO emissions of the BOFs that occur through the Roof Monitor of the BOF Shop. This estimate is based on the assumption that the capture efficiency achieved by the ESP system for the particulate emissions of the BOFs from refining is 99.9 percent. Using this value for the capture of CO emissions, the CO emissions of the BOFs through the Roof Monitor would be about 0.1 percent of the 16,097 tons/year of the captured CO emissions for which the BOFs are permitted. (16,097 ÷ {99.9 ÷ 100.0} x {100.0 -99.9} ÷ 100.0 = 16.11, ~ 16.1.)

for issuance of the requested permit and whether the application must be denied. Finally, contrary to what is represented in this comment, there was not agreement during the informal discussions between the Illinois EPA and US Steel on the revisions for Permit 95010001 as to the specific revisions to the CO emission data for the units at the Granite City Works that would be appropriate for the new air quality impact analysis for CO.[48] Moreover, even if the Illinois EPA had informally agreed that the CO emission data for other units need not be updated, this would not excuse deficiencies in the air quality impact analysis in the Application as this analysis cannot be relied upon to make the necessary showing required by the PSD program.

6. Emissions of the Former By-Product Recovery Coke Oven Batteries Need Not Be Addressed Because They Are Now Shut Down

As Denial Point 5 addresses the historic CO emissions of the former by-product coke recovery oven batteries, which are now shutdown, the Application does not request revisions to Permit 950100001 that would provide PSD approval or other authorization for the CO emissions of these batteries. There is no basis for considering emissions under a counterfactual scenario in evaluating whether the changes to Permit 95010001 that are requested will cause or contribute to a violation of any NAAQS. This is one of several instances where Illinois EPA appears to be asserting that the Application is deficient because it does not address facts and circumstances that may have existed for some period since 1996 but are no longer present.[49]

This comment is not responsive to Denial Point 5 as it addresses the fact that the CO emissions of the former by-product recovery coke oven batteries are not addressed by the new air quality impact analysis for CO in the Application. As already explained, this denial point involves the

---

[48] As the application for revisions to Permit 95010001 would involve corrections to the data for the CO emissions of the Project, for purposes of the new air quality impact analysis for CO, it is improbable that the Illinois EPA ever agreed that only corrections to certain emission data needed to be made. In this regard, it is also perhaps relevant that US Steel did make other "updates" to the CO emission data used in the new air quality analysis. In particular, the new analysis addresses the CO emissions of the new cogeneration boiler constructed by US Steel and units at the new heat recovery coke production facility constructed by SunCoke.

[49] To the extent that the Illinois EPA is making such claims, they are without merit, as the requested approval is forward-looking, *i.e.*, is based on the applicable regulations and other circumstances as they exist or will exist at the time of permit issuance. 42 U.S.C. 7410(j). *See, e.g., United States v. EME Homer City Generation, L.P.*, 727 F.3d 274 (3rd Circuit, 2013) (Footnote 4 of US Steel's Comments of January 2024.)

adequacy of the new air quality impact analysis that is part of the Application as the Application requests revisions to Permit 95010001 that would revise the PSD approval for certain units relative to the amounts of CO emissions that are permitted. In particular, as a Step 2 or full air quality impact analysis is necessary under PSD for CO on an 8-hour average, the scope of this analysis is not limited to Project-affected CO emitting units, much less to only Project-affected units for which increases in permitted CO emissions are being requested.

The fact that the by-product recovery coke oven batteries are now shutdown, by itself, is also not a sufficient reason to omit the emissions of units at these batteries from the new air quality impact analysis for CO. These batteries were in operation for almost 20 years following the original issuance of Permit 95010001 in 1996. The Application requests revision of the original PSD approval for the Project to correct errors in the CO emission data that was relied upon for the original permitting of the Project. It would not be unreasonable for the new air quality impact analysis for the Project with certain increases in the CO emissions for which the Project is permitted to address air quality impacts of the Project with the emissions of the former coke oven batteries. Neither the Application nor this comment explain why this would not be reasonable. Indeed, if the Application involved a Project that was not already a PSD major modification for CO, the new air quality impact analysis to support the requested changes to Permit 9501001 would be required to address the CO emissions of the by-product coke oven batteries even though these batteries are now shutdown.[50]

---

[50] If the Project were not already permitted as a PSD major modification for CO, the increase in the permitted CO emissions of the Project requested by the Application would explicitly be subject to certain provisions of the NSR rules addressing relaxations of established permit limitations, i.e., 40 CFR 52.21(r)(4), 35 IAC 204.850 or 35 IAC 203(b).* Under the PSD program, the new air quality impact analysis for CO in the Application would have to address the emissions associated with units, like the former by-product recovery coke oven batteries, that are now shut down. This is because the substantive requirements of PSD must be addressed as if construction on the Project had not yet commenced, i.e., as circumstances were in 1996 before the coke oven batteries were shut down.

By way of explanation, these rules address permitting when a source proposes "relaxation(s)" of established permit limitations that restrict emissions of a source or project so that it is not major for purposes of NSR and the source or project would become major with the requested increase in permitted emissions. These rules address situations like those presented with the Application where the requested relaxations or increases in permitted emissions would not be the result of a further physical change or subsequent change in the method of operation of the source or project. In such situations, the substantive requirements of NSR should not be addressed as they are routinely addressed, considering the circumstances at the time of the application and the associated

Finally, as related to whether this denial point would be improper as the review of the Application should be "forward-looking" rather than address a "counterfactual scenario," with a citation to a court decision in a PSD enforcement action, this comment overlooks the fact that the Application requests revisions to Permit 95010001, the construction permit/PSD approval issued for the Project. Then, as related to emissions of CO and NOx, the Application requests revisions to Permit 95010001, and indirectly, by means of Integrated Processing, to Permit 96030056, the CAAPP permit for the facility, to increase emission limitations for CO and NOx in Permit 95010001 that US Steel has violated or potentially violated

---

contemporaneous time period. Rather, in such situations, the substantive requirements of NSR must be considered in light of the circumstances that were present at the time that the permit was issued that established the limitations that made the source or modification non-major and that would now be relaxed such that the source or modification would become major. In other words, the substantive requirements of NSR must be addressed as if construction had not yet commenced on the source or project.

This would not be required if a revision to established permit limitation(s) would be due to a further physical change or a subsequent change in the method of operation of the source or modification. In that situation, the change would appropriately be addressed for purposes of NSR separately from the prior permitting of the source or project. The change would be addressed as a new project for purposes of NSR, rather than as a revision to a permitted project. In other words, routine NSR permitting would apply for the permit application for such a change.

*** For example, Illinois' PSD rules, 35 IAC 204.850, Relaxation of a Source-Specific Limitation, provide as follows:**

> **At such time as a particular source or modification becomes a major stationary source or major modification solely by virtue of a relaxation in any enforceable limitation, established after August 7, 1980, on the capacity of the source or modification otherwise to emit a pollutant, such as a restriction on hours of operation, then the requirements of Sections 204.810, 204.820, 204.830, 204.840, 204.850, 204.1100, 204.1110 {Source Impact Analysis], 204.1120, 204.1130, 204.1140, 204.1200, and 204.1400 shall apply to the source or modification as though construction had not yet commenced on the source or modification.**

and may violate in the future.[51, 52] This is not the situation that is presented by an after-the-fact enforcement action against a source for the failure to obtain a PSD permit, as is addressed in the cited court decision.[53]

---

[51] The CO emissions of Project-affected fuel burning units from use of BFG are currently limited to 13.7 lbs/million cubic feet (mmcf) of BFG* and 1,267.46 tons/year (Permit 95010001, Condition 22 and Table 4). These limits are restated in the CAAPP permit (Permit 96030056, Condition 5.6.2((a)(iii)(B)(2)). These limits are in effect as they were not appealed by US Steel in PCB 2013-053, and, as such, were not stayed by the Board.

The Application indicates that for the revision to Permit 95010001, the maximum overall CO emissions from use of BFG in these fuel burning units should be 26,226 tons/year. This reflects CO emissions of 321.83 lbs/mmcf and 11,064 tons/year from blast furnace stoves; 32.12 lbs/mmcf and 1,228 tons/year from Boilers 11 and 12; and 697.6 lbs/mmcf and 13,934 tons/year from the BFG flare. (Application, p.4-4, Table 4-2 "Updated CO Emissions from Burning Gaseous Fuels.") (This table is not accompanied by calculations in Appendix B of the Application.) The Application explains that, "These requested changes are not based on any post-1996 Project changes but are based on updated information regarding CO emissions." (Application, Section 4, "Changes to Provisions for CO emissions.") The Application does not request that revised Permit 95010001 set an overall limit for the annual CO emissions from burning BFG. It also does not request that the revised permit prescribe the emissions factor(s) that are to be used to determine CO emissions of units for which emission testing is not feasible.

*** When Permit 95010001 was revised in 2012, the revised permit erroneously indicated that the limit for the rate of CO emissions from these fuel burning units was in lbs/ton. In this note, this limit is correctly expressed in terms of lbs/mmcf, consistent with the terms of this limit in Permit 95010001 as issued in 1996.**

[52] The NOx emissions of the BOF ESP Stack are currently limited to 0.0389 lbs/ton [of steel produced] and 69.63 tons/year (Permit 95010001, Condition 18 and Table 2). The Application requests that revised Permit 95010001 limit the overall captured NOx emissions of the BOF Shop to 400 tons/year. (Application, p. 6-10, Section 6.5.2, "Basic Oxygen Furnace Shop Operations," in Section 6.5, "Requested Changes to Permit Terms Relating to NOx Emissions.") The Application does not address the uncaptured emissions of the BOFs, which occur through the roof monitor on the BOF Shop.

For the Blast Furnace Casthouse, a much smaller increase in the NOx emissions is requested. The Application requests that revised Permit 95010001 limit the overall NOx emissions of the casthouse, including both captured and uncaptured emissions to 24.0 tons/year. (Application, p. 6-9, Section 6.5.1.1, "Proposed NOx Emissions Limitations for Blast Furnace Operations," in Section 6.5, "Requested Changes to Permit Terms Relating to NOx Emissions.")

[53] Interestingly, with respect to the requested changes to Permit 95010001 for the CO emissions of Project-affected fuel burning units, the earlier application, which was submitted in March 2020, requested that revised Permit 95010001 limit the overall CO emissions of these units to 19,343 tons/year (rather than 26,226 tons/year), with this limit addressing emissions from both use of BFG and natural gas. That application also requested that the revised

7. Adequacy of Data for Background CO Air Quality (Denial Point 5A)

As related to the use of 2016-2018 background CO concentration data, this data was the most current quality-assured data available at the time of US Steel's application submittal of March 2020. Use of these data was approved by Illinois EPA following its review of US Steel's dispersion modeling protocol in February 2020. US Steel agrees that the 2016-2018 background CO concentration data is less current now than they were at the time of permit application submittal. "Currentness" of air quality data is one aspect of the permit application review process that is ensured by compliance with the procedural requirements relating to timely processing of permit applications.[54]

This comment does not show that the Application should not be denied for reasons as set forth in Denial Point 5A. As explained in the revised Draft Denial Letter, there are two issues with the value for background air quality used in the air quality impact analysis in the Application. The first is that the value selected for background air quality does not represent air quality in the period prior to 1996 when Permit 95010001 was originally issued. This is the same issue as is posed by the omission of the CO emissions of the former coke oven batteries from the analysis, as discussed above. If US Steel can satisfactorily resolve this issue, the second issue is that the value for background is no longer necessarily representative of current air quality. Five years have passed since the period from which the value for background used in the Application was obtained. The Application

---

permit prescribe the emission factors that are to be used for certain units when determining ongoing compliance with the annual emission limit. For the BFG Flare, the proposed factor was 350 lbs/mmcf, which is significantly lower than the factor used in the Application when updating CO emissions. For the Blast Furnace Stoves, the proposed factor, 322 lbs/mmcf, was essentially the same as the factor used in the Application. For use of natural gas in units other than Boilers 11 and 12, the proposed factor was 84 lbs/mmcf. Only the CO emission of the boilers were proposed to be determined using emission factors from periodic testing. The factor that was proposed for use of natural gas in units other than the boilers, 84 lbs/mmcf, is the same factor used in Table 4-2 of the Application when updating CO emissions of fuel burning units from use of natural gas. (In this regard, it is assumed that CO emissions from all use of natural gas by such units is addressed in Table 4-2 although this table only indicates that emissions from use of natural gas by boilers and the ladle dryer/preheaters are addressed.)

[54] See, Section 165(a) of the federal Clean Air Act (requiring final action on any [completed] PSD permit application not later than one year after filing {of such completed application]). Also see, 35 IAC 201.158 (providing that a state air pollution control permit application shall be deemed to have been filed 30 days after submittal if Illinois EPA has not notified the applicant that it is incomplete) (Adapted from Footnote 5 of US Steel's Comments of January 2024.)

does not explain why this value for background should still be considered representative. In this regard, while monitoring for CO at the station in East St. Louis ceased in early-2019,[55] a value for background could be obtained from another monitoring station in the St. Louis area. The Application does not explain why use of a value for background that is no longer current should still be accepted as being representative for the air quality impact analysis in the Application compared to a current value for background that is available from another monitoring station.[56]

Lastly, final action on the Application was not required by October 2023 pursuant to the provision of the Clean Air Act cited by this comment. This deadline applies to the processing of a complete PSD application. It provides that a complete PSD application shall be granted or denied within one year from the date of filing of the complete application. The Application is not complete because it has substantive deficiencies, as have been detailed in the Draft Denial Letters, of which only one relates to the value for background used in the air quality impact analysis. Moreover, even if the Application were considered to now be complete, the failure of the Illinois EPA to meet the one year deadline for final action on an application for a PSD permit would not preclude denial of the Application as deficiencies are or would be identified were such that the requested PSD approval could not be issued.[57]

---

[55] Ambient monitoring is still conducted at the Illinois EPA's monitoring station in East St. Louis for SO_2, nitrogen dioxide (NO_2), ozone, and particulate matter$_{2.5}$ ($PM_{2.5}$).

[56] With regard to the selection of the monitoring station used to obtain the value for background air quality, the Application states the following:

> **There are many existing ambient CO monitors within 100 miles in [sic] the facility (Figure). Existing monitoring data have been evaluated in relation to the criteria provided in USEPA's Ambient Monitoring Guidelines as being representative of the US Steel site.**
>
> **[Figure 4 is entitled "Ambient Air Quality Monitors in the Vicinity of the US Steel Facility. This figure is a downloaded image of a satellite map whose function is to show the location of ambient monitoring stations, as obtained from an interactive map on a USEPA website. https://epa.gov/outdoor-air-quality-data/ineteractive-map-air-quality-monitors.]**
>
> **Application, Appendix C, Air Quality Monitoring Report, Section 4.4. "Monitored Background Data," p. 4-5 of the report.**

However, the Application does not include documentation for the evaluation of the stations at which ambient monitoring for CO was conducted by US Steel or its consultant.

[57] Whether the Application is considered to be "complete" under 35 IAC 201.158, as also cited by this comment, is not relevant to the denial of the

Finally, the fact that prior to March 2020, the Illinois EPA informally provided preliminary approval for the background air quality data used in the air quality impact analysis for CO in the 2020 application does not show that the Application should not be denied for reasons associated with the continued use of such data from that time period in the Application, as discussed in Denial Point 5A in the Revised Draft Denial Letter.[58] The Application was submitted in October 2022, more than two years after the 2020 application.

VII. THE PERMIT APPLICATION IS SUFFICIENT AS TO BEST AVAILABLE CONTROL TECHNOLOGY (BACT) FOR CARBON MONOXIDE (DENIAL POINT 18 (CO) AND DENIAL POINT 19 (SO_2 and CO)

Application. This rule addresses whether a state air pollution control permit application is considered complete as an administrative or initial matter. In general, if the Illinois EPA finds an application for a state air pollution control permit is not complete within 30 days of the date it is received, the Illinois EPA may take action on the application by means of a notice of incompleteness. In this notice, the Illinois EPA need only identify the deficiencies that it finds with the application, i.e., the information or showings that are missing from the application. As a matter of practice, after 30 days, the Illinois EPA also routinely requests information that is missing from the application by means of a request for additional information. Assuming the applicant supplements or revises the application to rectify deficiencies, the Illinois EPA must issue a permit if the application then meets the standard for issuance of a permit. Otherwise, if the deficiencies in the application are not rectified or the standard for issuance of a permit is not met, the application must be denied, as provided for by Section 39(a) of the Act. An application may also be directly denied by the Illinois EPA if it does not meet the standard for issuance of a permit irrespective of whether the application is considered complete pursuant to 35 IAC 201.158 or the denial could have been preceded by a request for additional information.

[58] It is noted that for background air quality for CO, 8-hour average, the air quality impact analysis in the Application uses a higher value, 1,646 micrograms/m^3, than used in the analysis in the 2020 application, 1,349 micrograms/m^3. The value for background used in the Application is a "maximum" concentration, 8-hour average, measured at the monitoring station in East St. Louis. The value used in the 2020 application was the "highest-second-highest" concentration measured in any year in the three years of ambient monitoring at this station that were used to obtain a background concentration. This value is consistent with the terms of the NAAQS for CO as they set numerical values for the concentration of CO in the ambient air that should not be exceeded more than once per year. The analysis in the Application does not explain why it uses a maximum value for background air quality rather a highest- second-highest concentration, as was done in the 2020 analysis.

A. **Introduction (Denial Point 18)**

The pertinent provision of the PSD rules governing the required contents of a PSD application relative to the establishment of Best Available Control Technology (BACT) provide that a PSD application must include:

> A detailed description as to what system of continuous emission reduction is planned for the source or modification, emission estimates, and any other information necessary to determine that best available control technology would be applied.
> 40 CFR 52.21(n)(1)(iii) (See also 35 IAC 204.810(a)(3)).

In the draft denial letter, Attachment 1, the Illinois EPA asserts that the application "lacks necessary information" for it to make BACT determinations for CO for the casthouse and the blast furnace stoves. It is undisputed that the Application includes estimates of the CO emissions from the casthouse and the blast furnace stoves. The Application also includes as a detailed description of the systems of continuous emission reduction that US Steel plans to use to control these emissions.

This comment does not show that the Application should not be denied for reasons as detailed in Denial Point 18. In this regard, the Application would not be denied because it does not include the specific information required by the PSD rules addressed in this comment, i.e., "a detailed description as to what system of continuous emission reduction is planned for the source or modification" and "emission estimates." The Application would be denied because it does not show that BACT would be utilized or applied for CO for emissions units as required by the PSD rules. In other words, the Application does not include "any other information necessary to determine that best available control technology would be applied," as is also explicitly required by the PSD rules.[59]

Moreover, with regard to BACT for the casthouse, the Application does

---

[59] It is also noteworthy that the introductory paragraph of 35 IAC 204.810 imposes a broad requirement on the information that an applicant for a PSD permit must submit in its application, as follows:

> **The owner or operator of a proposed major stationary source or major modification shall submit <u>all</u> [emphasis added] information necessary to perform any analysis or make any determination required under this Part [35 IAC Part 204].**

not actually identify the system of continuous emissions reduction (i.e., BACT Technology) used for CO emissions of the casthouse, much less provide a description of such system. Rather, for the casthouse, in Section 8.2.3, "BACT Evaluation for Blast Furnace Casthouse," the Application addresses add-on combustion control systems. (Add-on combustion control systems, commonly known as afterburners reduce the concentration of a combustible pollutant, like CO, in an exhaust stream by subjecting the stream to the temperature at which the pollutant combusts). The Application shows that these systems, even if feasible, would have cost impacts that should be considered excessive and should not be required to be utilized for BACT. This provides certain information that is relevant for the determination of BACT for the casthouse, as it eliminates certain emission control options for consideration as BACT. However, it does not address what system of emission reduction would be utilized for CO to meet BACT instead of add-on control systems.

With regard to BACT for the blast furnace stoves, the Application does identify the system of continuous emissions reduction or technology used for CO emissions, i.e., certain work practices related to good fuel combustion by the stoves that act to lower CO emissions. However, the BACT analysis in the Application does not provide other information necessary to determine that best available control technology BACT would be applied. In particular, the Application, again, does not include information necessary to conclude that BACT need not be set as numerical emission limitation(s).[60] The Application does describe certain aspects of the blast furnace stoves, e.g., their age and height, that might affect whether it would be reasonable to set BACT for the stoves as numerical standards, such that emissions testing would be needed to confirm compliance. However, the Application does not describe the technological challenges and the costs that the identified aspects of the stoves would present for emissions testing, such that BACT need not be set as numerical emission standard(s).

B. CO Emissions from Blast Furnace Casthouse (Denial Point 18)

B1. It Is Unclear Why the BACT Analysis in the Application is Deficient Because It Does Not Include Information of Process-Related Control Options As BACT for CO Emissions of the Casthouse

---

[60] In the PSD rules, the definition of BACT provides that:

> **…If the Administrator determines that technological or economic limitations on the application of measurement methodology to a particular emissions units would make the imposition of an emissions standard infeasible, a design, equipment, work practice, operational standard, or combination thereof may be prescribed instead to satisfy the requirement for application of best available control technology. …**
> **40 CFR 52.21(b)(12) and 35 IAC 204.280.**

For the blast furnace casthouse, as discussed in Section 8.2.3 of the Application, the only control options identified for potential consideration in a BACT determination are add-on air pollution control equipment options, specifically, installation and use of a capture system and some type of afterburner. The Illinois EPA asserts that this part of the application is deficient because it provides neither an explanation of "why process-related control options are not available" nor, with respect to the literature search conducted by US Steel that did not identify any process-related control options for CO emissions from casthouses, "documentary support for the review of available control options that was conducted." It is unclear to US Steel how it would be helpful to Illinois EPA's BACT determination to have copies of reports that contain no pertinent information, and it is even more unclear how US Steel might be expected to know, without receiving from Illinois EPA a request for specific additional information, which reports containing no pertinent information would be most valuable for this purpose.

This comment also does not show that the Application should not be denied based on Denial Point 18. This comment overlooks the interplay between the definition of BACT, the determination of BACT required by the PSD rules as BACT-subject units would be addressed by a PSD approval, and the standard for issuance of state air pollution control permits in Section 39(a) of the Act. As acknowledged in the Application, p. 8-4, Section 8.2.1.4, "Available Control Options," the definition of BACT provides that BACT can involve process-related control measures, as well as end-of-pipe, add-on emission control systems. The Application claims, based on a review that was conducted, that the only control options that are potentially available as BACT for CO emissions are add-on control systems.[61] As such, the Application effectively also makes another, related claim, based on the review that was conducted. This is that other than add-on afterburner

---

[61] In the Application, in Step 1 of the Top-Down BACT Analysis for the casthouse, in which available control options (i.e., air pollution control technologies and techniques with a potential practical application to CO emissions of the casthouse), are to be identified, the Application explains:

> **Based on a review of BACT determinations in U.S. EPA's RBLC [RACT/BACT/LAER Clearinghouse] database and other literature, the control options that are potentially available to control CO emissions from the blast furnace casthouse are:**
>
> - **Capture system and thermal incineration and**
> - **Capture system and catalytic incineration**
>
> **Application, Section 8.2.3.3, "Step 1 – Identify Available CO Control Options," in Section 8.2.3, "BACT Evaluation for Blast Furnace Casthouse," in Section 8, "Best Available Control Technology for CO," p. 8-8.**

systems, there are no other available BACT options for control or reduction of the CO emissions of the casthouse, such as work practices or operational requirements. It is because of this that the Application must provide documentation for the review that was conducted for available control options. As the Application relies on this review to summarily dismiss all possible control options from the BACT analysis other than afterburner systems, it is necessary for this review be documented in the Application. In the absence of such documentation, the Application does not show that control options other than add-on afterburners are not available for the casthouse. In addition, the Illinois EPA and other interested parties cannot independently examine the Application and to even consider whether the review that was conducted was adequate to be considered proof that BACT is or would be used for the CO emissions of the casthouse.

Moreover, the conclusion reached by the Application based on the review that was claimed to be conducted is inherently deficient. If a review of the literature indicates or, by omission, suggests that add-on control technology is not used for control of CO emissions of casthouses, which is likely the case, the issue for the revision to Permit 95010001, is what work practices or other "non-add-on" methods of continuous emission reduction should be imposed as BACT by Revised Permit 95010001. The Application does not address this issue.[62] As the Application suggests that there are not any such methods of continuous emission reduction, the Application inherently acknowledges that it does not propose BACT for CO for the casthouse.

B2. The Illinois EPA Is Familiar with the Chemical Reactions in Blast Furnaces That Yield CO As a By-Product

As to this purported deficiency in the Application related to the casthouse, the Illinois EPA is familiar with the chemical reaction that is intentionally forced to occur in the casthouse as an inherent part of the ironmaking process.[63] Having not received from Illinois EPA

---

[62] **It would be surprising if US Steel were not able to directly address this issue. Personnel involved with the operation of the casthouse at the facility and at other US Steel facilities that have or had blast furnaces, likely have the knowledge and experience of the practices that reduce the carryover of CO with the metal and slag that are tapped from a blast furnace.**

[63] See, *e.g.*, "Statement of Basis for the Planned Issuance of a Revised Clean Air Act Permit Program (CAAPP) Permit for: United States Steel Corporation, Granite City Works," Illinois EPA (February 4, 2013) p. 4, ("The charge materials (iron ore, coke, limestone and other flux material) are fed into the furnace at the top through a double-bell lock system. Heated air is blown into the furnace through nozzles or tuyeres near the bottom of the furnaces. In the furnaces, the coke undergoes partial combustion to carbon monoxide providing the heat to melt the charge as well as reducing the iron ore to elemental iron.") (Footnote 7 of US Steel's Comments of January 2024.)

a request for specific additional information, US Steel had no way to know that it was necessary to explain in the Application that the partial combustion of coke inevitably yields CO as a reaction product.

This comment does not show that, as related to the casthouse, the Application should not be denied based on Denial Point 18. The issue for this denial point is again the information provided in the Application and what the Application shows or proves. Even if the claim made in this comment as to the knowledge of the Illinois EPA concerning the reason that casthouse emits CO were actually correct, it would be immaterial to the denial of the Application.[64]

Moreover, this comment actually discusses the formation of CO in the blast furnaces, not the CO emissions of the casthouse.[65] Indeed, the information in this comment concerning the CO emissions of the casthouse is inconsistent with information in the Application. For the casthouse, the Application indicates that, "These [CO] emissions are a consequence of the relatively small amount of BFG that leaves the furnaces with the molten metal and slag during the tapping process." (Application, p. 4. Section 4.1.1, "Blast Furnace Casthouse," in Section 4-1, "Process Background and Project.") Accordingly, assuming that the Application accurately describes why the casthouse emits CO, it was appropriate in the BACT analysis for the casthouse in the Application to discuss the systems of continuous emission reduction (i.e., work practices or operational requirements) that are currently used and could potentially be used to reduce the amount of CO in the iron and slag tapped from the blast furnaces. These measures could involve both the operation of the furnaces and the tapping process, itself, as they act or could act to reduce the CO emissions of the casthouse.

B3. Applicable Rules Do Not Require BACT for the Casthouse for CO

---

[64] It is also not reasonable to assume that the occurrence and cause of the CO emissions of blast furnace casthouses is understood by the Illinois EPA. If the presence of these emissions had been recognized by the Illinois EPA in 1996, it might have been raised by the Illinois EPA during the initial permitting of the Project since National Steel's permit application did not address these emissions.

[65] Information is readily available explaining how the production of iron by a blast furnace generates CO. This CO, as well as carbon dioxide and other gases generated by the chemical reactions in the furnace, are collected at the top of the furnace. The collected gas is scrubbed to remove entrained dust. The resulting low-heat content, by-product gas stream is then used as fuel in various units at the facility that are designed and equipped to burn it, notably in the blast furnace stoves.

For the CO emissions of the casthouse, US Steel is currently not subject to any emission limitations and it has not requested any revisions to Permit 95010001 to establish such limitations. US Steel is also not subject to any work practice requirements for the casthouse related to CO emissions, since the work practices required by 40 CFR Part 63 Subpart FFFFF involve measures to control particulate emissions. US Steel did not include any information pertaining to BACT for CO emissions from the casthouse in the application submitted in March 2020. At the request of Illinois EPA, although under no obligation to do so,[66] US Steel voluntarily provided a BACT analysis for the casthouse in the Application. Illinois EPA's proposed denial of the Application will simply ensure the status quo is maintained, i.e., that US Steel is not subject to any limitations on CO emissions from the casthouse.

This comment does not show that the Application should not be denied because of a deficiency in the BACT analysis for the casthouse, as addressed in Denial Point 18. It is first noted that, contrary to what is claimed in this comment, the Application does request a revision to Permit 95010001 to establish BACT for CO for the casthouse. The Application proposes a BACT limit for the captured CO emissions of the casthouse of 70 pounds/hour.[67] This comment is also misleading as it suggests that US Steel simply included a BACT analysis for the casthouse in the Application because the Illinois EPA requested such an analysis. The revision to Permit 95010001, as would be initiated by US Steel's application, provides US Steel, as well as the Illinois EPA,

---

[66] *See, e.g., U.S. v. Midwest Generation, LLC*, 781 F. Supp. 2d 677 (N.D. Ill. 2011)(holding that source owner's obligations with respect to BACT are limited to those imposed in a PSD permit). (Footnote 8 of US Steel's Comments of January 2024.)

[67] In the Application, the BACT analysis for the casthouse concludes as follows:

> USS Granite City proposes a CO emission limit of 70 lb/hr, combined for the casthouse baghouse and iron spot baghouse, as BACT for the blast furnace casthouse. This proposed limit is as stringent as any identified limit for a blast furnace casthouse at any similar facility. [Footnote] 48.
>
> {Footnote] 48 The only CO emission limit identified for a blast furnace casthouse is a limit of 56.25 lb/hr for the casthouse baghouse stack at the Dearborn (MI) Works, currently owned and operated by Cleveland Cliffs. This casthouse has a permitted iron production rate of 8,000 tons per calendar day. See https://www.michigan.gov/egle/-/media/Project/Websites/egle/Documents/Permits/AQD/PTI/applications-of-interest/PTI-182-05C-Severstal-Conditions-2014-05-12.pdf (last accessed Sept. 23, 2022).
>
> Application, p. 8-10, Section 8.2.3.7, "Step 5 - Establish CO BACT, in Section 8.2.3, "BACT Evaluation for Blast Furnace Casthouse."

with the opportunity to resolve and put to rest through permitting an error in the original PSD approval for the Project as it overlooked the casthouse as a source of CO emissions.[68] This "clean up" would occur in conjunction with a revision to the PSD approval that is already sought by the Application and is necessary because Permit 95010001 currently limits the CO emissions of the blast furnace stoves to much less than US Steel now believes is representative or correct, i.e., CO emissions of only 1,267.46 tons/year, rather than 11,064 tons/year as now requested for the stoves by the Application. For the Illinois EPA to also revise the PSD approval provided by Permit 95010001 to allow for CO emissions from the casthouse, necessarily requires that the relevant substantive requirements of the PSD rules be fulfilled.

The CO emissions of the casthouse must be addressed by the new air quality impacts analysis for CO in any case as this analysis is a necessary prerequisite to increasing the permitted CO emissions of the blast furnaces stoves. Accordingly, for the casthouse, itself, the substantive requirement of the PSD program that is of specific concern is the BACT requirement. The Application includes a BACT analysis for the CO emissions of the casthouse. Unfortunately, this BACT analysis is deficient as it overlooks the need to also directly consider implementation of measures to control or reduce CO emissions other than add-on afterburner technology. This was likely inadvertent since good combustion practices, an emission control technique other than add-on control technology, are proposed as BACT for the stoves. Nevertheless, the fact that the BACT analysis for the casthouse in the Application does not address use of control measures for the casthouse other than add-on control systems means that the Application does not show that BACT is or will be used on the casthouse for CO. For the Illinois EPA to knowingly overlook this fact would be improper. Absent a full BACT analysis, one cannot know whether BACT for the casthouse for CO would simply formally recognize the measures that have been and are currently used or whether BACT would act to lower the CO emissions of the casthouse as BACT would entail use of additional practices to reduce CO

---

[68] It is also noteworthy that the court decision cited by this comment does not address the circumstance that are now presented with the PSD approval provided by Permit 95010001. That decision involved an after-the-fact enforcement action where the owner of a source did not obtain the PSD approvals that were alleged to be needed for certain major modifications. However, National Steel did obtain a PSD approval for the Project. US Steel is now responsible for the Project and is operating pursuant to the PSD approval originally issued to National Steel. US Steel, not National Steel, has requested revisions to the PSD approval for the Project as it addresses the CO emissions of the blast furnace stoves, as well as other revisions to Permit 95010001. As National Steel's original application and the original permitting of the Project were in error, as they failed to address the CO emissions of the casthouse, the only way to now address this error through permitting is with issuance of a revised PSD approval that also addresses the CO emissions of the casthouse.

emissions.

C. C. CO Emissions from Blast Furnace Stoves (Denial Point 18)

C1. The Determination of BACT for the Stoves Proposed by the Application Is Consistent with PSD Rule Requirements

In the original application for Permit 95010001, National Steel made the following proposal:

> BACT literature indicates that blast furnace stoves at steel mills are not using add-on control equipment for CO emission control. CO emissions can be adequately controlled by the use of good combustion practices. Therefore, the BACT recommendation for control of CO emissions from the blast furnace stoves is the maintenance of present good combustion practices.
>
> National Steel, Original Application, Supplement October 30, 1995, pp. 4-10 and 4-11, Section 4.3.4.1, "BACT - Blast Furnace Stoves," in Section 4.3.4, "Selected BACT – CO," in Section 4.0, "Best Available Control Technology Review.".

This comment does not show that the Application should not be denied because of Denial Point 19. If revised Permit 95010001, as it provides PSD approval for the Project for CO, is to be revised to increase the permitted CO emissions of the blast furnaces stoves as requested by the Application, a new determination of BACT is required under the PSD rules. The BACT determination for the CO emissions of the stoves that is reflected in Permit 95010001 was made decades ago when Permit 95010001 was originally issued, As discussed in General Response 1, Section 8A of this Responsiveness Summary, the discussion of BACT in National Steel's application, which was the foundation for the original issuance of Permit 95010001, does not constrain the BACT determination that is now required for the stoves for CO. Moreover, this new determination of BACT is not a trivial matter as the Application requests a substantial increase in the CO emissions for which the stoves are permitted, i.e., CO emissions of 11,064 tons/year rather than emissions 1,267.46 tons/year. As the BACT analysis in the Application does not show that BACT would be used for the stoves, it is appropriate for the Application to be denied.

C2. The Determination of BACT for the Stoves Proposed by the Application Is Consistent with PSD Rule Requirements

As discussed in Section 8.2.1.1 of the Application, the proposed BACT determination for the stoves is consistent with the PSD rules. For the BACT requirement, the PSD rules expressly provides for a PSD permit to prescribe work practices to satisfy the BACT requirement where the

permitting authority, “determines that technological or economic limitations on the application of measurement methodology to a particular emissions unit would make the imposition of an emissions standard infeasible.” 40 CFR 52.21(b)(12) and 35 IAC 204.280.

In the Application In the discussion of Step 5 of the proposed BACT analysis for CO for stoves, the Application states as follows in Section 8.2.2.6:

> USS Granite City is proposing work practice requirements rather than numeric limits as BACT. Numeric emission limitations are not proposed because direct measurement of emissions, i*.e.*, use of a USEPA reference test method, is not feasible for any of the fuel emissions units subject to the BACT requirements for CO emissions. In particular, for the stack serving the blast furnace A stoves, there is no sampling port,[Footnote]45 and for the stack serving the blast furnace B stoves there is no sampling port satisfying the location requirement in U.S. EPA Reference Method 1. [Footnote] 46 Each stack is refractory lined and is believed to be approximately one hundred years old.
>
> For the reasons presented above, numeric CO emission standards are not feasible for the blast furnace stoves.
>
> Footnote 45. For the one-time exhaust gas sampling event discussed in footnote 19 of this permit application, USS Granite City inserted a sampling probe into the stack through a pipe used to inject steam into the stack.
>
> Footnote 46. Appendix A-1 to 40 CFR part 60.

The BACT analysis in the Application is deficient relative to relevant requirements of the PSD program because it does not show that, “technological or economic limitations on the application of measurement technology to a particular emissions unit would make the imposition of an emission standard infeasible, ….” This showing is required by 40 CFR 52.21(b)(12) or 35 IAC 204.280, the definitions of BACT in the PSD rules. While the Application describes certain aspects of the stacks for the stoves, the Application does not show that emissions testing should be considered infeasible due to technological or economic limitations associated with the stacks for the stoves. The Application does not explain why the facts that the stacks for the stoves are not currently fitted with test ports, are refractory lined, and are approximately 100 years old create technological limitations such that installation of test ports that would meet USEPA Reference Method 1 should be considered infeasible. The Application also does not include estimates for the costs that would be entailed in installation

of such ports to explicitly show why emission testing should be considered infeasible because of the economic impacts that would be imposed if emission testing were required as BACT for the stoves was set as emission standard(s). As such, the Application does not show that the proposed use of good combustion practices as BACT should be accepted in lieu of numerical emission standard(s).

C3. The Application Does Not Identify Statutory or Regulatory Provisions That Require the Application to Include the Indicated Information

In the draft denial letter, Attachment 1, the Illinois EPA makes the following assertion:

> Further support is needed for the claim that measurement or testing of emissions of the blast furnace stoves is infeasible. While certain information about the stoves is provided, the application does not directly address the technological issues or costs that would be entailed to install suitable ports for testing on one or both sets of blast furnace stoves. For example, the application does not include diagrams for the existing ductwork of the stoves to address whether the configuration of this ductwork would accommodate installation of test ports at a location that would satisfy USEPA Reference Method 1. The application also does not show how the refractory lining on the stacks or their age, approximately one hundred years old, would present significant technical challenges and costs so that the installation of test ports at a suitable location should be considered infeasible. The application also does not show that there are other challenges that would need to be addressed or issues that should be considered, such as requirements of the Occupational Safety and Health Administration (OSHA), that would affect the technical feasibility and cost of installing suitable test ports on the stoves.

With respect to both Illinois EPA's general suggestion that "further support" is needed and its list of specific examples, Illinois EPA does not identify any provision of the Act or the Illinois Code requiring that a PSD permit application include any particular supporting information, nor does the Illinois EPA point to even an application form or guidance document suggesting that such documentation or additional explanation be provided. Of course, Illinois EPA retains authority pursuant to 35 IAC 201.152 to request additional documentation in conjunction with a construction permit application, but that was not done here.

Contrary to what is suggested in this comment, the statutory and regulatory basis for this deficiency in the Application are provided

in the Revised Draft Denial Letter. The regulatory provisions include the definition of "Best Available Control Technology (BACT)," 35 IAC 204.280; the definition of "complete," 35 IAC 204.330; the information that an applicant for a PSD approval must submit, 35 IAC 204.810; and the BACT requirement for a major modification, 35 IAC 204.1100(c).

In addition, as discussed in General Response 1, Section 8A of this Responsiveness Summary, it is not necessary for there to be a provision of the Act or the Illinois Code, or other guidance that specifies the particular information that must be included in an application for an air pollution control construction permit. The Illinois EPA's ability to request additional information to remedy deficiencies that are identified in permit applications is not provided by 35 IAC 201.152. The Illinois EPA may directly proceed with denial of an air pollution control permit application without requesting that the applicant supplement or revise the submitted application.

C4. When the Illinois EPA Issued the CAAPP Permit In 2013, It Determined That Work Practices Suffice AS BACT for the Blast Furnace Stoves

In 2013, when issuing Permit 96030056, the CAAPP permit for the facility, the Illinois EPA again determined that work practices suffice for the blast furnaces stoves for purposes of demonstrating compliance with the applicable requirements of Permit 95010001.[69]

The observation made by this comment is not correct and does not contribute anything to a discussion of the BACT analysis in the Application for the CO emissions of the stoves. The Illinois EPA did not reexamine the established determination of BACT for the stoves for CO when it issued Permit 96030056 in 2013, as suggested by this comment. Indeed, when issuing a CAAPP permit, the Illinois EPA's authority does not extend to formally reviewing and potentially revising BACT determinations made in PSD approval(s) for units and activities at a source. The Illinois EPA's authority with respect to such determinations, as it also is for the applicable emission

[69] *See,* CAAPP Permit 96030056, Conditions 7.4.12(a) and (b). Condition 7.4.12(a) explains that for blast furnace processes, compliance with applicable standards of Condition 7.4.3 is addressed by, "the work practices, testing, monitoring, recordkeeping, and reporting requirements" in Section 7.4 of this permit. Conditions 7.4.12(b) explains that compliance with the production/emission limits of Condition 7.4.6 and 5.6.2 is addressed by, "the work practices, testing, monitoring, recordkeeping, and reporting requirements in Sections 7.4 and 5 of this permit." Note that Permit 96030056 does not include any testing, monitoring, recordkeeping, or reporting requirements specific to the blast furnace stoves. (Adapted from Footnote 11 of US Steel's Comments of January 2014.)

standards of relevant rules, is restricted to imposing associated compliance procedures (in the terminology of the CAAPP, periodic monitoring) if the existing BACT determination or emission standard does not adequately address how compliance is to be assured with such determination or standard on an ongoing basis. The CAAPP program does not contemplate substantive changes to established BACT requirements being made during the issuance of CAAPP permits since such changes are appropriately made by issuance of a new or revised PSD permit.

Moreover, this comment implies that Permit 96030056 requires use of good combustion practices as BACT for the stoves. Then, presumably because use of such practices is inherent in the day-to-day operation of the stoves, the Illinois EPA did not deem it worthwhile or necessary in 2013 in Permit 96030056 to impose any associated compliance procedures related to the use of good combustion practices for the stoves, i.e., requirements for operational monitoring and/or recordkeeping to verify implementation of good combustion practices. Accordingly, this comment argues that Denial Point 18, as it involves the absence of certain information from the Application related to BACT for the stoves, is unwarranted. However, this argument is not relevant because the increase in permitted CO emissions requested by the Application necessitates making a new BACT analysis and, potentially, a new determination of BACT in revised Permit 95010001. In this regard, the Application requests an almost nine-fold increase in the CO emissions of the stoves, with an overall increase in the CO emissions for which the Project is permitted. This argument is also not valid because Permit 96030056 does not require use of good combustion practices as BACT to reduce or control for CO emissions.[70] This is as should be expected since Permit 95010001, itself, does not require use of good combustion practices as BACT for the stoves. There is nothing with regard good combustion practices for the stoves that had to be restated in Permit 96030056. Thus, it is not surprising that Permit 96030056 does not include compliance procedures related to use of good combustion practices for the stoves since Permit 95010001 does not actually require use of such practices. Further inferences should not be drawn from the fact that Permit 96030056 does not include compliance procedures for the use of good combustion practices.[71]

---

[70] If anything, the BACT determination for the stoves for CO made in Permit 95010001 are the emission factor limits set by this permit, i.e., CO emissions of 40.0 lbs/mmcf for natural gas, 13.7 lbs/mmcf for BFG and 5.0 lbs/1,000 gallons for fuel oil (Permit 95010001, Condition 22 and Table 4). These limits are repeated in Permit 96030056 (CAAPP Condition 5.6.2(a)(iii)(B).) Unlike Permit 95010001, Permit 96030056 provides for emission testing to confirm compliance with these limits (Condition 5.7). Recordkeeping is also required to verify compliance with these limits (Condition 5.9.1(c) and (d)).

[71] In the original application for Permit 95010001, National Steel addresses use of good combustion practices for the blast furnace stoves, explaining, "Good combustion practice is the inherently lowest emitting method of

C5. The Application Provides All Required Information

The documentation provided in the Application regarding infeasibility of emissions testing is more extensive than the documentation provided in the original permit application submitted by National Steel and accepted by Illinois EPA when originally issuing Permit 95010001. The Application includes all information required by the applicable permitting rules and the PSD rules relating to BACT for CO emissions from the stoves.

Whether the Application has "more information" than National Steel provided in its application about the infeasibility of emissions testing for the blast furnace stoves is immaterial as to whether the Application is deficient.[72] The Application does not include information showing that emissions testing is infeasible for the stoves. Therefore, it is appropriate for the Application to be denied.

D. Emissions Associated with Combustion of Coke Oven Gas (COG) (Denial Point 19)

In the draft denial letter, Attachment 1, the Illinois EPA asserts that the Application is deficient because it "does not demonstrate that prior to February 2015, when the by-product recovery coke oven batteries at the Granite City Works were shut down and COG [coke oven

---

controlling CO emissions from combustion sources." (National Steel, Original Application, Supplement October 30, 1995, p. 4-6, Section 4.3.3.1, "Blast Furnace Stoves," in Section 4.3.1, "Inherently Lower-Emitting Processes/Practices," in Section 4.0, "Best Available Control Technology Review.")

However, the use of such practices as BACT for the stoves for CO was not explicitly required by Permit 95010001 as issued. Condition 41(b) of Permit 95010001 acknowledged that PSD was applicable to the Project for SO_2 and CO. However, this condition simply concludes by stating that, "The Agency has determined that these additional requirements [including BACT for affected SO_2 and CO emissions units] have been met." The Illinois EPA's project summary for the public comment period that was held before the initial issuance of Permit 95010001 addressed the BACT requirement of the PSD rules in a single sentence, explaining, "GCD (Granite City Division of National Steel] has shown that the work practices used for SO_2 and CO constitute BACT as used by other steel mills for these pollutants. (Illinois EPA, November 1995, "Project Summary for Proposed Issuance of a Construction Permit for Granite City Division of National Steel Corporation," p. 6.)

[72] The Illinois EPA agrees that the Application is better than the application submitted by National Steel. The Application recognizes that if BACT for an emission unit is not to be set as a numerical emission standard, it must be determined that emissions testing is infeasible for that unit. However, the Application is identical to National Steel's application as it does not make this showing.

gas] ceased to be available, BACT was being utilized for the SO_2 and CO emissions from use of COG in the stoves." US Steel acknowledges that the BACT determination made by Illinois EPA in 1996, based on relying on the application submitted by National Steel, may have been deficient in this regard. Nonetheless, based on a pertinent court decision, Illinois EPA's assertion that any such historical deficiency is relevant to the Application is entirely without merit.[73]

This comment does not show that the Application should not be denied based on Denial Point 19. This comment does not respond to the issues that are raised by this denial point. The situation that was addressed by the court decision cited by this comment did not involve the situation presented by the Application. The cited court decision involved an after-the-fact enforcement action against a source for the failure to obtain a PSD permit. Accordingly, this comment does not show that the Application should not be denied based on Denial Point 19.

By way of further explanation, the Application must address BACT for the blast furnaces stoves for emissions of SO_2 and CO because of the Application, itself, and how it proposes to address emissions of the blast furnace stoves. The Application proposes revisions to the baseline emissions of the Project to reflect what US Steel now considers should have been the baseline emissions for the original permitting of the Project. In particular, updates to the emissions of the blast furnace stoves for particulate, NOx and VOM are proposed to address the emissions of the stoves during the baseline period from use of COG. However, emissions from use of COG were not considered during the original permitting of the Project. That the Application now proposes that emissions from use of COG be addressed for the requested revisions of Permit 95010001 is the reason why the Application must now also address BACT for the stoves for the SO_2 and CO emissions from use of COG, as well as BACT for the CO emissions from use of BFG and natural gas.[74] In this regard, Denial Point 19 in the Revised Draft Denial Letter explains as follows:[75]

---

[73] *See*, e.g., U.S. v Midwest Generation LLC. 781 Fed. Supp. 2d 677 (N.D. Ill. 2011) (holding that a source owner' obligation with respect to BACT are limited to those imposed in a PSD permit.) (Footnote 13 of US Steel's Comments of January 2024.)

[74] As addressed in Denial Point 18, the BACT analysis in the Application for CO emissions from use of BFG and natural gas is also deficient.

[75] As specifically related to BACT for CO from use of COG in the Blast Furnace Stoves, Denial Point 19 in the Draft Revised Denial Letter also explains:

> **With respect to CO, it is relevant that the BACT demonstration in the 2022 application [Application] focuses on CO emissions from burning of fuels other than COG. For fuel burning units, the 2022 application states that "CO emissions of these units result primarily from incomplete combustion during the firing of BFG and natural gas." This ignores the historic**

> **… unlike the initial permitting of the Project, the 2022 application [Application] now quantifies emissions of particulate, NOx and VOM from burning COG and these emissions are included in revised determinations of baseline emissions. (In 1996, the Project was permitted as a major modification for SO_2 and CO but did not quantitatively address emissions from burning COG.) If emissions from burning of COG are to be relied upon for the issuance of a revised permit, the 2022 application must also address the BACT requirements of PSD for the SO_2 and CO emissions from use of COG, as would have been applicable in 1996, when the Project commenced. The fact that the by-product recovery coke batteries at the Granite City Works were shutdown in 2015 and COG is no longer available at the facility, does not alter the applicable requirements under PSD that must be satisfied. PSD would be violated if a revised permit were issued for the Project based on revised NSR applicability analyses that considered use of COG, as contained in the 2022 application, absent demonstrations that the Project utilized BACT for emissions of SO_2 and CO from use of COG.**
>
> **Revised Draft Denial Letter, Attachment 1, p. 67.**

The Application would not be denied based on Denial Point 19 to simply require US Steel to propose corrections to Permit 95010001 to address a potential error in the original permitting of the Project. That is, Permit 95010001 did not provide for BACT for SO_2 and CO emissions from use of COG even though the permit approved a PSD major modification for these pollutants. Instead, given that the usage of COG and associated emissions were not expected to increase with the Project, the emissions from use of COG in Project-affected fuel burning units were not quantitatively addressed by Permit 95010001.[76] However, the PSD rules

---

> **contribution of COG to the CO emissions of the stoves prior to February 2015. The 2022 application also does not state that, as of February 2015, it was no longer necessary to address CO emissions from use of COG because COG was no longer produced and available for use.**
>
> **Revised Draft Denial Letter, Attachment 1, p. 68.**

[76] That the original permitting of the Project did not quantitatively address emissions from use of COG is apparent from National Steel's application and Permit 95010001. For example, in National Steel's application, as the summaries of the netting analysis for different pollutant, Tables 3-1 through 3-6 of the January 1, 1996, supplement to the application,* address emissions of Project-affected fuel burning units, including the blast furnace stoves, only emissions from use of BFG, natural gas and fuel oil are addressed but not emissions from use of COG. Consistent with National Steel's application, Permit 95010001, Condition 22 and Table 4, only set limits for the usages of BFG, natural gas

indicate that determinations of BACT are to be made for all emissions of the relevant pollutant(s) from the subject emissions units, not simply for certain emissions of the relevant pollutant from such units.[77, 78]

---

and fuel oil and associated emissions from use of these fuels, but not for the usage of COG and its associated emissions.

*** Copies of these tables are included in the Application in Appendix B, "Emission Calculations."**

[77] When addressing the applicability of BACT to a major modification for a pollutant, for the units for which BACT is required, the PSD rules require a determination of BACT for all emissions of the pollutant from such units, not just some of the emissions from such units, e.g., only the SO_2 emissions from burning BFG but not the SO_2 emissions from burning COG.

> **A major modification shall apply best available control technology for each pollutant subject to regulation under the [Clean Air} Act for which it would result in a significant net emissions increase at the source. This requirement applies to each proposed emissions unit [emphasis added] at which a net emissions increase in the pollutant would occur as a result of a physical change or change in the method of operation of the unit [emphasis added].**
>
> **40 CFR 52.21(j)(3) and 35 IAC 201.1100(c),**

[78] It is interesting that in a later comment, US Steel Comment appears to take a position that is at odds with the position taken in these comments responding to Draft Denial Point 19. In the later comment, US Steel attempts to show that the revised NSR applicability analysis in the Application for the Project for NOx is appropriate and meets applicable requirements of the NSR rules. Among other things, this comment argues that it is appropriate to update the baseline emissions of Project-affected fuel burning units to now also account for emissions from use of COG in these units. (In this Responsiveness Summary, this particular comment is identified as Comment VIII.D(1).) This comment argues that it is appropriate for all NOx emissions of the subject units to be addressed, now including NOx emissions from use of COG. This is because applicable NSR rules require all emissions of the subject units of the pollutant for which the applicability of NSR is being considered to be addressed, as explained by the comment as follows.*

> **… the major modification applicability test requires a comparison of the pre-project actual emissions of the emissions units or group of units; the post-project actual emissions (or potential to emit) of that emission unit or group of units; the applicable definition of actual emissions does not provide for a calculation that considers only some portions of the units' emissions.**
>
> **US Steel, Comments of January 2024, Comment VIII.D, p. 13.**

However, in response to Denial Point 19, this comment appears to argue that the PSD rules allow a BACT determination for a pollutant for a BACT-subject unit to be made for only some of the unit's emissions of that pollutant.

VIII. PSD AND NANSR APPLICABILITY WITH RESPECT TO NOx EMISSIONS (DENIAL POINT 1)

A. The Denial of the Application Would Be Improper As the Denial Would Be Based on Previously Authorized Emissions and Emissions Increases

A1. The Illinois EPA Appears to Take into Account and Improperly Consider Emissions and Emissions Increases That Were Authorized by Illinois EPA at the Time Permit 95010001 Was Initially Issued to National Steel

The draft denial letter, Attachment 1, Paragraph 1, suggests that the Application is deficient because it does not include or otherwise address the substantive requirements of the PSD and NaNSR programs with respect to NOx emissions. However, in its evaluation of whether the Project is or would become a major modification, Illinois EPA appears to take into account and improperly consider emissions and emissions increases that were authorized by Illinois EPA at the time Permit 95010001 was issued to National Steel but will not occur in the future. In this regard, Permit 95010001, as issued to National Steel on January 25, 1996, provided for a net increase in annual NOx emissions from the Project of 38.3 tons per year. A revised version of Permit 95010001 issued to National Steel on January 25, 1999, which addressed

***Incidentally, as explained in response to the later comment, the argument or claim that is made is not relevant to the reasons that the revised NSR applicability analysis in the Application has been determined to be deficient, such that the Application must be denied. As related to applicability of NSR, one reason that the revised NSR applicability is deficient is that the baseline emissions of NOx have been updated to include NOx emissions of Project-affected fuel burning units from use of COG. However, a similar update was not made for the NOx emissions of these units with greater production of iron and steel as provided for by Permit 95010001 following the Project. If revised NSR applicability analysis for NOx emissions is to be updated in the Application so that it addressed emissions of the Project-affected fuel burning units from use of COG, both the original, "pre-project," baseline NOx emissions and the original NOx emissions of these units with the Project must be updated.**

an increase in permitted usage of natural gas in certain Project-affected fuel burning units, provided for an additional net NOx emissions increase of 31.8 tons/year (31.8 tons/year and 38.3 tons/year yields a combined increase of 70.1 tons/year). As such, the net NOx emissions increase from the Project authorized by the Illinois EPA prior to US Steel's ownership of the Granite City Works in 2003, when National Steel owned and operated the Granite City Works, is greater than the net change in NOx emissions shown in the Application with the revisions to Permit 95010001 that are now requested by US Steel, i.e., a net decrease of 237.3 tons/year.[79]

This comment does not identify a flaw in the Illinois EPA's review of the revised NSR applicability analysis for NOx in the Application, which addresses the increases requested by the Application in the permitted NOx emissions of certain units that are part of the Project.[80] As such, this comment does not show that increases in NOx emissions that are requested would not result in the Project becoming a major NSR modification for NOx. First, the comment does not even explain how the Illinois EPA has improperly considered emissions and increases in NOx emissions that had previously been permitted, as is claimed in this comment, when finding that the Application was deficient because it did not address the substantive requirements of NSR for the Project, as stated in the denial letters. The comment also does not explain why and

---

[79] In this comment, information about the two versions of Permit 95010001 and the Application was presented in a table. In this Responsiveness Summary, relevant information is presented in a narrative. This is because the presentation of information in the table was misleading. For example, the table did not explain that Permit 95010001 was revised in 1999 to address a further change at the Granite City Works. The table also provided a value for the net increase in NOx emissions for this second permit that was the sum of the net increase indicated in Permit 95010001, as original issued for the Project, and the additional net increase in emissions with the further change to the facility. In the table, the Application, is identified as a "permit" that is "pending," rather than the Application, as submitted by US Steel for further revisions to Permit 95010001.The value that is provided for the net increase in NOx emissions for the Application is not clearly identified as the value proposed in the Application, which is based on the revised PSD applicability analysis for the Project in the Application, For the two permits that are addressed, the values for the net increase in NOx emissions either came from or were derived from information in the permits issued by the Illinois EPA.

[80] In the Application, Appendix B, Emission Calculations, this revised applicability analysis is entitled "USS Granite City – 1996 Production Increase Project: Revised NOx PSD [emphasis added] Net Emissions Increase Analysis." In this Responsiveness Summary, this revised analysis is referred to as an NSR applicability analysis, This is because US Steel must address the implications of the increases in emissions of NOx requested by the Application for both PSD and NaNSR.

how such emissions and emission increases should have been handled.

Second, as the Application requests increases in the permitted annual NOx emissions of certain units affected by the Project, i.e., the blast furnace casthouse (casthouse) and the BOFs,[81] it is appropriate for the updated NSR applicability analysis for the Project for NOx to reevaluate applicability of NSR to the Project for NOx. The fact that the Project was previously permitted for net increases in NOx emissions that did not trigger NSR is immaterial since the Application requests corrections to the prior permitting of the Project. In other words, the fact that the original NSR applicability analysis for the Project for NOx was flawed, is indicated by the request in the Application for increases in permitted NOX emissions of certain units affected by the Project. Accordingly, the net increases in NOx emissions of the Project indicated in the Permit 95010001, as originally issued, and in the subsequent revisions to Permit 95010001 should no longer be considered reliable as the NSR applicability analysis that they relied upon is flawed. This is directly contrary to what is suggested by this comment. In addition, as the Application involves changes to the NSR applicability analysis for the Project for NOx, it is appropriate for the Illinois EPA to review this analysis in its entirety and not simply with regard to the NOx emissions of the casthouse and the BOFs.[82]

---

[81] The bulk of the requested increase in NOx emissions involves the BOFs. Permit 95010001 currently limits the annual NOx emissions of these units to 69.63 tons/year. The Application, Table 6-7, "NOx emission Caps," and Appendix B, Emissions Calculations, "USS Granite City – 1996 Production Increase Project: Revised NOx PSD Net Emissions Increase Analysis," requests that Permit 95010001 be revised to increase the permitted NOx emissions of the BOFs to 400.0 tons/year. The Application also proposes corrections to the baseline, "pre-project" NOx emissions of the BOFs with use of an emission factor of 0.1475 pounds/ton of steel, rather than 0.0389 pounds/ton of steel (Application, Table 6-5, "Pre-Project Actual NOx Emissions and Proposed Changes to Pre-Project NOx Emission Factors for Affected Emissions Units"). The resulting corrected NOx baseline for the BOFs is 179.8 tons/year. The difference between this revised baseline emissions and the revised permitted NOx emissions requested for the BOFs is a net increase of 220.2 tons/year (400 – 179.8 = 220.2).

The NOx emissions of the blast furnaces are much less than those of the BOFs. The proposed correction for the baseline emissions of the blast furnaces would lower their baseline from 15.6 to 4.6 tons/year. The Application requests that the revised permit provide for future NOx emissions of 24.0 tons/year from the blast furnaces, for a net increase of 19.4 tons/year (24.0 – 4.6 = 19.4). (As Permit 95010001 currently limits NOx emissions of the blast furnaces to 22.79 tons/year, the emissions limitation in the permit would actually only change by 1.21 tons/year.)

[82] Separate from the approach to NSR applicability taken by US Steel in this revised analysis for NOx, as is addressed in this series of responses, the Illinois EPA's review of the revised analysis has also identified various

Third, this comment does not clearly explain how the net change in NOx emissions of the Project for purposes of NSR would now be lower than originally permitted. In other words, even though the Application requests that Permit 95010001 be revised to increase the permitted NOx emissions of the casthouse and the BOFs by more than 200 tons, how could that revised permit for the Project be based upon a net decrease in NOx emissions of 237.3 tons/year instead of a net increase in emissions that is substantially greater than 38.1 tons/year. In fact, this comment hints at the answer to this question as it claims that the "Illinois EPA appears to take into account and improperly consider emissions and emissions increases that were authorized by Illinois EPA at the time Permit 95010001 was issued to National Steel but will not occur in the future [emphasis added]." As such, this comment acknowledges that the revised NSR applicability analysis for NOx in the Application addresses current circumstances, nominally starting in 2022 when the Application was submitted, and not circumstances as should have been addressed when Permit 95010001 was originally issued.[83]

This approach to the correction of construction permits for projects that were originally considered non-major projects and not subjected to substantive requirements of NSR is contrary to the NSR rules and long-standing practice. As such, in the revised NSR applicability analysis in the Application, US Steel appears to improperly take into account and consider decreases in NOx emissions that were not made enforceable by Permit 95010001 and, and in fact, did not occur until long after the Project was completed. In other words, the revised NSR applicability analysis for NOx in the Application would rely on "post-project" decreases in NOx emissions that were not part of the original Project.

---

issues with the quantification of NOx emissions for these analyses, as were addressed in the draft denial letters. (For example, see Denial Points 2 and 3A.) As such, in these responses related to the general approach taken in the revised NSR applicability analysis, the value for the net change in NOx emissions from the Application is used for ease of explanation. It does not indicate acceptance of this value by the Illinois EPA given the separate issues with regard to accuracy and appropriateness of the quantification of the Project's NOx emissions in the Application, as were also addressed by the draft denial letters.

[83] The claim that the NOx emissions that are of concern for applicability of NSR "have been authorized" is also problematic as the revised NSR applicability analysis for NOx in the Application addresses emissions from use of coke oven gas (COG) in Project-affected fuel burning units. However, neither National Steel in the original application for the Project nor the Illinois EPA when it originally issued Permit 95010001 for the Project quantitatively addressed emissions from burning COG. As such, it is not clear that the Illinois EPA authorized such NOx emissions in the manner now claimed by this comment.

As such, the revised NSR applicability analysis for NOx in the Application does not address whether NSR should have been applicable for NOx in 1996 if the original permit application had correctly quantified the NOx emissions of the casthouse and the BOFs with the Project. The fact that with certain post-project emission decreases in NOx emissions that have occurred at the Granite City Works, the overall NOx emissions of the Project-affected units may currently be and in the future will continue to be less than the overall NOx emissions that could have originally been allowed by Permit 95010001 is not material to determining whether the requested increases in the NOx emissions of certain units, as requested by the Application, would result in applicability of NSR to the Project for NOx.

In this regard, US Steel's Comments of January 2024 do not include Footnote 13 of its Comments of September 2023. This footnote discussed the "post-project" decreases in NOx emissions that the Illinois EPA found the Application would improperly rely upon for purposes of revised NSR applicability analysis for NOx. This footnote refers to various statements in the Initial Draft Denial Letter describing the developments at the Granite City Works that led to these emission decreases, i.e., the shutdown of ten older boilers and the shutdown of the byproduct recovery coke batteries, which eliminated use of coke oven gas (COG) as a fuel.[84]

---

[84] In US Steel's Comments of September 2023, the reference to Footnote 13 is located after the following sentence, "However, in its evaluation of whether the Production Increase Project is or would become a major modification, Illinois EPA appears to take into account emissions and emissions increases that were authorized by Illinois EPA at the time Permit No. 95010001 was issued to National Steel.[Footnote] 13]" This sentence was clearly erroneous as it stated that the Illinois EPA was taking into account certain emission increases whereas in this denial point the Illinois EPA disputes US Steel's proposed reliance on certain, post-project emission decreases. The entirety of this footnote is provided below.

> **[Footnote] 13 See, *e.g.,* [Draft Denial Letter,] Attachment 1 at p. 4, suggesting that the updated applicability analysis should include "'future' NOx emissions" from Boilers 1 through 10 based on the configuration of those boilers as they existed at the time the Production Increase Project was implemented by National Steel and at the time US Steel purchased the assets in 2003, notwithstanding the fact that those boilers are prohibited from operating currently and in the future; Attachment 1 at p. 4, suggesting that the updated applicability analysis should include greater NOx emission rates from Boilers 11 and 12 based on the configuration of those boilers as they existed at the time the Production Increase Project was implemented by National Steel and at the time US Steel**

It is also noted that separate from Denial Point 1, in Denial Point 3, the Illinois EPA also determined that the requested revised permit should be denied for reasons associated with the new value for the NOx emissions of Project-affected fuel burning units used in this analysis. In Denial Point 3, the Illinois EPA explains that the requested revised permit must be denied because the Application does not show that this new value for the NOx emissions of these units fully accounts for the emissions of these units with the Project. For example, it is observed that the "…the 2022 application does not show that 706 tons/year represents the post-project NOx emissions as could have been addressed when Permit 95010001 was originally issued if emissions from burning of COG [coke oven gas] in these units when operating at levels of iron and steel production that were permitted had been considered," (Revised Draft Denial Letter, Attachment 1, p. 11).[85] Failure to show compliance with the substantive requirements of NSR was not identified as a reason for denial in Denial Point 3. This is different from Denial Point 1 where the issuance of the requested revised permit was denied because the Application did not show compliance with the substantive requirements of NSR for a major project for NOx because the revised NSR applicability analysis for NOx inappropriately relies on certain decreases in emissions.

One final observation, the second version of Permit 95010001 cited in this comment, which is not actually addressed in the Application, was

---

purchased the assets in 2003, notwithstanding the fact that the Boilers are prohibited from operating at those emission rates currently and in the future; Attachment 1 at p. 4, suggesting that the updated applicability analysis should include greater NOx emission rates from Boilers 11 and 12 and from the blast furnace stoves based on the use of coke oven gas as fuel in those units at the time the Production Increase Project was implemented by National Steel and at the time US Steel purchased the assets in 2003, notwithstanding the fact that coke oven gas is not an available fuel at the facility currently or in the future.

[85] Denial Point 3 has similarities to Denial Point 1 from a mathematical perspective, as should be expected. If a value for a parameter is too small because it reflects certain downward adjustments, the value of the parameter also can be described as not being large enough because it does not reflect certain upward adjustments.

an operating permit, not a construction permit.[86, 87] Moreover, as stated in this Operating Permit 95010001, dated January 5, 1999, this permit was revised to "incorporate" or address increases in emissions of NOx and other pollutants authorized by Construction Permit 98110039, date issued December 9, 1998. The subject of that permit was a "Natural Gas Usage Increase," not a "Production Increase," i.e., not the Production Increases Project. Consistent with the application for that permit, Permit 98110039 only provides for increases in permitted emissions of Boilers 1 through 12 and of ladle dryer preheaters with the increase in the permitted usage of natural gas by these units. The natural gas usage of the blast furnace stoves was not addressed.[88]

A2. In the Draft Denial Letter, the Illinois EPA's Avoids the Language of the "Source Obligation Provisions" of the NSR Rules

---

[86] In Appendix D, "Copies of Construction Permits," the Application includes copies of two versions of Permit 95010001. The first is the current version of this permit, dated May 30, 2012, which was revised pursuant to an application from US Steel and issued to U.S. Steel, Granite City. The second version of Permit 95010001 is the original permit for the Project issued to National Steel, dated January 25, 1996.

[87] Prior to the establishment of the Clean Air Act Permit Program (CAAPP), i.e., Illinois' program for operating permits for sources of emissions under Title V of the federal Clean Air Act, sources could obtain separate operating operations for the various emission units at a facility. Construction permits, which were issued for the construction or modification of emission units, were then routinely converted into operating permits that provided for the ongoing operation of the subject new or modified units. This was done using the identical permit number, with the operating permit being titled as such rather than as a construction permit and the introductory language in the permit authorizing the operation of the subject units rather than their construction or modification. This practice was discontinued with the adoption of the CAAPP, since Title V of the Clean Air Act provides that the emissions units at a facility that are owned or operated by a single entity must be addressed by a single facility-wide operating permit issued to that entity.

[88] As indicated in Table I of Permit 98110038, the increase in NOx emissions of the units addressed by this permit (31.83 tons/year), which would accompany the increase in permitted usage of natural gas by these units was determined as the difference between the calculated baseline emissions of these units of 174.11 tons/year (average of annual NOx emissions of 1996 and 1997, reflecting annual average natural gas usage of 1,131 million cubic feet/year) and the new permitted NOx emissions for these units of 205.94 tons/year (NOx emissions calculated based on the new permitted usage of up to 1,347 million cubic feet/year of natural gas).

When summarizing its review of the revised NOx net emissions increase ("netting") analyses in the Application, the Illinois EPA conspicuously avoids using the language of the "source obligation provisions," which are controlling, as specifically discussed in later comments.

The Illinois EPA's responses to US Steel's comments concerning the "so-called" source obligation provisions of the NSR rules[89] will follow those comments by US Steel, also being later in this Responsiveness Summary. By way of a brief preview in response to this specific comment, the subject provisions do not directly address or govern the applicability provisions of the NSR rules, which set out how one determines whether projects are or are not major projects for purposes of NSR. As such, the Illinois EPA did not refer to the so-called source obligation provisions in the Draft Denial Letters since the issue for the increases in NOx emissions requested by the Application is whether they result in the applicability of NSR for NOx as the Project would now become a major modification for purposes of NSR. The so-called source obligation provisions prescribe how the substantive requirements of NSR, e.g., Best Available Control Technology (BACT) under PSD or Lowest Achievable Emission Rate (LAER) under NaNSR, are to be determined for the relevant units affected by certain projects, i.e., projects which become a major new source or a major modification as a consequence of the relaxation of enforceable limitations, once it has been determined that such projects would become major projects for purposes of NSR.

A3. The Draft Denial Letter Appears to Improperly Suggest That a Final Adjudication Has Been Made That the Project Was Originally a Major NSR Modification for NOx

In the Draft Denial Letters, Attachment 1, Footnote 3, the Illinois EPA appears to suggest it has already been determined the Project as authorized prior to US

---

[89] The provisions of the NSR rules that these comments refer to as the "source obligations provisions" are characterized by the Illinois EPA as being "so-called" provisions. In this regard, US Steel uses the term "source obligation provisions" to refer to certain provisions of the NSR rules that refer to or address relaxations of source-specific limitations, i.e., 40 CFR 52.21(r)(4), 35 IAC 203.201 and 35 IAC 204.850. However, these provisions are not actually entitled "source obligation." In Illinois' NSR rules, the relevant provisions, 35 IAC 203.201 and 35 IAC 204.850, are actually entitled "Relaxation of a Source-Specific Limitation." In the federal PSD rules, 40 CFR 52.21(r)(4) is one of several provisions under the general heading of "Source obligation." Moreover, in Illinois' PSD rules, 35 IAC 204.820, the provision that is actually entitled "Source Obligation" does not address the relaxation of limitations. Rather, it deals with the obligation of sources to construct and

Steel's ownership of the Granite City Works was a major modification. In this footnote the Illinois EPA asserts that an analysis of alternatives would have been required as part of National Steel's original application for the Project "… if it had been recognized in 1996 that the Project was a major modification for NOx"). US Steel is unaware of any such final determination or adjudication.[90]

operate in compliance with the terms of their PSD permits. (The federal PSD rules include a similar requirement at 40 CFR 52.21(r)(1).)

In Section 2.2.4 of the Application (Application p. 2-4) , the introductory discussion of the provisions of the NSR rules addressing relaxation of established permit limitations, the relevant rules are specifically cited. The discussion also explains that updated net increases calculations are included in the Application, including calculations for baseline emissions now address emissions from burning coke oven gas (COG) in Project-affected fuel burning units. However, the discussion does not describe approach that is taken to updating the emissions with the Project.

[90] This comment is Footnote 14 of US Steel's Comments of January 2024.

In this footnote, the Illinois EPA was not suggesting that a final determination or adjudication has been made that the Project was or is major for NOx. As is apparent from the Draft Denial Letters, the Illinois EPA has determined that the revised permit requested by the Application should be denied because, among other things, the Application does not provide proof that the Project would not be a major modification for NOx with the requested increases in NOx emissions and does not provide proof of compliance with the substantive requirements of NSR for NOx. In this regard, it is possible that in a new application, US Steel could show that the Project would not become a major modification for NOx, show that the substantive requirements of NSR for a major modification for NOx have been met, or otherwise show that the requirements for issuance of a revision to Permit 95010001 have been met.

In addition, as related to the substantive requirements of NSR for a major new source or major modification, this footnote called attention to the fact that in the recitation of the substantive requirements of NSR in the body of the Draft Denial Letter, the Illinois EPA omitted one such requirement, i.e., the requirement of NaNSR for an Analysis of Alternatives. As explained by the Illinois EPA in the final sentence of the cited footnote, which was not included in the comment, "It is beyond the scope of the revisions of Permit 95010001 that are now requested to address the fact that such an analysis was not originally part of the construction permit application for the Project." This acknowledges the difference in this substantive requirement of NaNSR from other substantive requirements of NSR that can potentially be addressed retroactively with permitting. For example, for BACT or LAER, the Illinois EPA can conceivably issue a permit that simply codifies these requirements for control of emissions so that they are enforceable on an ongoing basis if it is also found that emissions of a project were actually controlled as required by NSR.

A4. The Denial of the Application Would Appear to Be Improper As It Would Shift a burden that is not US Steel's to US Steel

The Draft Denial Letter states that, "The 2022 Application requests that the Permit be permitted for additional NOx emissions but does not show that the Project would still not be a major modification for NOx if the permit were revised as requested." {Denial Letter, Attachment 1, p.3.)[91] With this statement, the Illinois EPA would appear to be

[91] **In US Steel's Comments of January 2024, this statement is characterized without explanation as being ambiguous. The Illinois EPA disagrees with this**

characterization as the cited statement is factual in nature. It explains that while the Application requests Permit 95010001 be revised to increase the permitted NOx emissions of certain units, the Application does not show that the Project would still be non-a major modification for NOx if the Project were permitted with increased emissions as requested. Moreover, this comment does not actually dispute this statement. Instead, the comment appears to argue that US Steel should not be considered responsible for the Project being a major modification for NOx because applicability of NSR for the Project for NOx should now be determined considering post-project decreases in emissions, as was done in the Application. In addition, the comment likely argues that US Steel should not be subject to the substantive requirements of NSR for NOx even if the Project would become major for NOx because Permit 95010001 was originally issued to National Steel based on an application that it submitted.

In its Comments of September 2023, US Steel did discuss why it considered this statement to be ambiguous, as provided below.

> **Illinois EPA's assertions regarding applicability of the substantive requirements of the PSD and NNSR [NaNSR] programs with respect to NOx emissions are ambiguous: US Steel cannot determine from the draft denial letter and associated documents whether Illinois EPA is claiming that the Production Increase Project as authorized by Illinois EPA and as implemented by National Steel prior to US Steel's ownership was a major modification subject to the substantive requirements of the PSD and NNSR programs or, instead, if Illinois EPA is claiming that the measures required by Permit 95010001 as issued to National Steel were sufficient to ensure the Production Increase Project would not be a major modification and that the Project would become a major modification solely by virtue of the relaxations requested by US Steel. For purposes of these comments, US Steel has assumed Illinois EPA's claims fall into the latter category, *i.e.,* that the Production Increase Project would become a major modification for NOx solely by virtue of the requested relaxations.**
>
> **US Steel's Comments of September 2023, p. 11.**

In response to that comment, the statement in the Initial Draft Denial Letter of concern to US Steel addresses the Application submitted by US Steel. The Illinois EPA is not editorializing on the circumstances of National Steel relative to the Project. The Illinois EPA also did not claim, as is suggested by US Steel, that the Project would become a major modification for NOx simply because US Steel has requested relaxations of certain limitations for NOx emissions in Permit 95010001. Rather, the Project would become a major modification because NOx emissions of certain units are more than the emissions that are currently allowed under Permit 95010001 and US Steel has not shown that the Project would not become a major modification for NOx with the increases in emissions that are requested by the Application. In other words, major NSR is threatened or triggered for NOx because it has been found that the rates of actual NOx emissions of certain Project-affected emission units are greater than the permitted rates in Permit 95010001. To address this, US Steel has submitted an Application that, among other things, requests

improperly shifting a burden that is not US Steel's to US Steel. US Steel has demonstrated in the Application that the Project would not become a major modification solely by virtue of the relaxations and other revisions requested by US Steel. This is the only demonstration required of US Steel as it relates to applicability of the PSD and NaNSR programs with respect to NOX emissions. In the Denial Letter, Attachment 1. p.11, the Illinois EPA complains that the Application "does not show that the actual NOX emissions of the subject units [Project-affected fuel burning units] in the period from 1996 to the present have not exceeded 706 tons/year," which is the emission limit now proposed for these units by US Steel. However, US Steel has no obligation under the rules to make such a showing.

This comment does not show that the Application should not be denied based on Denial Point 1. In this regard, this comment does not show how, in this denial point, the Illinois EPA would be "…improperly shifting a burden that is not US Steel's to US Steel." US Steel is now the owner and operator of the Granite City Works.[92] US Steel has submitted the Application that requests increases in the permitted NOx emissions of the casthouse and the BOFs. It is these increases in emissions, particularly the requested increase in the permitted NOx emissions of the BOF of more than 200 ton/year that would result in the Project becoming a major modification for NOx for purposes of PSD and NaNSR. In the Application, US Steel provides a revised NSR Applicability Analysis for NOx (Application, Appendix B – Emission Calculations, "Revised NOx PSD Net Emissions Increase Analysis"). This analysis was presumably submitted in an attempt to show that the Project would not become an NSR major modification with the requested increases in NO_X emissions of these units.[93] This applicability analysis must be consistent with the provisions of the NSR rules governing such analyses, e.g., Section 203.208, "Net Emission Determination" in 35 IAC Part 204, Illinois's rules for NaNSR. This would not be the case if the revised analysis for the Project does not address the NOx emissions of

revisions to Permit 95010001 to increase the amounts of NOx certain units are permitted to emit.

[92] Even if, for purposes of discussion, one posits that US Steel was not responsible for the operation and emissions of the Project during the period before it took over the operation of the Granite City Works from National Steel, US Steel became responsible for this facility beginning in 2003 when it acquired this facility.

[93] The are number of deficiencies in this analysis, as addressed in the denial letter and in this Responsiveness Summary as it is responds to US Steel's other comments. As such, this analysis cannot be relied upon to show the Project would not become a major modification for NOx with the requested increases in NOx emissions of the casthouse and the BOFs.

the Project in the period following the initial issuance of Permit 95010001.[94]

As to the claim in this comment that the Project would not become a major modification solely by virtue of the relaxations of current limitations, i.e., increases in the permitted NOx emissions of the casthouse and the BOFs as are being requested, neither this comment nor the Application show how that these increases in the permitted emissions of these units should be considered anything other than correction of the original limitations that were set for these units in Permit 96010001 in 1996. In particular, neither this comment nor the Application suggest that the increases in the NOx emissions of these units are the result of physical changes or changes in the method of operation of these units that are unrelated to and occurred subsequent to the Project.[95]

A5. The Illinois EPA's Claims Regarding Us Steel's Obligations with Respect to NSR for NOx Are Improper As They Are Contrary to Law

Illinois EPA's claims regarding US Steel's obligations with respect to PSD and NaNSR with respect to NOx emissions are improper as they are contrary to applicable law. The claim that Illinois EPA makes here, that the permit for the Project must obligate US Steel to comply with the substantive requirements of these major NSR programs because of emissions increases that may have occurred many years ago, prior to US Steel's ownership, is the same as certain claims previously made by the State of Illinois, the United States of America (the U.S. Attorney General on behalf of the Illinois EPA), and various plaintiff intervenors against Midwest Generation and others. These claims were rejected by both the U.S. District Court for the Northern District of Illinois and the U.S. Court of Appeals for the 7th Circuit. For example, refer to this U.S. District Court's 2011 decision (*U.S. v. Midwest Generation, LLC*, 781 Fed. Supp. 2d 677 (N.D. Ill. 2011) that

---

[94] It is noteworthy that the revised NSR applicability analysis in the Application reflects proposed updates or corrections to the "pre-1996," baseline NOx emissions that were relied upon for the initial permitting of the Project for the casthouse, the BOFs and other Project-affected fuel burning units. However, this revised analysis does not propose comparable corrections to address the NOx emissions with the Project, which would address emissions in the period between 1996 and 2015, when the by-product recover coke oven batteries at the facility were shut down.

[95] The Application does not include an analysis showing that the increase or net increases in NOx emissions from any such subsequent project would not itself be a major modification for NOx purposes of PSD or NaNSR.

held that, where a facility should have been subjected to Best Available Control Technology (BACT) and other substantive requirements of the major NSR permitting programs due to modifications implemented by a prior owner, Section 9.1(d) of the Act does not obligate a subsequent owner to come into compliance with those requirements. (Footnote 15 of US Steel's Comments of January 2024.) In recent years, the Illinois EPA has repeatedly issued construction permits involving the units at the power stations that were the subject of these decisions. For example, refer to Construction Permit 15030051, initially issued October 16, 2015, and subsequently revised on July 15, 2016, May 9, 2017, and July 9, 2020. This permit addresses the construction of a natural gas conversion project for the three coal-fired generating units at Midwest Generation' Joliet Generating Station. This permit did not impose BACT or other major NSR obligations on the generating units. (This permit also provided for operation of the converted generating units until their operation was addressed by a CAAPP permit.) (Footnote 16 of US Steel's Comments of January 2024.)

This comment does not explain why the decisions of the federal courts in the cited cases that dismissed certain claims are relevant to the denial of the Application. It also does not explain why Construction Permit 15030051, which was issued to Midwest Generation, is relevant to the review of the Application. With respect to the subject court decisions, which were not addressed in the Application, the comment does not explain the significance of these decisions for the Illinois EPA's review of the Application. In particular, since US Steel provided a revised NSR applicability analysis for NOx in the Application trying to show the Project would not become a major modification for NOx with the requested increases in the permitted emissions of certain units, it is not clear why the cited decisions are even relevant to the denial of the requested revised permit. Moreover, the circumstances that are being addressed by the Application are clearly not the same as those addressed by the subject decisions. The cited decisions involve a lawsuit in which the plaintiffs sought to apply and address the substantive requirements of the PSD program for major modifications for which a source had not obtained PSD permits.[96] As related to emissions

[96] The lawsuit initially involved six coal-fired generating stations at which the former owner and operator, Com Ed, undertook modifications to the generating units but did not obtain construction permits prior to those modifications, as should have happened under the PSD program. (One of these stations was shut down while the lawsuit was pending and three more are now shutdown.)

of NOx and NSR, the Application entails a request by US Steel to revise a construction permit, Permit 95010001, to increase the permitted NOx emissions of certain units. As such, the relevant issue before the Illinois EPA for the review of the Application was whether the increased NOx emissions, as would be addressed by the requested revisions to Permit 95010001, would, for NOx, result in a major NSR modification.[97]

After the modifications to the six generating stations were completed, the stations were then sold to Edison Mission Energy (EME). EME is the parent company of Midwest Generation, which is the entity that operated these stations at the time of the lawsuit. Neither EME nor Midwest Generation applied for revisions to construction permits for Com Ed's past modifications to the generating units nor were there any such PSD permits for which revisions could have been requested. With regard to PSD, the plaintiffs claimed that Midwest Generation violated relevant provisions of the Clean Air Act and that the continued operation of subject generating units constituted continuing violations of the Clean Air Act. To address these violations, the plaintiffs sought equitable civil penalties and equitable relief (i.e., the use of BACT on the generating units). The claims related to PSD for the past modifications were dismissed under the federal statute of limitations because the various modifications occurred more than five years before the initial lawsuit was filed. (It does not appear that applicability of NaNSR was raised in these cases.) In these cases, it was found that, at the time the lawsuit began, there were not violations because the Clean Air Act only explicitly requires that a source obtain a PSD permit for the construction of a major new source or a major modification, not for the subsequent operation of the source or modification. The Clean Air Act does not provide for subsequent enforcement for the absence of a PSD permit if the statute of limitations has run.

[97] The nature of the cited decisions is also different from the nature of this Application. With respect to NSR, this lawsuit primarily involved compliance under the Clean Air Act and other federal laws. Compliance with Illinois law, i.e., Section 9.1(d) of the Act, was a secondary matter. This was explained by the U.S. District Court for the Northern District, which stated as follows:

> **By specifically quoting a portion of section 9.1(d) in their Amended Complaint, Plaintiffs do not present any cause of action that was not presented in their original compliant; nor do they allege any new facts to support a violation of Illinois law. Plaintiffs simply raise a new question for statutory interpretation. The opportunity for such arguments has lapsed.**
>
> **…**
>
> **Plaintiff's new interpretation is inconsistent with, and contrary to, the Court's prior ruling that Midwest Generation does not commit a PSD violation by operating a source that previously constructed without a construction permit. Thus, even if their argument had not been waived, Plaintiffs have failed to state a claim for any direct violation of Section 9.1(d) that is sufficient to survive Midwest and EME's motion to dismiss under this theory. United States v. Midwest Generation LLC, 781 F. Supp. 2nd 677, p. 683-684.**

This comment also does not explain why the issuance of Construction Permit 15030051 by the Illinois EPA supports issuance of the revision to Permit 95010001 as requested by the Application. Again, the circumstances of this permit are not the same as those addressed by the cited lawsuits or Permit 95010001. For the natural gas conversion project addressed by Permit 15030051, Midwest Generation submitted an application and obtained a construction permit before undertaking this project. For various pollutants,[98] the application included NSR applicability analyses comparing the baseline actual emissions of the generating units at the Joliet Station and the total future permitted emissions of the station, i.e., the emissions of the existing generating units after conversion to natural gas and the emissions of certain new, auxiliary units that would be installed to facilitate operation on natural gas. These analyses conformed with the applicable requirements of the NSR rules. The analysis for NOx showed that this project would not result in a significant increase in emissions and, indeed, would result in a net emission decrease of over 2000 tons/year (Permit 1503031, date issued July 9, 2020, Attachment 1.) The subsequent revisions of this permit did not provide for increases in permitted emissions of the subject units. They involved other aspects of the permit, i.e., exceedances of the applicable NOx emission standard during startup and malfunction/breakdown and the timing of the testing for CO and VOM emissions required by the permit for Unit 6 (Boiler 5).[99]

---

[98] For volatile organic material (VOM), the application showed that, with the conversion project, the station would continue to be a non-major source under NaNSR.

[99] The July 2016 revision of Permit 15030051 responds to Midwest Generation's request that the permit provide for the possibility that the NOx emissions of the units might violate 0.30 pounds/million Btu, the limit in 35 IAC 217.141(a), during startup and malfunction/breakdown (SMB). Relevant terms of 35 IAC Part 201 Subpart I, Malfunctions, Breakdowns or Startups, were added to the permit, along with related operational requirements and recordkeeping and reporting requirements. (Note that 35 IAC Part 201 Subpart I was repealed effective July 25, 2023.)

The May 2017 version of Permit 15030051 responds to a request that an additional year be provided for testing of Unit 6 for CO and VOM. The additional time was sought because of the low capacity factor at which this unit was being operated, In addition, this emissions testing was required during maximum operation and other representative operating conditions of Unit 6. This necessitated coordinating this testing with the conditions in the Des Plaines River so that the warm cooling water discharged from the station would not result in a violation of the limits for the temperature of river water set by the applicable National Pollutant Discharge Elimination System (NPDES) permits, Permits IL0064254 and IL000002216.

The July 2020 revision of Permit 15030051 responds to a request that testing of Unit 6 for CO and VOM not be required every three years due to the very low

B. Source Obligation

B1. The NSR Rules Provide for After-The-Fact Permitting As Proposed by the Application

As explained in Section 2.2.4 of the Application, the PSD and NaNSR rules provide that after-the-fact PSD and/or NaNSR permitting is required when a project becomes a major modification "solely by virtue of a relaxation in" a synthetic minor limitation. (For PSD, see 40 CFR 52.21(r)(4) and, now, 35 IAC 204.850.[100]) These "source obligation" provisions effectively require updated PSD and NaNSR applicability analyses in situations where the source or applicant proposes to relax a synthetic minor limitation in a permit.

Applicability analyses performed in order to determine whether the source obligation provisions apply in conjunction with a requested relaxation are prospective, not retrospective. All of the facts as they will exist at the time of the requested relaxation are considered in the updated emissions increase calculations; there is

---

capacity factor at which it was now operating. The revised permit only requires such testing for Unit 6 upon specific request of the Illinois EPA.

[100] Under the PSD and NaNSR programs as in effect in 1996, at the time of the Project, where a project involved changes to existing emissions units that are so significant that the emissions unit was deemed not to have begun normal operation, the post-change actual emissions of that unit are assumed equal to its potential to emit. 40 CFR 52.21(b)(21).* The major modification applicability test was therefore based on a comparison of the pre-project actual emissions and the post-project potential to emit of the emissions unit or group of units. 40 CFR 52.21(b)(2)-(3). An emissions unit's potential to emit is its maximum capacity to emit a pollutant under its physical and operational design. 40 CFR 52.21(b)(4). Limitations on the capacity to emit a pollutant are treated as part of the design of an emissions unit or group of units if the limitation or the effect it would have on emissions is legally enforceable and enforceable as a practical matter. Where the potential to emit of a unit or group of units is governed by enforceable limitations rather than by the unrestricted physical capacity of that unit or those units, and where those limitations were necessary to a determination that a project was not a major modification, the term "synthetic minor" is commonly used to describe the project and the associated limitations.

* Except as noted, all citations to the applicable PSD rules in US Steel's comments are to the federal PSD rule as codified and in effect at the time of issuance of Permit 95010001 in 1996; where the corresponding provision of the then-effective NaNSR rule is equivalent, separate citations are not provided. (This explanation for the approach to regulatory citations taken in US Steel's comments is Footnote 17 in US Steel's comments of January 2024.)

no consideration of facts as they may have existed at some prior point in time and no "mixing" of facts from different points in time. This approach is demonstrated by USEPA's finding with regard to a project by Pfizer Pharmaceuticals Incorporated, LLC (the "Pfizer determination"). In the relevant letter, USEPA expressed acceptance of the proposed relaxation in 2015 of synthetic minor limitations that had been imposed in 1995 in order to establish synthetic minor status for NOx emissions.[101]

This comment does not show that the position taken in this comment, i.e., that revised NSR applicability analyses that are conducted in conjunction with requested increases in permitted NOx emissions of the casthouse and the BOFs, should be prospective rather than retrospective, is appropriate or correct. The comment reflects a faulty understanding of the "so-called" source obligation provisions of the NSR rules, likely based upon a superficial review of these provisions. This comment only provides a single concrete piece of support for the position that it takes, the Pfizer Determination. As will be discussed further below, a review of the Pfizer determination shows that it does not actually support the position taken in this comment. In addition, the fallacious nature of the position taken by this comment is evident when one considers other matters that are instructive for how NSR applicability analyses that are prepared to accompany proposed relaxations of permit limitations should be conducted, as will also be discussed below.

<u>The Approach Put Forth in this Comment for NSR Applicability for Relaxation of Limitations Is Contrary to Established Practice</u>
It is well-established that when revisions are requested to an

[31] *See,* letter from S.C. Riva, USEPA, to R. Frontanes, Pfizer Pharmaceuticals LLC, Sept. 23, 2015 ["Pfizer Determination"]. In the Pfizer determination USEPA conveys its non-applicability determination for proposed relaxation of synthetic minor limitations that had been imposed in 1994 in order to establish synthetic minor status with respect to NOx emissions from a project that involved installation of five diesel generators and two boilers. The synthetic minor limitations imposed in 1994 established the combined potential to emit NOx from the seven new units at 56 tons per year; if the combined potential to emit had been 65 tons per year or more, the project would have been a major modification. USEPA's 2015 applicability determination allowed relaxation of the limitations such that the new potential to emit would be 90 tons per year; the USEPA's source obligation analysis relied on the fact that other facts had changed during the intervening time period and it gave no consideration to the fact that, had the combined potential to emit been 90 tons per year historically, the project would have been a major modification. [Footnote 19 in US Steel's comments of January 2024.]

air pollution control construction permit for a project to correct errors in the previous permitting of the project, as is requested by the Application, one must return to or revisit the previous permitting of the project. If correction of errors in the previous permitting of a project are requested concurrently with a request for permitting of a new project, the correction of past errors and the permitting of the new project must be considered separately. The requests cannot be simply considered together or merged without distinguishing between the two requests because the relevant circumstances underlying the determinations of NSR applicability for the requests are almost certainly not the same. In addition, the regulatory provisions governing the NSR applicability determinations may be different as USEPA revised the applicability provisions of its NSR rules in its 2002 NSR Reform Rulemaking.

<u>The Approach Put Forth in this Comment for NSR Applicability for Relaxation of Limitations Is Not Supported by Applicable Rules</u>
The interpretation of the so-called source obligation provisions in the PSD and NaNSR programs claimed by this comment is not supported by the actual language of the provisions.[102] Indeed, the actual language of these provisions suggest that when an NSR applicability analysis that resulted in a project being permitted as a non-major project must be revisited because increases in the established permit limitations are requested, the new applicability analysis should address circumstances as they should previously have been addressed for purposes of applicability of NSR. That is, a "retrospective approach" is required, not a prospective approach as claimed by this comment. A "retrospective approach" to applicability of NSR is directly suggested by the subject provisions as a superficial reading of these provisions could lead a person to conclude that all aspects of NSR shall be addressed in such a permit proceeding as if construction of the subject source or modification "had not yet been commenced." In other words, applicability of NSR needs to be addressed as it should have originally been addressed, i.e., "as if construction of the source or modification had not yet commenced." As such, the interpretation of the source obligation provisions claimed in this comment cannot simply be accepted on

[102] To address errors in the original permitting of the Project, the Application requests increases in the permitted NOx emissions of certain emission units. These requests seek "relaxation" of the current limits as a relaxation may be defined simply as "a loosening or slackening" or "a reduction in strictness or severity." (*The American Heritage College Dictionary, Third E*dition, 1993).

its face.

Moreover, what is more significant, is that this comment does not show that the revised NSR applicability analyses for the Project in the Application actually conform to the requirements of 35 IAC 204.550(a) and (b) and 35 IAC 203.208(a) and (b). This is because these analyses for the Project for emissions of PM, PM_{10}, NOx and VOM, are "prospective" since they rely on decreases in emissions that are not contemporaneous with the Project, as it was permitted in 1996. Moreover, as the Application requests corrections to Permit 95010001 to address errors in the original permitting of the Project, the revisions to Permit 95010001 are not directly governed by the so-called source obligation provisions of the NSR rules.[103]

With regard to the language of the so-called source obligation provisions, these provisions do not address whether the "new" or updated NSR applicability analysis for a project for which relaxation(s) in limitation(s) are requested should address the circumstances as of the original permitting of the project or, as audaciously claimed by this comment, the circumstances as of the time of this request. This is clear from the language of the rules.[104] This comment also acknowledges, perhaps unintentionally,

---

[103] It is also noteworthy that all the revised "NSR applicability analyses" in the Application are entitled "Revised [Pollutant} PSD Net Emissions Increase Analysis," (Application, Appendix B – Emission Calculations). In particular, there is not a separate revised analysis for NOx addressing the applicability of NaNSR. Likewise, there are not revised analyses for NaNSR for particulate even though in 1996, Granite City was in an area that was nonattainment for PM_{10}. It is assumed that this was inadvertent and US Steel intended to address applicability of PSD and/or NaNSR as appropriate for different pollutants. Thus, the Illinois EPA in its response refer to all revised applicability analyses in the Application as NSR analyses.

In this regard, the mechanics of the applicability provisions of PSD and NaNSR are such that if a project is "PSD major" for a pollutant, it would also be "NaNSR major" for the pollutant if NaNSR was applicable for that pollutant. However, the converse is not true because the applicability provisions of PSD and NaNSR are not identical. In particular, Illinois' NaNSR rules, 35 IAC Part 203, have not been revised to reflect NSR Reform and do not provide for Project Emissions Accounting.

[104] For example, 35 IAC 204.850, the so-called Source Obligation provision in Illinois' PSD rules, which have been SIP-approved by USEPA, provides:

> **At such time that a particular source or modification becomes a major stationary source or major modification by virtue of a relaxation in any enforceable limitation established after August 7, 1980, on the capacity of the source or modification otherwise to**

that a distinction exists between the determination of NSR applicability for a proposed increase in the permitted emissions of a project and the requirements of NSR that are actually addressed in the so-called source obligation provisions.[105]

Once it is recognized that the so-called source obligation provisions do not provide for a different approach for the NSR applicability analyses for certain relaxations of limitations, one realizes that such determinations are subject to the provisions of the NSR rules that generally apply for such determinations. This is evident as the introductory clauses of the so-called applicability provisions provide that "At such time (emphasis added) that a particular (emphasis added) source or modification becomes a major stationary source or major modification." As such, the provisions address how permitting of relaxation(s) of limitation(s) established for a source or project should be addressed when such relaxation(s) are requested. The provisions then go on to indicate those relaxation(s) should be addressed "…as though construction had not yet commenced (emphasis added) on the source or modification." A straightforward reading of this phrase would indicate that the provisions of NSR for a project for which a so-called source obligation provision becomes applicable should address the circumstances of the project as they would have been previously addressed with the relaxation(s) that are now being requested. This reading is buttressed as it is preceded by the phrase, "at such time …." In other words, requirements should not be applied as of the time that that the relaxations are made but as of an earlier time, "… as though construction had not yet commenced on the source of modification." With respect to applicability of NSR for a project, relaxations of emission limitations should not be addressed "prospectively" as broadly claimed by this comment.[106]

> **emit a pollutant, such as a restriction on hours of operation, then the requirements of Sections 204.810, 204.820, 204.830, 204.840, 204,850, 204.1100, 304.1110, 204.1120, 204.1130, 204.1140, 204.1200 and 204.1400 (emphasis added) shall apply to the source or modification as though construction had not yet commenced on the source or modification.**

[105] This is shown as this comment states that "Applicability analyses performed in order to determine whether the source obligation provisions apply (emphasis added) in conjunction with a requested relaxation are prospective, not retrospective."

[106] When examining the language of the source obligation provisions, it is also noteworthy that, when applicable, they actually provide that the

The Approach Put Forth in this Comment for NSR Applicability for Relaxation of Limitations Is Contrary to Sound Public Policy

An approach to relaxation of emission limitations that prohibits unrestricted "backsliding" is generally appropriate as a matter of public policy. It serves to prevent a source from benefiting as it would circumvent NSR solely by virtue of the relaxation of emission limitation(s) that have been established by the permitting authority and accepted by the source for a project so that it would not be a major project. For example, as a project would become a major project as a consequence of the relaxation of limitation(s), consideration should not be given in the determination of Best Available Control Technology (BACT) for the additional cost (economic impact) of retrofitting BACT technology for units given their current configuration. Any such retrofit costs that would now be posed by applicability of NSR due to a relaxation should not be considered as those costs would not have been present if the determination of BACT had originally been made and used for the project.[107]

The approach put forward in this comment to NSR applicability

---

"requirement of NSR" shall apply as though construction had not yet commenced. This comment presumes that the term "requirements of NSR" extends to the applicability provisions of NSR, rather than only encompassing the substantive provisions of NSR for a major project, such as BACT. In this regard, 35 IAC 204.850, makes clear that the requirements that are being addressed for a relaxation of limitations are the substantive provisions of PSD and not the applicability provisions of PSD. This is because it specifically identifies the provisions of 35 IAC Part 204 that would apply as if construction had not yet commenced. (The substantive "permit provisions" of 35 IAC Part 204 listed in 35 IAC 204.850 are: Sections 204.810, Source Information; 204.820, Source Obligation; 204.830, Permit Expiration; 204.840, Effect of Permits; 204.850, Relaxation of a Source-Specific Limitation; 204.1100, Control Technology Review; 204.1110, Source Impact Analysis; 204.1120, Air Quality Models; 204.1130, Air Quality Analysis; 204.1140, Additional Impact Analysis; 204.1200, Additional Requirements for Sources Impacting Federal Class I Areas; and 204.1400, Recordkeeping and Reporting Requirements for Certain Projects at Major Stationary Sources.) As such, the Source Obligation provisions should not be read to contradict the general principle that corrections to permits require that the permitting action in which the error was made be revisited.

[107] Likewise, in the air quality impact analysis for a project pursuant to the PSD rules, the impacts of the entire project with the requested relaxation should be addressed, not just the impacts of the increases in emissions from the relaxations. The impacts of a project for purposes of PSD should not be allowed to be understated simply due to a relaxation of the limitations previously established for the project.

analyses when permitted emissions of a project would increase is absurd. It would potentially allow a source to simply renounce or renege on commitments made in the previous permitting of a source or modification to avoid status as a major project. This is because it would allow the permitted emissions of a project to be increased with relaxation of limitations established for the project relying on emission decreases that were not originally part of a project and are outside of the contemporaneous period for the previous permitting of the project. As such, it would be contrary to the fundamental principle that, as NSR permitting is based on potential emissions, limitations that are established to restrict potential emissions cannot simply be relaxed without undergoing NSR if the relaxation would result in a project that was previously non-major becoming a major project.[108]

<u>The Approach Put Forth in this Comment for NSR Applicability for Relaxations Is Not Supported by Relevant USEPA Determinations</u>

The approach to the so-called source obligation provisions put forth by this comment is not consistent with USEPA's well-established practice in prohibiting circumvention and back-sliding as a result of relaxation of limitations established in permits. This is shown in a USEPA determination addressing back-sliding in the context of a proposed relaxation of limitations established for and accepted by Bombardier Motor Company of America to establish status as a non-major source. (A copy of this determination, "the Bombardier determination," is provided in this Responsiveness Summary as Appendix 1.1.[109]) This determination involved the change in nonattainment designation of an area from severe nonattainment for ozone under the former

---

[108] From this perspective, it should be apparent that USEPA adopted the so-called source obligation provisions in its NSR rules to appropriately address revisions of permits that would relax limitations and increase permitted emissions of projects absent any accompanying physical change or change in the method of operation, i.e., absent a new project. If USEPA had intended that such relaxations be addressed in the manner claimed by this comment, USEPA would not have needed to adopt these provisions.

[109] Copies of the Bombardier Determination, as well as two other USEPA determination referred to by the Illinois EPA in this Responsiveness summary, are included in this as appendices to this Responsiveness Summary. This was done to enable interested parties to readily review these USEPA determinations in their entirety and independently review the representations about these determinations made in US Steel's comments and the Illinois EPA's responses. In this regard, not all of these determinations are currently available on the USEPA's internet compendium of NSR documents, New Source Review Policy and Guidance Document Index.

National Ambient Air Quality Standard (NAAQS) on a 1-hour average (major source threshold of 25 tons of VOM per year) to moderate nonattainment under the NAAQS for ozone on an 8-hour average (major source threshold of 100 tons of VOM per year). USEPA found that the relaxation of the limitations established when the area was severe nonattainment to keep VOM emissions below 25 tons/year would trigger the substantive requirements of NaNSR as if construction of the source had not yet commenced. USEPA referred to the so-called source obligation provisions in the federal guidelines for state PSD programs, 40 CFR 51.165(a)(5)(ii). USEPA found the following:

> **Bombardier's 25 TPY emissions limit was a requirement in a minor NSR permit, and the limit was taken to avoid application of major NNA NSR [NaNSR]. Based on the language in the rule, the revocation of the 1-hour NAAQS should not allow relaxation of the permit limit without triggering major NSR.**
> **Bombardier Determination, Letter from Pamela Blakley, Chief, Air Permits Section, USEPA, Region 5, to Jeffrey Hanson, Permits and Stationary Source Modeling Section, Bureau of Air Management, Wisconsin Department of Natural Resources, September 22, 2005.**

The USEPA's approach to the so-called source obligation provisions is more fully explained in a determination for PSE & G Fossil LLC (the "PSE & G Determination). (A copy of the PSE & G Determination is included as Appendix 1.2 of this Responsiveness Summary.) In this determination, USEPA explains that the proposed relaxation of certain operating and limitations in the existing permits for the subject generating stations would necessitate two separate analyses to determine NSR applicability, i.e., one would be concurrent with the request for relaxation of limitations; the other would address the relaxation as though construction had not yet commenced on the modification.[110] This USEPA determination again shows that

---

[110] **In the PSE & G determination, USEPA explains that:**

> **In order to determine PSD applicability in this case, two specific, separate and independent tests must be performed: (1) the standard PSD applicability test pursuant to 40 CFR § 52.21(a)(2)(ii) to determine whether a significant net emissions increase under a physical change or change in the method of operation would occur; and (2) the 40 CFR 52.21 test which treats a modification "as though construction had not commenced on the source or modification." Each applicability test is to have its own baseline period**

the revised NSR applicability analysis accompanying the relaxation of the NOx emission limitations for certain units requested by the Application must revisit the original permitting of the Project.

The Approach Put Forth in this Comment for NSR Applicability for Relaxations Is Not Supported by the Pfizer Determination

The USEPA's determination for Pfizer Pharmaceutical, as cited by this comment (the "Pfizer Determination," which is included in this Responsiveness Summary as Appendix 1.3), did not involve corrections to permit limitations to address errors in the prior permitting of a project. As such, this determination is not illuminating as to the approach that should be taken for the revised NSR applicability analyses in the Application. It certainly does not support the position put forth in this comment.

Unlike the revisions to Permit 95010001 requested by the Application, the Pfizer Determination did not involve a situation where a non-major project would potentially become a major project due to the requested changes to established permit limitations. Rather, the Pfizer Determination, as specifically described in the determination, involved a potential change or

---

and contemporaneous period that will be different for each test. The general applicability review in accordance with the first citation above would subject a modification to PSD requirements in those cases where a physical change or a change in the method of operation would result in a significant emissions increase of a regulated pollutant.

…

The second test under 40 CFR § 52.21(r)(4) has not been done. While you acknowledge in your December 3rd letter that EPA verbally communicated to your consultant our position that the aforementioned PSD provisions would apply in this case, you have indicated that you disagree with this interpretation. … Regardless, EPA remains of the opinion that the (r)(4) provision applies in this case. This PSD provision does not discuss intent; it simply states that any relaxation of an established limit that would make the project "major" would at that point in time make PSD applicable. That is, the (r)(4) provision must be considered for the life of any project for which enforceable limits were established such that any subsequent request for a relaxation of the aforementioned limitations will necessitate their review within the originally-issued permits.

Letter, February 11, 2009, from Steven Riva, Permitting Section Air Programs Branch, USEPA, Region 2, to William Viola, Director Power Generation PJM, PSE&G Fossil LLC, Re: Request for PSD Applicability Determinations for the Burlington 12 and Kearny 12 Generating Stations.

relaxation in 2015 to an emission limitation for NOx established for a 1994 project in view of subsequent permitted construction projects since 1994 at the facility. The determination does not involve revisions to the established limitation in order to correct error(s) that occurred when that limitation was established. Indeed, nothing in this determination suggests that Pfizer requested that the subject limitation be raised because NOx emissions have been or may be higher than were allowed. USEPA considered whether the requested relaxation of the limitation would involve circumvention of PSD and found that "…Pfizer is not attempting to circumvent PSD applicability …."[111]

The Approach Put Forth in this Comment for NSR Applicability for

---

[111] The Pfizer Determination was made in 2015 for a pharmaceutical manufacturing facility located in Puerto Rico. As described in this determination, the permitting for the 1994 project, for which the relaxation of the emission limitation was requested, took place when the facility was a major source for PSD (potential emissions of both SO_2 and VOM more than 100 tons/year). When the 1994 project was permitted, the overall NOx emissions of the facility were limited to 56 tons/year. This served to restrict the net increase in NOx emissions from the project to 28.88 tons/year. As such, the net increase in NOx emissions from the project was limited to less than 40 tons/year, the NSR significant emission rate for NOx, so the project was not a PSD major modification.

As part of the permit for a subsequent, 2002 construction project, the facility's emissions of all NSR pollutants were each limited to below 100 tons/year so that the facility was no longer an NSR major source. Then, in 2015, in conjunction with another construction project, Pfizer also requested that the 56 tons/year permit limitation for NOx set for the 1994 project be replaced or subsumed by the overall limitation for the NOx emissions of the facility, 90 tons/year. USEPA found that this request was approvable, after specifically observing that Pfizer has stated that it had operated as a minor PSD source since 2002.

> **EPA's review of the information indicates that Pfizer is not attempting to circumvent PSD applicability [emphasis added] by requesting to increase the 1995 PSD non-applicability NOx PTE limit from 56 tons/year to 90 tons/year because the facility or the 1994 [sic] modification does not become a major stationary source or major modification solely by virtue of this NOx emission limit relaxation, In addition, the "synthetic minor" minor status has been maintained by Pfizer since 2002 and will continue to be maintained after the proposed modification, Furthermore, Pfizer is also not requesting any changes to its annual fuel and hours of operation restriction put in place pursuant to the 1995 non-applicability determination.**
>
> **Pfizer Determination, p. 2.**

Relaxation of Limitations Is Contrary to Statements by USEPA

Certain statements made by USEPA in a 1989 rulemaking on NSR are instructive as to the function of the so-called source obligation provisions. In this rulemaking, USEPA directly explains that these provisions require a source or modification that has been permitted as being non-major for NSR but is subsequently determined to be major because it cannot comply with limitations established in the non-major permit issued for the source or modification, must then be subject to major NSR permitting.[112]

---

[112] In its 1989 rulemaking on NSR, the USEPA addresses the so-called source obligation provisions in discussions concerning the "potential to emit" or potential emissions and the enforceability of limitations that restrict potential emissions. In this rulemaking, the USEPA concluded that it was appropriate to require that limitations that restrict the potential to emit be federally enforceable. While USEPA subsequently found that it is also acceptable for such limitations to be legally and practically enforceable by a state or local air pollution agency, this does not affect USEPA's conclusions with regard to enforceability of limitations and the so-called source obligation provisions. The USEPA also acknowledged that the so-called source obligation provisions could result in after-the-fact, retrospective review and NSR permitting for a new source or modification. In this regard, the USEPA made the following observations. While in certain places, these observations refer to "sources," the observations are equally applicable for modifications.

> **These same qualities of a federally enforceable permit make it much easier to determine if, at a later date, whether the terms or intent of the permit have been violated and, if so, what enforcement action is appropriate. There are three options available to EPA [USEPA] for when a federally enforceable State permit has been or will be violated.**
>
> **One option is simply to enforce under section 113 [of the Clean Air Act], the limitations in the permit which enable the source to avoid NSR in the first place, with the result that the source retains its minor status. This is appropriate where, despite the permit violations, it appears that the source intends to adhere to the emissions limitations in the future. However, EPA retains the right to enforce PSD or nonattainment NSR violation as well.**
>
> **The second option is to invoke the "source obligation" regulations, e.g., 40 CFR 52.21(r)(4), and treat the source as major requiring to obtain a PSD or nonattainment major source permit. This course is appropriate where the source, through a change in business plans, or <u>through belated realization that its original plans cannot accommodate the design or operational limitations reflected in its minor source permit</u> [emphasis added], can no longer adhere to the limitations in that permit, and so exceeds them. As discussed in the preamble to the 1980 regulations, this option is also appropriate where the source (after receipt of its minor source permit) notifies the permitting authority in advance of its changed plans or expectations and the need for a future relaxation of the limitations in its current permit, without actually violating those limitations before obtaining a major source permit (see 45 FR 52689). Under either set of**

The Approach Put Forth in this Comment for NSR Applicability for Relaxation of Limitations Is Not Actually Taken in the

---

circumstances, pursuant to the "source obligation" regulation, EPA treats the source "as though construction had not yet commenced" for purposes of PSD or nonattainment permitting purposes (emphasis added).

The EPA believes that the exceedance or relaxation of a minor source permit, and the subsequent obtaining of a major source permit through compliance with the "source obligation" regulation, may not routinely involve penalties or additional sanctions other than those provided in section 113 for any period in which the source actually exceeded the limitations in its minor source permit. The EPA today clarifies, though, that a third general enforcement option is necessary and available under the [Clean Air] Act and EPA's regulations in certain situations.

This third enforcement option is appropriate where EPA determine that a source obtained a permit containing limitations allowing it to escape preconstruction review as a major new source or major modification, not for the purpose of adhering to those limitations for an appreciable period of time in accordance with some legitimate business plan, but primarily with an intent to construct, and possibly begin operation of a major new source or major modification without first obtaining a PSD or nonattainment permit. In such circumstances, EPA enforces the "source obligation" regulations, as in option two above "as though had not yet commence." In keeping with the retrospective orientation of the "source obligation" regulations [emphasis added], however EPA looks to the beginning of actual construction on the new source or modification for additional enforcement action under sections 113 and 167 as well. …

… As a general matter, it is abundantly clear that Congress intended the NSR provisions in Parts C and D [of the Clean Air Act] to require preconstruction review of major new sources and modifications. See, *e.g.*, section 160(5), 165(e)(1) and (2), 110(a)(2)(I), 172(a)(1), 172(b)(6), and 173. The evident air quality planning and technology-forcing purposes of the [Clean Air] Act's NSR provisions make the reasons for Congress' choice of statutory framework equally obvious. It is much easier, both in technical and practical terms, to consider air quality impacts and pollution control requirements of a major new source of air pollution before it has been constructed and begun operation rather than after. Nevertheless, there is a need to accommodate sources which, for legitimate business reasons, have constructed and begun operation as minor sources, but later discover that they now do, or in the future will, emit air pollutants that will require them to be treated as major. In those circumstances, postconstruction review is unavoidable and the "source obligation" regulations in 40 CFR 52.21(r)(4) and elsewhere are designed to fulfill this need.

USEPA, 40 CFR Parts 51 and 52: Requirements for Preparation, Adoption and Submittal of Implementation Plans; Approval and Promulgation of Implementation Plans, Final Rule, June 28, 1989 (54 Federal Register 27274), p.27280.

Application

The approach taken in the revised NSR applicability analyses in the Application is not actually consistent with the approach to the so-called source obligation provisions argued for in this comment. This is because, contrary to what is claimed, the revised NSR applicability analyses in the Application do engage in "…mixing facts from different points in time." The baseline emissions in the revised applicability analyses are revised determinations of baseline emissions as US Steel now believes should have been originally determined for the Project. In this regard, the revised determinations of baseline emissions for certain pollutants reflect revised values for certain emission factors for which the original factors have been found to be erroneous. The revised determinations of baseline emissions also now account for emissions from burning coke oven gas in Project-affected units, which were not addressed originally. As such, in the Application, US Steel has addressed baseline emissions for the Project as if it were 1996 and construction on this Project had not been commenced.[113] However, future emissions with the Project are addressed beginning at a point in time over almost 20 years later, when there have been certain decreases in emissions from various actions.[114]

B2. The Application Shows That the Project Would Not Become a

---

[113] In this regard, if one accepts that the so-called source obligation provisions give guidance on how applicability of NSR should be addressed when revisions to limitations established for a Project are requested, the provisions act to preserve the time period that is to be used for the determination of baseline emissions. A source is not required to make an entirely new determination of baseline emissions that is representative of a time period that is contemporaneous with the request for relaxation(s) in limitation(s). And, indeed, in the Application, US Steel has not provided new determinations of baseline emissions that would be contemporaneous relative to the timing of the Application.

The situation would be different if, rather than requesting relaxation(s) of limitation(s) established for an existing project, a source is requesting a permit for a new project. In this regard, a new proposed project would involve something more than relaxation of the established limits, such as proposed physical changes to emission units that would increase their operational capacity, with accompanied potential increases in emissions. Appropriate determination(s) of baseline emissions would be required for the new project, with such determinations being representative of actual emissions in the time period before the proposed project, as required by the then applicable NSR rules.

[114] Neither this comment or other comments submitted by US Steel address, much less provide support for, the disjointed or asynchronous approach to the revised NSR applicability analyses actually provided in the Application.

Major Modification with the Requested Increases in NOx Emissions

The Revised NOx emissions increase calculations in the Application fully conform to and satisfy the source obligation provisions of the PSD and NaNSR rules. US Steel's prospective calculation of potential NOx emissions from the certain fuel combustion units affected by the Project includes zero emissions from Boilers 1 through 10, which accurately represents the future potential to emit of those boilers because they no longer exist; does not include the greater NOx emission rates of Boilers 11 and 12 prior to the required retrofit of flue gas recirculation in those boilers; and includes zero emissions from combustion of coke oven gas (COG) as fuel, which accurately represents the future emissions of units that previously burned COG because COG is no longer an available fuel at the facility. As discussed further in comments below, if the Illinois EPA were to revise Permit 95010001 with the requested relaxations and other changes to the limitations in the permit currently in effect, the Project will not become a major modification solely due to those relaxations.

In this comment, US Steel confirms that the revised netting analysis in the Application for NOx, PM, PM_{10}, and VOM are not proper because, as they address emissions with the Project, are "prospective" in nature. That is, the calculations in the Application for the net increase in emissions from the Project address the future potential emissions of the Project-affected units but not the potential emissions of the Project with the requested increases in the permitted NOx emissions of certain units. In this regard, as specifically confirmed by this comment, the revised netting analysis would rely on certain decreases in emissions as identified in this comment that were not contemporaneous with the Project and, indeed, did not occur until long after the Project was completed and US Steel took ownership of the Granite City Works. Then, the Illinois EPA's review of relevant data found that, absent these decreases in NOx emissions due to the listed actions, the Project could be a major modification for NOx with the increases in NOx emissions of the BOFs that are requested to correct errors in the original permitting of the Project as are still reflected in the current permit for the Project.[115]

[115] Incidentally, the comment also incorrectly states that for NOx emissions with the Project, the revised NSR applicability analysis "… includes zero

C. NOx Emissions Associated with a Facility Configuration No Longer Authorized or Under a Counterfactual Hypothetical Are Immaterial to the "Source Obligation" Demonstration

Contrary to the plain language of the source obligation provisions, Illinois EPA suggests that the revised NOx netting analysis for NOx provided in the Application is deficient because it reflects the prospective reality for the Project-affected fuel combustion units at the facility, not any counterfactual hypothetical. The Illinois EPA theorizes that "Accordingly, in 1996, the NOx emissions of fuel burning units allowed by Permit 95010001 must necessarily be more than the baseline emissions…" and that, "…the future NOx emissions of the fuel burning units for purposes of any revised netting analysis should be expected to be substantially greater than their baseline emissions." (Denial Letter, Attachment 1, Footnote 11, p. 6)[116] For purposes of the source obligation analysis, this is plainly untrue, as the total baseline NOx emissions of these units are 956 tons per year and the total maximum future emissions are 706 tons per year. The Draft Denial Letter does not identify any provision of the Act or the Illinois Administrative Code requiring an applicant to anticipate, address, or refute the unsupported expectations of the Illinois EPA as part of the construction permit review process.

---

emissions from combustion of coke oven gas [COG] as fuel, which accurately represent the emissions of units that previously burned coke oven gas (emphasis added)." However, Project-affected units that were burning COG, e.g., the blast furnace stoves, were not shutdown when COG ceased to be available. Rather, they continued to operate with their other fuels, e.g., blast furnace gas and natural gas, and continued to emit NOx. In addition, the principal way to make up for the inability to use COG in these units would have been to use natural gas, increasing the usage of natural gas.

[116] See, also, Attachment 1 at pp. 5 and 11, suggesting that the revised NSR applicability analysis for NOx should include "future NOX emissions" greater than zero from Boilers 1 through 10; at p. 5, suggesting that the revised applicability analysis should include greater NOx emission rates from Boilers 11 and 12 based on the configuration of those boilers as they existed at the time the Project was implemented; at p. 5, suggesting that the revised applicability analysis should include greater NOx emission rates from Boilers 11 and 12 and from the blast furnace stoves based on the use of coke oven gas as fuel in those units. Each of these suggestions is demonstrably inconsistent with the current and future operation of the Granite City Works and is not properly considered in the source obligation analysis. (Footnote 20 of US Steel's Comments of January 2024.)

As already explained, the so-called source obligation provisions do not provide what this comment claims with regard to the revised NSR applicability analysis that must accompany US Steel's requests for relaxation of established permit limitations, i.e., that these provisions provide that such analysis must be prospective or forward looking rather revisit the prior NSR applicability analysis that led to the imposition of the limitations for which revisions are requested. US Steel's comments have not identified any language, much less "plain language," in the source obligation provisions that specifies that the NSR applicability analyses accompanying requested relaxations of established limitations are to be prospective in nature in circumstances when the source or modification becomes major solely by virtue of the requested relaxations.[117, 118]

---

[117] As already discussed, the Application does not indicate that the increases in the NOx emissions of the blast furnace casthouse and the BOFs that are requested are due to further physical changes or changes in the method of operation of these units, i.e., modifications as defined by the NSR rules of these units separate from changes that were originally part of the Project. In addition, the revised NSR applicability analysis for NOx in the Application addresses applicability of NSR for the Project, not applicability of NSR for certain subsequent physical changes or changes in the method of operation of these units.

[118] An important aspect of the so-called source obligation provisions, which is not directly confronted in US Steel's comments, is that, as written, these provisions only apply to circumstances in which a source or modification becomes major solely due to the relaxation of limitations that previously served to constrain the source or modification so that it would not be major for purposes of NSR. These provisions arguably do not apply where the emissions of a source or modification would increase due to a "new project," that is, a new physical change or change in the method of operation that qualifies as a modification under the NSR rules. In those circumstances, the applicability of major NSR to the changes to a source is to be addressed as generally provided by the NSR rules. That is, the applicability of NSR is to be determined considering the increases in emissions from the new project and, if proposed by the source, the net increases in emissions for the new project. The contemporaneous period for the permitting of the new project is related to the timing of the new project. If the new project is determined to be a major new source* or a major modification, the substantive requirements of NSR, as applicable, are addressed concurrently with the permitting of the new project. The substantive requirements of NSR are not addressed retroactively, as provided by the source obligation provisions. That is, these requirements are not addressed as if construction had not yet begun on the earlier project for which limitations had been set so that such source or modification would not be major.

The so-called source obligation provisions are applicable only where the relaxation in established emission limitations and the request for increases in permitted emission occur independent of new physical changes or changes in the method of operation, i.e., absent a new or separate project. In such circumstances, there is not a new project that governs the timing of the

The claim that the Illinois EPA has improperly posed "a counterfactual hypothetical" is also clearly erroneous.[119] In this regard, this comment acknowledges that for the ten boilers that were originally part of the Project but are now shutdown, "U.S. Steel's prospective calculation of potential NOx emissions includes zero emissions of Boiler 1 through 10…, does not include the greater NOx emissions of Boilers 11 and 12 prior to the required retrofit of flue gas recirculation in those boilers; and includes zero emissions from combustion of coke oven gas…."[120] As such, the concern expressed in the Draft Denial Letters with

---

contemporaneous period and whether contemporaneous emissions increases and decreases are creditable for the purposes of NSR applicability. The revised analysis of applicability of NSR with the requested relaxation of limitations and increases in emissions is still governed by the contemporaneous period and what would have been creditable for the original project. Then, if the subject project becomes major with the requested relaxations of limitations, the source obligation provisions provide that the substantive requirements of NSR apply as if construction of the original project had not yet commenced. Thus, the source obligation provisions impose appropriate consequences if a source or modification would become a major source or major modification due to the relaxation of enforceable limitations that served to avoid applicability of major NSR. The substantive requirements of NSR must be addressed as if construction had not yet been commenced.

*** Note that the NSR rules provide that for a source that is not a major source, a physical change that would occur at the source that would constitute a major source, by itself, is also considered a major source. (For example, refer to 35 IAC 203.206(c).) The provisions of the NSR rules that set forth what is a major modification are not applicable to a source that is not a major source.**

[119] For this purpose, it is assumed that the term "counterfactual" is used in this comment with its standard meaning to indicate that the Illinois EPA was addressing something that did not happen but could have happened or something contrary to fact. As such, it is unclear what was intended by the use of the term "counterfactual hypothetical," since the term "hypothetical" describes a premise that has not been proven to be true, at least at the time that such premise is being discussed or contemplated.

Then, in light of these meanings for these terms, the comment proceeds to suggest that it is improper for the Illinois EPA in the review of permit applications to consider "counterfactual hypotheticals." However, consideration of "counterfactual hypotheticals" is inherent in the review of permit applications, especially as construction permit applications address proposed emission units and control devices, proposed projects, proposed revisions to issued permits, or proposed increases in permitted emissions. The obligation of sources to address "counterfactual" circumstances or "hypotheticals" is set forth by Section 9 of the Act since, to obtain a permit, an applicant must submit an application that provides proof that applicable statutory and regulatory requirements will not be violated.

[120] Incidentally, the comment also incorrectly states that for the NOx emissions with the Project, the revised NSR applicability analysis "… includes zero emissions from combustion of coke oven gas as fuel, which accurately represent

respect to improper reliance on certain past decreases in NOx emissions does not even involve a counterfactual hypothetical as claimed by this comment.

Finally, the Illinois EPA does not dispute that Boilers 1 through 10 cannot resume operation, Boilers 11 and 12 must comply with 35 IAC 217.164, and the by-product coke oven batteries that have been shutdown cannot be returned to service.[121] However, Permit 95010001 did not require the shutdown of these units and, as such, provided for or authorized their continued operation. The shutdown of Boilers 1 through 10 was required much later, by Permit 06070023, originally issued in January 2008.[122] This permit authorized construction of a new cogeneration boiler at the facility. Condition 2.6(a) of this permit required Boilers 1 through 10 to be permanently shut down following the shakedown of this new boiler. (US Steel now refers to this boiler, which was constructed, as Power Boiler 1.) The installation of flue gas recirculation (FGR) systems on Boilers 11 and 12 was stimulated by the adoption 35 IAC 217.150 and 217.164 in August 2009. Compliance with the new emission standards was required to begin January 1, 2015. Finally, the shutdown of the two byproduct recovery coke oven batteries became enforceable after 2015 because US Steel had not applied for and has not been issued the construction permit that would be needed to rebuild these batteries and return them to service. As such, these actions and associated decreases in NOx emissions were not enforceable in 1996, when Permit 95010001 was originally issued. As such, these emission decreases are not creditable for purposes of emissions netting. This is because the relevant provisions for netting provide that for an emission decrease to be creditable for netting, the decrease must be enforceable at the time construction begins on the project for which

---

the emissions of units that previously burned coke oven gas (emphasis added)." However, Project-affected units that previously burned COG, e.g., the blast furnace stoves, were not shutdown when COG ceased to be available. Rather, they continued to operate with the other fuels, e.g., blast furnace gas and natural gas, and continued to emit NOx.

[121] As related to these coke oven batteries, it would have been better if US Steel had requested that the CAAPP permit for the facility be amended and reissued so as to no longer address these batteries and the associated byproduct recovery plant.

[122] The planned shutdown of Boilers 1 through 10 was acknowledged earlier in a construction permit that addressed certain emission reduction projects at the Granite City Works, Permit 06070022, initially issued in January 2007. Condition 1(c) of that permit indicates that, "This permit also acknowledges the planned permanent shutdown of Boilers 1-10, which would accompany construction of a new cogeneration facility." The applications for Permit 06070022 and Permit 06070023 for the new cogeneration facility were submitted on the same day in July 2006.

the net emissions increase is being evaluated. For example, 35 IAC 204.550(e) and (e)(2) provide that, "A decrease in emissions is only creditable to the extent that: … It is enforceable as a practical matter at and after the time that actual construction on the particular change begins …."

In summary, this comment does nothing to address the fundamental difference in the positions of the Illinois EPA and US Steel with respect to how applicability of NSR for NOx should be addressed for the requested increases in the NOx emissions of the casthouse and BOFs. This comment certainly does not show that denial of the revised permit requested by the Application is inappropriate because there have been decreases in NOx emissions as a result of the shutdown of certain units that have taken place since the initial issuance of Permit 95010001 was National Steel commenced operation under Permit 95010001.

D. Project Emissions Increases and Net Emissions Increases

D1. The Illinois EPA's Review Relies on Calculations for NOx Emissions That Are Inconsistent with Requirements of the NSR Rules

The Illinois EPA's proposed denial of the revised permit requested by the Application is erroneous because, to the extent that Illinois EPA's review of the revised NSR applicability analysis for NOx in the Application relies on separate calculations of increases and decreases based on specific fuels and changes in fuels, the Illinois EPA's calculations are inconsistent with PSD and NaNSR rule requirements. The major modification applicability test requires a comparison of the pre-project actual emissions of the emissions unit or group of units with the post-project actual emissions (or potential to emit) of that emissions unit or group of units.[123] The definitions of net emissions increase do not provide for a calculation that considers only some portions of the units' emissions. For the certain fuel combustion units affected by the Project, the change in actual NOX emissions is properly calculated as the total post-project actual NOX emissions, regardless of the fuel or fuels being burned to generate those emissions, minus the total pre-project actual NOX emissions, regardless of the fuel or fuels that were burned to generate those emissions. This is the basis for the values shown in Table 6-8 of the Application.

[123] By definition, the net emissions increase from a project is the sum of two values: The increase in actual emissions from the project and "Any other increases and decreases in actual emissions at the source that are contemporaneous with the particular change and are otherwise creditable." 40 CFR 52.21(b)(3)(i).

This comment does not show that the Illinois EPA's review of the revised NSR applicability analysis for NOx in the Application is flawed. Indeed, the comment is ridiculous. The NSR rules specify that applicability of NSR is determined comparing two values for emissions, the baseline emissions or emissions before a project before a project and the emissions with the project [124] However, the NSR rules do not specify that these values for emissions of a project-affected unit or units must be calculated in a particular was as claimed by this comment.[125] Moreover, continuous emission monitoring is not conducted for the various Project-affected fuel burning units for the amount or mass of NOx emitted. Accordingly, it is not possible to directly determine the overall emissions of these units from monitoring data. Most of the Project-affected fuel burning units burn more than one fuel, i.e., blast furnace gas (BFG) and natural gas, and, in some cases, at least in 1996, COG. The different heat content and composition of these fuels mean that their NOx emission rates in pounds/million Btu or pounds/million cubic foot (cf) of fuel burned are not identical. Thus, it is both reasonable and appropriate that the NOx emissions of individual units or groups of similar units be separately determined for each fuel with the overall emissions of each unit or group of similar units calculated as the sum of the contribution of the NOx emissions of each fuel to the overall emissions. Indeed, this is exactly what is done in the Application as it proposes corrections to the pre-project or baseline NOx emissions of Project-affected fuel burning units in Table 6-5 and in Appendix B – Emission Calculations, USS Granite City – 1996 Production Increase Project; Revised NOx PSD

---

[124] Indeed, the definition for "net emissions increase," which is referred to by this comment, as well as other relevant provisions of the NSR rules addressing the net emissions, i.e., 35 IAC 203,208 and 35 IAC 204.550, do not even address the emissions of individual units or groups of emission units. Instead, they address the emissions of a "source," which, as defined in part by 40 CFR 52.21(b)(5) and (6) and 35 IAC 204.690 and 204.290, is a collection of pollutant emitting activities, i.e., a collection of emission units.

[125] the NSR rules do not specify, for example, for different types of emission units and circumstances when addressing applicability of NSR whether emissions are to be calculated based on emissions factors derived from unit-specific testing, emissions factors derived from representative emission testing of similar units, emission factors published by USEPA, emission factors developed by organization s other than USEPA, emissions factors developed from engineering calculations that account for the reduction in emissions that will be provided by the control measures that will be installed on units, or material balance calculation based on analysis of the pollutant content of the fuel, coatings or other raw materials. The NSR rules also do not specify how emissions are to be calculated for emissions units that have more than one mode of operation or several point of emissions.

Net Emissions Increase Analysis.[126]

D2. The Illinois EPA's Review Improperly Determined That Certain Emission Decreases Are Neither Contemporaneous Nor Creditable

As set forth in the Revised Draft Denial Letter, Attachment 1, Denial Point 1, page 4, the Illinois EPA proposes to deny the revised permit requested by the Application, at least in part, because Illinois EPA preliminarily determined that "additional decreases in NOx emissions that would now be proposed to be relied upon" by US Steel are not contemporaneous and otherwise creditable. These decreases occurred at certain fuel burning units affected by the Project. Emissions changes at these emissions units must be included in the calculation of the emissions increase that will occur as a result of the Project, under the first element in the definitions of the term "net emissions increase."[127] Therefore, it was proper to include the emissions changes involv2ing Project-affected fuel burning units in the updated calculation of the NOx emissions increase from the project, -10.7 tons per year, as shown in Tables 6-8 and 6-9 of the Application. (For convenience, copies of these tables are provided below.)

Table 6-8 of the Application:

NOX Project Emissions Increase Analysis

[126] For Project-affected fuel burning units, the Application uses NOx emission factors, in pounds/million cubic feet (cf) of fuel, of 5.28 for BFG, 306.0 for natural gas,* 80 for COG burned in blast furnace stoves and 404 for COG burned in Boilers 11 and 12. The NOx emissions calculated from burning each fuel in these units are then added together to provide overall values for the pre-project NOx emissions of the Project-affected fuel burning units. (Emissions of NOx from use of natural gas in continuous casting are not addressed.) (Refer to the Application, at p. 6-5, Table 6-5. Pre-project Actual Emissions and Summary of Proposed Changes to Pre-Project NOx Emissions Factor for Affected Emissions Units, and at Appendix B – Emission Calculations, USS Granite City – 1996 Production Increase Project; Revised NOx PSD Net Emissions Increase Analysis.)
*** For natural gas, a single emission factor, 306.0 pounds/million cf, is used for the blast furnace stoves, the boilers, the ladle dryer-preheater, the BFG flares, and, presumably, the continuous casting molds.**

[127] Contrast this with the emissions changes at the blooming mill and galvanizing line shown in Table 6-9. Because those units were not affected by the Project, decreases in emissions at these units are among the contemporaneous changes that are considered under the second element in the definitions of net emissions increases. [Footnote 22 in US Steel's comments of January 2024.]

	NOX Pre-Project Actual Emissions (TPY)	Proposed Revised NOX Emissions Caps (TPY)	NOX Change (TPY)
Blast Furnace Operations	4.6	24.0	19.4
BOF Shop	179.8	400.0	220.2
Continuous Casting Operations	0.0	0.0	0.0
Certain Fuel Burning Units	956.3	706.0	-250.3
Total	1140.7	1130	-10.7

Table 6-9 of the Application:

Updated Net Emissions Increases for NOx for the 1996 Project

		NOx
Start of Contemporaneous Period		Jan 1990
End of Contemporaneous Period		Jan 1996
Project Emissions Increases		239.6
Significant Emission Rates		40
Whether Significant?		Yes
Project Emissions Changes (includes decreases at the fuel combustion units)		-10.7
Contemporaneous Emissions Increases	Date	
Installation of #8 Galvanizing Line	Mar-1996	n/a
Contemporaneous Emissions Decreases		
Blooming Mill Shutdown	Apr-1991	-217.8
Batch Annealing Shutdown	Dec-1991	-8.7
Net Emissions Increase		**-237.3**
Whether Significant?		No

This comment does not show that the Illinois EPA's proposed denial of the revised permit requested by the Application would be erroneous. This comment simply reflects US Steel's position with respect to the revised NSR applicability analysis for NOx with the requested increases in the permitted NOx emissions of certain units. That is, US Steel's position that the revised NSR applicability analysis should be prospective and should not revisit the NSR applicability analysis for the Project that originally led to such limitations being established. This comment cloaks US Steel's position under the guise of a definition of "net emissions increase," summarily claiming that the subsequent, "post-project" decreases in NOx emissions at certain Project-affected fuel burning units should be considered as part of the changes in emissions from the Project, rather than resulting from other "Non-project" actions. The only support provided for this claim is that these emissions decreases occurred at fuel burning emission units that

were Project-affected fuel burning units for the purpose of the original permitting of the Project. This is wholly inadequate to support treating these actions that reduced or eliminated the NOx emissions of the affected fuel-burning units as part of the Project.

It should be apparent by inspection that these actions are not part of the Project. They were not contemplated in 1996 and were not addressed by, much less required by, Permit 95010001 as issued in 1996. (They have never been addressed in Permit 95010001.) The first of these actions, the shutdown of Boilers 1 through 10, occurred more than ten years after operation of the Granite City Works began with the Project. The shutdown of these ten boilers was required by Permit 06070023, the construction permit issued for the construction of the new cogeneration boiler at the Granite City Works. As a general matter, the NSR programs do not require, as implied by this comment, that all projects that occur at an emission unit be aggregated together so as to be treated as a single project for purposes of NSR. The NSR programs also recognize that discrete projects that are separate can occur at unit(s).[128]

This comment also ignores the presence of the word "project" in the provisions of the NSR rules addressing "net emissions increases." The definitions of "project" and USEPA's determinations that involve the meaning of this term clearly indicate that when addressing the increase in emissions from a project for purposes of NSR, "post-project" emission decreases are not part of a project. In this regard, 40 CFR 52.21(b)(52) and 35 IAC 204.590 simply provide that "'Project' means a physical change or the change in method of operation of a source." They do not indicate that all changes at an emission unit constitute a project simply because they occur at the same unit. USEPA's policy on the meaning of the term "project" mainly focuses on whether changes that are treated by the owner or operator of a source as nominally separate projects, and not as a single modification, should appropriately be aggregated and considered a single project for purpose of applicability of NSR. While this is the converse of the issue presented by the Application, USEPA policy on when changes should be aggregated are also instructive as to when changes should not be aggregated. In this regard, USEPA has concluded that changes should be aggregated when they are substantially related, with consideration given to both technical and economic relationships that exist among the

[128] For example, refer to a memorandum concerning interpretations of the *de minimis* provisions of the PSD rules. (Memorandum, from Sheldon Meyers, Director of Office of Air Quality Planning and Standards, USEPA, to David Howekamp, Director, Air Management Division – Region IX, USEPA, Subject: Net Emission Increase Under PSD, undated (circa May 1983).)

various changes. USEPA has also found the timing of separate activities cannot, by itself, be used to determine whether they are substantially related. However, USEPA has also recognized that timing can be a simpler way, at least initially, to assess whether nominally separate changes are substantially related. The USEPA also broadly rejected the argument that as nominally separate changes at a facility all contribute to the basic business purpose and economic vitality of the facility, changes should be aggregated. The USEPA found that this overarching relationship between all projects at a source is not sufficient basis to aggregate projects for purposes of applicability of

NSR.[129, 130]

---

[129] **At this time, USEPA's official policy on "aggregation" for purpose of NSR, as reflected in this response, is its "2009 Aggregation Policy," as published in the Federal Register. (USEPA, 40 CFR Parts 51 and 52: Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NSR): Aggregation and Project Netting, Final Rule (74 Federal Register 2376, January 15, 2009).**

USEPA affirmed the appropriateness of its "2009 Aggregation Policy" in 2018, upon concluding reconsideration of this policy. In its 2018 action, USEPA reinstated the 2009 Aggregation Policy, effective beginning November 15, 2018, lifting the stays on this policy. (USEPA, 40 CFR Parts 51 and 52: Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NNSR): Aggregation; Reconsideration, Final Action (83 Federal Register 57324, November 15, 2018).

The USEPA's 2018 notice for the conclusion of reconsideration of the 2009 Aggregation Policy also provides insight on the meaning of the term "project" for purposes of NSR as it summarizes the 2009 aggregation policy and discusses USEPA's rationale for affirming this policy. As particularly relevant to the review of the Application, in this 2018 notice, USEPA touched on the issue posed by the revised NSR applicability analysis for NOx presented by the Application. USEPA notes that it was mindful that, as well as inappropriately treating changes as separate projects, permit applicants could propose to improperly aggregate separate projects in an attempt to circumvent NSR. Accordingly, USEPA's 2009 Aggregation Policy is appropriately applied to address both aggregation and "disaggregation" for purposes of applicability of both PSD and NaNSR. In this regard, USEPA states the following in its 2018 notice:

> **To date, the EPA's [USEPA's] focus in formulating criteria for project aggregation has been to ensure that NSR is not circumvented through some artificial separation of activities as Step 1 of the NSR applicability analysis [the evaluation of the increase in emissions of the project] where it would be unreasonable for the source to consider them to be separate projects. However, in a March 13, 2018 memorandum[Footnote]8 on the topic of "project emissions accounting," the EPA broached the question of whether it might also somehow be possible for a source to circumvent NSR through some wholly artificial grouping of activities to include decreases in Step 1 of the NSR applicability analysis – i.e., assessing whether a project by itself results in a significant emissions increase before reaching Step 2, where one then determines whether there will be a significant net emissions increase by taking into account all contemporaneous increase and decreases across the source. While we [EPA] have been mindful of this question in deciding to employ the criteria described in this action, we intend to more fully [address] this scenario in the context of a subsequent rulemaking on the topic of project emission accounting.**
>
> **[Footnote] 8. Memorandum from E. Scott Pruitt, Administrator, titled, "Project Emissions Accounting Under the New Sources Review Preconstruction Permitting Program" (March 13, 2018)(hereinafter "Project Emissions Accounting Memorandum").**
>
> **83 Federal Register 57324 (November 15, 2018), p. 57326.**

Applying this guidance, it is readily apparent that the post-project activities and associated decreases in NOx emissions that have occurred at the Project-affected fuel burning units should not be considered part of the Project. These decreases were not the result of actions that were taken at the Granite City Works to achieve the increases in production of iron and steel authorized by Permit 95010001. Rather, these post-project activities involve actions taken by US Steel to benefit from co-generation of steam and electricity, to comply with newly adopted emission standards, and to streamline the facility by shutting down old by-product recovery coke oven batteries. The timing of these post-project decreases is well beyond the presumption adopted by USEPA that projects that are separated by more than three years should not be aggregated, absent rebuttal due to the substantial technical and economic relationships that are present.

Considering all the above, it should be apparent that Tables 6-8 and 6-9 from the Application, for which this comment includes copies, do not reflect an appropriate revised NSR applicability analysis for NOx for the Project. This is because the post-project decreases in NOx emissions, which are at issue, are not explicitly addressed, nor are they addressed elsewhere in the Application. In this regard, Table 6-9 does correctly show that the contemporaneous period for the Project for netting ended in January 1996. However, Table 6-8, which evaluates the increase in NOx emissions from the Project, considers and accounts for

---

[130] In its 2020 rulemaking on the subject of "Project Emissions Accounting," the USEPA also specifically recognized the role of the 2009 Aggregation Policy for applicability of NSR. In this rulemaking, USEPA specifically found that the 2009 Aggregation Policy also provided appropriate guidance for "disaggregation" of projects for purposes of Project Emissions Accounting, as follows. (Note that this rulemaking is not directly applicable to Illinois' NSR rules as only federal NSR rules (i.e., 40 CFR 51.165. 51.166 and 52.21) were revised.)

> **… while not previously contemplated by our [USEPA's] project aggregation policy, the EPA [USEPA] has concluded after review of the comments received in this proposal for action [[Project Emissions Accounting] that the "substantially related test from our 2018 final action on project aggregation interpretation and policy provides the appropriate basis for source to determine the scope of a project in Step 1 of the NSR applicability analysis. We believe that applying the 2018 final action of project aggregation interpretation and policy in this context alleviates concerns about potential NSR circumvention in Step 1 of the NSR modification applicability test.**
>
> **USEPA, 40 CFR Parts 51 and 52: Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NNSR): Project Emissions Accounting, Final Rule (85 Federal Register 74890, November 24, 2020), p. 74900.**

decreases in NOx emissions that are reflected in the "proposed revised NOx emissions caps" now proposed by the Application, 706 tons/year.[131] Thus, Table 6-8 does not actually address the increase in NOx emissions from the Project, i.e., the increase in emissions from the particular physical change or change in the method of operation for which the net increase in emissions to be evaluated.

As a counter to this comment, as it includes copies of two tables from the Application that provide revised NSR applicability analysis for NOx for the Project in the Application, the Illinois EPA has prepared several tables that, building upon the information for emissions provided in US Steel's analysis, depicting how this analysis would appropriately be viewed. The counter analysis, "Attachment A: "The Proper Approach, As Prepared by the Illinois EPA, to the Increase and Net Increase in the NOx Emissions of the Project with the Requested Revisions to Permit 95010001," is in Section 9 of this Responsiveness Summary. Attachment A includes three tables EPA that illustrate how the increase and net increase in NOx emissions from the Project with the requested increases in the NOx emissions of the casthouse and the BOFs would properly be addressed. They highlight the difference in how the Application approaches the revised NSR applicability analysis for NOx for the Project and how applicability of NOx should be addressed purposes of NSR. These tables depict why the Project would become a major NSR modification for NOx with the increases that the Application seeks in the permitted NOx emissions for these units. In this regard, this attachment relies on estimates for the increase in NOx emissions from the Project-affected fuel burning units with the Project that the Application does not address. These estimates for the Project-related emissions increase from these units, which are not addressed by the Application, range from about 160 to 235 tons/year. As such, the net increase in the NOx emissions from the Project almost certainly becomes more than the NSR significant emissions rate for NOx, 40 tons/year, with the requested revisions to Permit 95010001 to increase the permitted NOx emissions of the casthouse and the BOFs by more than 200 tons/year.[132]

---

[131] It should not be overlooked that, as addressed in the Illinois EPA's response to Comment 1, Footnote 4, the Illinois EPA has not accepted the revised values in the Application for the NOx emissions of the Project-affected fuel burning units, e.g., the revised baseline NOx emissions of 956.3. This is because of concerns about the basis of the new calculations for NOx emissions, as are addressed by Denial Points 2 and 3A in the Revised Draft Denial Letter.
[132] This is as should be expected. Permit 95010001 was initially issued based on a 38.1 tons/year net increase in NOx emissions from the Project (Permit 95010001, issued January 25, 1996, Condition 41(a)). The Application requests that Permit 95010001 be revised to increase the permitted NOx emissions of the

D3. Even Omitting the Dispute Decreases in NOx Emissions from the Revised NSR Applicability Analysis for NOx. The Project Would Not Become Major

Even if the contribution of certain Project-affected fuel burning units was properly considered as among the other decreases under the second element of the provisions of NSR dealing with net emissions increases, rather than being considered with the emissions increase from the Project under the first element of these provisions, the contribution of the Project-affected fuel burning units need not be relied upon for the non-applicability determination for NOx in the application. The net NOx emissions increase from the Project as presented in Table 6-9 of the Application is -237.3 tons/year; even if the decrease of 250.3 tons/year as calculated by Illinois EPA is omitted from the analysis, the net emissions increase is 13.1 tons/year (-237.3 + 250.3 = 13.1). This is less than 40 tons/year, the NSR significant emission rate for NOx. significant level, so demonstrates that the Project would not become a major modification solely by virtue of the relaxations requested by US Steel. This alternative approach to the NSR applicability for NOx is presented below in Alternative Tables 6-8 and Alternative Table 6-9.

Alternative Table 6-8. NOx Project Emissions Increase Analysis (TPY)

	NOx Pre-Project Actual Emissions	Proposed Revised NOx Emissions Caps	NOx Change
Blast Furnace Operations	4.6	24.0	19.4
BOF Shop	179.8	400.0	220.2
Continuous Casting Operations	0.0	0.0	0.0
Certain Fuel Burning Units	956.3	706.0	0.0*
Total	1140.7	1130	239.6*

* For the revised NSR applicability analysis for NOx, this Alternative Table 6-8 presents an alternative approach to the evaluation of the increase in NOx emissions from the project by itself. In this alternative approach, a decrease in NOx emissions from the fuel burning units, 250.3 tons/year, is not counted. This is because it is considered to not be a creditable or contemporaneous decrease.

blast furnace casthouse and the BOFs by more than 200 tons/year. The Application does not identify errors in the original permitting of the Project that would lower the Project emissions in an amount that would compensate for this requested increase.

Alternative Table 6-9. Updated Net Emissions Increases for NOx for the 1996 Project (NOx Emissions in tons/year)

Project NOx Emissions Increase		
Project Emissions Change (excludes decrease at the fuel burning units)		239.6*
Significant Emission Rate for NOx		40
Is the Project Emissions Increase Significant?		Yes
Contemporaneous NOx Emissions Increases and Decreases (Contemporaneous time period January 1990 through January 1996)		
Contemporaneous Increases	Date	
None		
Contemporaneous Decreases		
Blooming Mill Shutdown	Apr-1991	-217.8
Batch Annealing Shutdown	Dec-1991	-8.7
Total		-226.5
Net NOx Emissions Increase		
Project Increase		239.6
Contemporaneous Increases and Decreases		-226.5
Net Change		13.1
Is the Net Change Significant?		No

* For the revised NSR applicability analysis for NOx, this Alternative Table 6-9 presents an alternative approach to the evaluation of the net increase in emissions from the project. In this alternative evaluation, the NOx emissions decrease of 250.3 TPY from fuel combustion units is not counted because it is considered not to be creditable or contemporaneous.

The “alternative approach” to the revised NSR applicability analysis for the Project for NOx presented and discussed in this comment does not demonstrate that the Project would not be a major modification for NOx with the requested increases in the permitted NOx emissions of the casthouse and the BOFs. This comment does nothing to advance US Steel’s position with respect to how applicability of NSR for the Project for NOx should be addressed for the requested increases in the NOx emissions of the casthouse and the BOFs. Rather, this comment again simply reflects US Steel’s position that, when evaluating the change in emissions of the Project with the requested revisions to Permit 95010001 to increase the permitted NOx emissions of the casthouse and BOFs, the revised NSR applicability analysis should be prospective, addressing the future emissions of the Project after considering certain decreases in NOx emissions that have occurred since 1996 and the present.

In effect, contrary to relevant provisions of the NSR programs, this comment again claims that the revised NSR applicability analysis for the Project should overlook the fact that the Project was originally permitted for a substantial increase in the NOx emissions of Project-affected fuel burning units.[133, 134] While in Alternative Table 6-8, the increase in the NOx emissions from these fuel burning units is zero (rather being a decrease as in Table 6-8 in the Application), this assumption is still not proper. In the alternative analysis, this flawed assumption again acts to free up or "repossess" the original contemporaneous and creditable emission decrease that were relied upon to keep the Project from being a major modification for NOx. These decreases are then being relied upon a second time to compensate for the requested increases in the permitted NOx emissions of the casthouse and BOFs. As such, the flaw in this alternative NSR applicability analysis is similar to the flaw in the analysis in the Application.

In addition, as has previously been explained, contrary to what is suggested in this comment, the Illinois EPA has not established a specific value that is appropriate for the "corrected" net increase in NOx emissions of the Project, i.e., the net increase in NOx emissions of the Project also now addressing the increases in the permitted NOx emissions of the casthouse and the BOFs that are requested by the Application.[135] The Illinois EPA has determined that this increase is such that the Project should be expected to become a major modification for NOx with the requested increase in permitted emissions. As discussed elsewhere in this Responsiveness Summary, this is based on estimates for the corrected net increase in NOx emissions of the

---

[133] As already discussed, the netting analysis for NOx in National Steel's application for the Project, for which the Application included a copy, indicates that the Project was originally permitted for an increase in the NOx emissions of Project- affected fuel burning units from use of BFG and natural gas of 168.9 tons/year (488.48 tons/year, project emissions – 329.54 tons/year, baseline) = 168.9 tons/year, increase). (Application, Appendix C – Emission Calculations, Emissions Calculations Included in the 1995 Construction Permit Application, Table 3-2: Granite City Division of National Steel, Netting Analysis Summary – NOx (orig. 1/16/96).)

[134] US Steel has not shown that advantage was not taken of the permitted increase in the NOx emissions of the Project-affected fuel burning units provided for by Permit 95010001, as originally issued in 1996. The earliest that the actual NOx emissions of these units began to be enforceably lowered was in 2009 or 2010 in conjunction with the completion of construction and startup of the new cogeneration boiler.

[135] It should also be noted that the 250.3 tons/year decrease in NOx emissions that this comment indicates was "as calculated by the Illinois EPA" was actually provided by US Steel. (See the value for the NOx Change for Certain Fuel Burning Units in Table 6-8 of the Application.)

Project made by the Illinois EPA based on information in the Application. The lowest estimate for the corrected increase in the NOx emissions of the Project is more than 100 ton/years. Accordingly, in Alternative Table 6-8 the "NOx Change" for "Certain Fuel Burning Units" should be at least 100 tons/year, not zero tons/year. The corrected total increase for the Project then becomes at least 339.6 tons/year {19.4 (Casthouse) + 220.2 (BOF Shop) + >100 (Certain Fuel Burning Units) > 339.6). In Alternative Table 6-9, the corrected net increase in the NOx emissions of the Project becomes more than 113.1 tons/year, rather than 13.1 tons/year. {>339.6 (project increase) – 226.5 (contemporaneous and creditable decreases) > 113.1.) Thus, the Project would be a major modification for NOx with the requested revisions to Permit 95010001. The Application does not otherwise provide proof that if the corrected net increase in NOx emissions of the Project were properly evaluated in accordance with provisions of the NSR programs, the Project would not be a major modification for NOx.

In summary, the alternative revised NSR applicability analysis for the Project presented in this comment only shows a decrease in NOx emissions from the Project because this analysis relies upon post-project actions that have reduced the NOx emissions of the Project-affected fuel burning units.[136] In a proper revised NSR applicability analysis, which conforms to the relevant requirements of the NSR programs, the increase in NOx emissions from the Project-affected fuel burning units would be a positive amount, rather than being zero or negative. The increase in NOx emission from the Project would also be larger by that amount. As already discussed, the amount of this increase would almost certainly be large enough that the Project becomes a major modification for NOx given the increases in the

[136] In the alternative revised NSR applicability analysis presented in this comment, the assumption is that the NOx emissions of the Project-affected fuel burning units are now "unchanged." That is the magnitude of the "post-project" decreases that reduced their NOx emissions is such that their NOx emissions are now no more than their baseline NOx emissions (zero increase). Based on lowest estimate for the increase in the NOx emissions of these units with the Project made by the Illinois EPA, this is equivalent to the NOx emissions of these units now having been reduced by at least 100 tons/year compared to the NOx emission that were originally allowed by Permit 95010001.

The revised NSR applicability analysis in the Application indicates that the magnitude of the NOx emissions of the Project-affected fuel burning has actually been much greater, such that their NOx emissions are now at least 350 tons/year lower than their baseline emissions. Based on lowest estimate for the increase in the NOx emissions of these units with the Project made by the Illinois EPA, this is equivalent to the NOx emissions of these units now having been reduced by at least 350.3 tons/year (250.3 + 100.0 = 350.3) compared to the NOx emission that were originally allowed by Permit 95010001.

permitted NOx emissions of the Casthouse and BOFs that are requested by the Application.

E. Substantive Requirements of the PSD and NaNSR Programs Are Not Applicable with Respect to NOx Emissions

Because the Project would not become a major modification for NOx solely by virtue of the relaxations requested by US Steel, the substantive requirements of the PSD and NaNSR programs, i.e., the requirements of 35 IAC 203.601, 203.602, 204.1100, 204.1110, 204.1120 and 204.1130, are not required elements of the Application and the fact that these requirements are not addressed in the Application is not a valid basis for denial of the revised permit requested by the Application.

This comment does not show that the revision to Permit 95010001 requested by the Application should not be denied. If anything, this comment would present a reason why the requested revised permit should be denied. If one accepts for purposes of discussion that the requested increases in the permitted NOx emissions of the blast furnace casthouse and BOFs would not be solely due to the requested relaxations of the established limitations, as claimed by this comment, the Application does not identify or describe the "other cause(s)," i.e., reason(s) or purpose(s) for the requested revisions to the limitations for the blast furnace cathouse or BOFs established in Permit 95010001 other than correction of errors in the quantification of their emissions during the original permitting of the Project. The Application also does not address applicability of NSR with respect to the other cause(s) or reason(s) for the requested increases in the permitted emissions of these units, with new, "cause-specific" determinations of pre-project baseline emissions reflecting actual emissions prior to the occurrences of these other cause(s) or reason(s). Moreover, as the Application specifically requests increases in the permitted NOx emissions of the blast furnace casthouse and the BOFs of more than 200 tons/year, the Application does not show that these other cause(s) would not, by themselves, constitute a project that is a major NSR modification. Alternatively, if these other cause(s) would constitute a major NSR modification of the blast furnace casthouse and the BOFs, the Application does not address the substantive requirements of NSR as applicable relative to a major project due to those other cause(s) or reason(s). In other words, if one accepts the claim made in this comment, the Application is utterly deficient.

In fact, the Illinois EPA questions the truth of the claim made in this comment. US Steel submitted an Application that requested increases in or relaxations of the limitation established in Permit 95010001 for the

NOx emissions of the blast furnace casthouse and BOFs. If US Steel believed that the requested revisions to the established limitations for the NOx emissions of these units should be attributed to something other than errors in the original quantification of their emissions, it would have prepared the Application accordingly. Alternatively, US Steel would have submitted a separate application for a new construction permit to address that project.

IX. THE APPLICATION INCLUDES ALL REQUIRED INFORMATION PERTAINING TO PRE-PROJECT (BASELINE) AND POST-PROJECT NOx EMISSIONS CALCULATIONS ((DENIAL POINTS 2 AND 3))

In the draft denial letter, Attachment 1, the Illinois EPA asserts that the Application is deficient in that it omits certain information that is purportedly necessary for Illinois EPA to validate the PSD/NaNSR non-applicability determinations. As explained below, these assertions are without merit.

A. Usage of Coke Oven Gas (COG) During the Pre-Project, Baseline Period (Denial Point 2)

In the Draft Denial Letters, Attachment 1, the Illinois EPA correctly observes that the updated calculations of the NOx emissions change from the Project include the difference between the pre-project and post-project actual emissions from certain fuel burning units and that the calculation of pre-project actual NOx emissions rates for some of these units includes consideration of NOx formed from burning of COG, among other fuels.
The Illinois EPA asserts that the pre-project COG usage rates used in calculating these emission contributions “are not accompanied by any documentation or explanation,” suggesting that it is not enough to identify the quantity of COG consumed in each type of affected fuel burning unit. With respect to an “explanation,” this assertion is incorrect. The Application discusses the use of COG as fuel during the pre-project baseline period.[137]

Notably, the documentation provided for COG in the Application is indistinguishable from the documentation provided with respect to other fuels, both in the Application and in the original application submitted by National Steel, which was accepted by Illinois EPA when issuing Permit 95010001 in 1996. In all cases, what was provided was a table of usage values, with no primary source documents such as strip charts, because it is neither required nor customary to provide such

[137] See*, e.g.,* pp. 2-4, 4-2, 5-5, and 11-2 of the Application. Information is also provided in the appendices to the Application.

documents. Of course, pursuant to 35 IAC 201.152, the Illinois EPA retains authority to request additional documentation in conjunction with a construction permit application but that was not done here.[138]

With respect to additional documentation or further explanation, Illinois EPA does not identify any provision of the Act or the Illinois Code requiring that a permit application include any particular documentation or explanation in conjunction with a historical operational rate or emissions rate, nor does it even point to even an application form or guidance document suggesting that such documentation or additional explanation be provided.

As this comment suggests that the requested data has been provided by the information in the Application, this comment does not respond to the deficiency addressed by Denial Point 2. This denial point relates to the absence of "supporting (emphasis added) documentation or explanation for the baseline usage of COG utilized in the revised netting analysis." (Draft Denial Letter, December 2023, p. 8.) This comment does not show that the Application contains such supporting information. While the Application does explain that COG was used as fuel in certain Project-affected fuel burning units during the baseline period, as observed in this comment, this does not constitute support for the specific data in the Application for the baseline usages of COG in these units.

Although, the data for baseline usage of COG provided in the Application may be superficially characterized as indistinguishable from the data provided for usage of other fuels, there is a critical difference from that other data. The data provided for baseline usage of BFG and natural gas reflects data originally provided by National Steel. (Application, Appendix C – Emission Calculations, Emissions Calculations Included in the 1995 Construction Permit Application, Table 3-2: Granite City Division of National Steel, Netting Analysis Summary – NOx (orig. 1/16/96)). However National Steel did not provide data for usage of COG. As such, it is reasonable and appropriate for US Steel to provide supporting information or other explanation for how it obtained or developed the data in the Application for usage of COG.[139]

---

[138] See, *e.g.*, 35 IAC 201.152, which provides that, "The Agency may adopt procedures that require data and information in addition to and in amplification of the matters specified in the first sentence of this Section, that are reasonably designed to determine compliance with this Chapter and ambient air quality standards, or that set forth the format by which all data and information shall be submitted."). (Footnote 25 of US Steel's Comments of January 2024.)

[139] **For example, was data for the usage of COG available for the individual Project- affected fuel burning units? If not, how was the data for COG usage of individual units or groups of similar units derived from aggregate data for usage of COG or from data for coke production?**

Absent such information, the Application does not provide proof that the baseline emissions of NOx attributable to use of COG provided in the Application should be considered accurate and should properly be relied upon for the purpose of the requested revisions to Permit 95010001.

Finally, as discussed in General Response 1, Section 8A of this Responsiveness Summary, it is not necessary for there to be a provision of the Act or the Illinois Code, or other guidance that specifies the particular information that must be included in an application for an air pollution control construction permit. An application is not shielded from denial because the Illinois EPA did not formally request the applicant to supplement, revise or replace the application to remedy deficiencies in the application. The application must include information that is sufficient to provide proof that the facility or equipment that is the subject of the application will not violate applicable provisions of the Act and the Illinois Code. In this regard, this comment does not even address the provisions of the Act and the Illinois Code that might be violated if a revised permit were issued without information as addressed by this denial point, i.e., Sections 9(a), 9.1(d) and 39(a) of the Act and 35 IAC 201.152 and 201.160, as identified in the Revised Draft Denial Letter. The fact that the second sentence of 35 IAC 201.152[140]

---

[140] It is noted that in this comment, the footnote providing the text of 35 IAC 201.152 only provides the second sentence of this rule. This is the sentence that addresses the procedures that the Illinois EPA may adopt to elaborate upon the required contents of a construction permit application. The first sentence of this rule, which provides certain explicit requirements for the content of applications for air pollution control permits, is provided below.

> **Section 201.152 Contents of Application for Construction Permit**
> **An application for a construction permit shall contain, as a minimum, [emphasis added] the following data and information: The nature of the emission unit and air pollution control equipment, including the expected life and deterioration rate; information concerning processes to which the emission unit or air pollution control equipment is related; the quantities and types of raw materials to be used in the emission source or air pollution control equipment; the nature, specific points of emission and quantities of uncontrolled and controlled air contaminant emissions at the source that includes the emission unit or air pollution control equipment; the type, size, efficiency and specifications (including engineering drawings, plans and specifications certified to by a registered Illinois professional engineer) of the proposed emission unit or air pollution control equipment; maps, statistics and other data reasonably sufficient to describe the location of the emission unit or air pollution control equipment. …**

As the first sentence of 35 IAC 201.152 explicitly requires certain information to be provided in an application, it addresses information describing the subject of an application, e.g., the emission units and air pollution control equipment and their emissions. The specific information that might need to be

acknowledges that the Illinois EPA may adopt procedures further specifying the required contents of applications for air pollution control construction permits does not mean that the Illinois EPA must adopt such procedures.[141]

B. NOx Emission Factor for Use of COG in Boilers 11 and 12 (Denial Point 2)

In the draft denial letters, in Attachment 1, the Illinois EPA correctly observes that Table 6-4 in the Application indicates the emission factor used in calculating the amount of NOx formed from combustion of COG gas in the boilers during the pre-project baseline period is based on emissions testing performed at one of the by-product coke oven batteries.

The "basis for the emission factor" indicated in Table 6-4 of the Application is a "scrivener's error," a minor mistake in the Application. This error was pointed out to US Steel's consultant by Illinois EPA staff by telephone in January 2023. The factor is actually based on emission testing performed at Boiler 12, which is one of the boilers whose NOx emissions are the subject of the calculation. This fact was conveyed to Illinois EPA staff by telephone in January 2023.

As indicated by this comment, there is a material mistake in Table 6-4 of the Application. While US Steel may view it to be minor, so as to be able to be characterized as a "scrivener's error," this does not act to alter the Application. In this regard, the deficiency in the Application addressed by this Denial Point is not that the emission factor used to calculate the NOx emissions from the use of COG by 12 boilers at the facility in 1996 is incorrectly shown as being based on emissions testing on the combustion stack of one of the coke oven batteries. The deficiency is that the calculations for NOx emissions of boilers attributable to use of COG cannot be accepted as accurate and relied upon for issuance of the revision to Permit 95010001 requested by the Application. This is because Table 6-4 indicates that these calculations use an emission factor that was based on testing of the

---

provided in particular permit applications to show compliance with the applicable substantive requirement in the Illinois Code is not addressed. In this regard, this rule recognizes that the information that is specified is only the minimum information that must be contained in an application.

[141] **Even if the Illinois EPA had adopted procedures elaborating on the required contents of applications for air pollution control construction permits, it would be extraordinary for such procedures to address the unique circumstances that are presented with the Project for the use of coke oven gas (COG) at the Granite City Works. The emissions of NOx that are now of concern for use of COG were not addressed in 1996 when Permit 95010001 was initially issued for the Project. The Application now requests that the NSR applicability analysis for the Project for NOx be revised to account for such NOx emissions.**

combustion stack of a by-product coke oven battery. The NOx emissions from the combustion of COG at a by-product coke oven battery for heating of the coke ovens, as is measured at the combustion stack of a by-product coke oven battery, cannot be assumed to be similar to those from burning COG in a boiler. This is discussed in the Draft Denial letter (For example, see Footnotes 14 and 15 of the Revised Draft Denial Letter).

In this regard, the telephone conversations between US Steel's consultant and a staff member at the Illinois EPA reviewing the Application, as described in this comment, did not and could not act to change the Application. Moreover, these conversations did not even result in an informal resolution to the basic issue posed by the calculation in the Application for the NOX emissions of boilers from use of COG. This is that the NOx emissions factor used in these calculations did not appear representative. In particular, as discussed in the Denial Letters, the emissions calculations for the boilers use a NOx emission factor of 404 pounds/million cubic feet of COG; the USEPA's Webfire Database provides a much lower factor, 80 pounds/million cubic feet of COG.[142] Absent the submittal of information to resolve this issue, the Application does not provide proof that the baseline emissions of NOx attributable to use of COG provided in the Application should be considered accurate and, accordingly, can properly be relied upon for the purposes of the requested revision to Permit 95010001.

C. Emission Factor for Use of Natural Gas in Ladle Preheaters (Denial Point 3)

In the Draft Denial Letters, Attachment 1, the Illinois EPA correctly observes that, in the calculations presented in the Application in support of the pre-project actual NOx emissions from certain fuel combustion units affected by the Project, US Steel used a single emission factor for all such units, including ladle preheaters. The Illinois EPA then asserts that the Application "does not show that it is appropriate to utilize this emissions factor for ladle preheaters." Illinois EPA does not identify any provision of the Act or the Illinois Code requiring that an application include any particular documentation or justification for the emission factors used to estimate historical emissions, nor does it point to even an application form or guidance document suggesting that such documentation or justification be

[142] Incidentally, the recollection of the Illinois EPA staff member that participated in these telephone calls is that it was stated that US Steel personnel were looking for a copy of the report for the testing that was believed to be the basis of the NOx emission factor that was used for burning COG in boilers. A copy of that report would be provided to the Illinois EPA when it was located. However, a copy of such a test report was not provided to the Illinois EPA.

provided. Notably, for a period of nearly 30 years, the emission factor at issue has been used consistently for all purposes pertaining to the permitting of the Project and has been accepted by Illinois EPA for that purpose.[143] In light of Illinois EPA's repeated acceptance of and reliance on this emission factor for calculating NOx emissions from burning natural gas in ladle preheaters in numerous permitting actions over a period of nearly 30 years, including several permitting actions occurring prior to US Steel's ownership of the facility, US Steel reasonably concluded that no further justification was needed as part of the permit application submitted in March 2020 and supplemented in October 2022.

A lengthy response to this comment is not needed because this comment, by omission, acknowledges that the Application does not show that the emission factor used for ladle preheaters in the calculations for NOx emissions is appropriate. Instead of attempting to show that this factor accurately represents the NOx emissions of these units, the comment instead explains why it was reasonable for US Steel to assume that the NOx emission factor used for these units would be acceptable. However, absent information in the Application providing proof that the NOx emission factor for the ladle preheaters used in the calculations in the Application should be considered representative, those calculation cannot properly be relied upon for the purposes of the requested revision to Permit 95010001.

By way of some brief observations, it is unquestioned that information provided in permit applications must be accurate.[144] In the Application, US Steel elected to revisit the original NSR applicability analyses for the Project. Therefore, the obligation to use appropriate emission factors in the revised analyses in the Application clearly rests with US Steel. This obligation is not met by reference to prior permitting by National Steel. As further discussed in General Response 1, US Steel also cannot avoid this obligation by simply pointing to historic decisions by the Illinois EPA. When acting upon the Application, the Illinois EPA is not required to perpetuate

---

[143] *See, e.g.,* "Calculation Sheet" prepared by Jim Ross of Illinois EPA, Dec. 5, 1995 (summarizing Illinois EPA's review of the application submitted by National Steel, which was initially filed with the Illinois EPA on Jan. 3, 1995) at p. 12; application supplement submitted by National Steel Jan. 16, 1996, at p. 3-2; Permit 95010001 as issued Jan. 25, 1996, at Table 4; Permit 95010001 as revised Dec. 17, 2012, at Table 4; Construction Permit 95010001 as revised Dec. 17, 2012, at Table 4 (Footnote 26 of US Steel's Comments of January 2024.)

[144] **This comment does not address the provisions of the Act and the Illinois Code that the Revised Draft Denial identifies as potentially being violated if a revised permit were issued without information as addressed by this denial point, i.e., Sections 9(a), 9.1(d) and 39(a) of the Act and 35 IAC 201.152 and 201.160.**

any past mistakes that may have been made. As explained in the Draft Denial Letters, it is questionable that emission factors developed for boilers like those being addressed accurately represent the NOx emissions of ladle preheaters. Ladle preheaters heat the refractory on the interior surface of ladles by direct heat transfer, rather heating water by indirect heat transfer. The rated heat input capacities of individual ladle preheaters are also lower than the rated heat input capacities of the various boilers.

Finally, as discussed in General Response 1, Section 8A of this Responsiveness Summary, The fact that particular emission factors have been accepted or have not been questioned by the Illinois EPA in past permitting actions does not preclude reexamination of those factors by the Illinois EPA as part of proposed revisions to Permit 95010001. In addition, the fact that particular emissions factors may have previously been accepted by the Illinois EPA during permitting does not show that the Illinois EPA has prescribed the use of such factors on an ongoing basis. Nothing in the cited permits identifies the subject emission factors as being prescribed factors, rather than being emission limits.[145] Nothing in the public comment periods associated with the issuance of a few of these permits indicated that such limits were intended to be prescribed emission factors. Moreover, even if this had been the case, this would not serve to preclude reevaluation of those emissions factors as part of the requested revisions to Permit 95010001.

---

[145] As discussed in the Draft Denial Letters, the provisions in Permit 95010001 that are in the form of emission factors (e.g., are in pounds of pollutant emitted per unit of throughput, output or fuel input), are enforceable emission limitations.

By way of further explanation, the emission factor limits currently in Permit 95010001 are addressed in the Draft Denial Letters because the Application requests that this permit be revised to no longer include these limits. Instead, as generally discussed in Footnotes 24 and 31 in the Draft Denial Letters, as necessary to enforceably limit emissions to address nonapplicability of NSR for various pollutants, only the annual emissions of various groups of related Project-affected units would be limited. In the Application, these limitations on annual emissions are referred to as "emission caps." This revision to Permit 95010001 would facilitate resolution of the two appeals of air pollution control permits currently pending with the Illinois Pollution Control Board (PCB 2013-053 and PCB 2013-062).

In addition, for certain Project-affected units, in place of enforceable emission factor limits, the Application requests that the revision to Permit 95010001.prescribe or specify the particular emission factor(s) that US Steel must use on an ongoing basis when showing compliance with the relevant annual emission cap(s). (For example, refer to Comment XII.C and Denial Point 10 as it addresses uncaptured NOx and VOM from the blast furnace cast house, which emissions occur the through the roof monitor on the casthouse.)

D. Emissions from Use of Natural Gas on the Continuous Casting Lines (Denial Point 2)

In the Draft Denial letters, Attachment 1, the Illinois EPA correctly observes that in the calculations in the Application supporting the pre-project actual NOx emissions from units affected by the Project, US Steel indicated there is no NOx formation from the continuous casting operation other than from combustion of natural gas and, because all natural gas consumption in the continuous casting operation is accounted for elsewhere, US Steel did not account for any additional pre-project actual NOx emissions from the continuous casting operation.

Illinois EPA then incorrectly asserts that US Steel's failure to double-count the pre-project actual NOx emissions from the continuous casting operation is "problematic." US Steel's election not to overstate the pre-project actual NOx emissions from emissions units affected by the Project is correct and appropriate, as it best represents the increases in actual emissions with the project, consistent with the requirements of the PSD and NaNSR rules. However, the manner in which the usages of natural gas and associated NOx emissions during the pre-project baseline period was presented in the Application is unclear. This lack of clarity appears to have caused confusion on the part of the Illinois EPA.

The total pre-project baseline actual NOx emissions from natural gas used in certain units affected by the Project is correct. In this regard, this information reflects information provided in Table 3-2 in National Steel's original application. The total natural gas usage by the affected units during the pre-project baseline period is 1,145 million cubic feet (cf) /year, with 57 million cf/year attributable to the continuous casting operations. The total associated NOx emissions attributable to burning natural gas during the baseline period are 175.18 tons/year, including 8.72 tons/year from the continuous casting operations.[146] What was likely confusing is that

[146] The complete information for natural gas usage during the pre-project baseline period, as shown in Table 3-2 of National Steel's application, is provided below. (Table 3-2 in the application supplement submitted by National Steel Jan. 16, 1996, a copy of which is provided in the Application in Appendix B - Emission Calculations.)

Information on Usage of Natural Gas and Associated NOx Emissions, As Extracted from Table 3-2: Granite City Division of National Steel: Netting Analysis Summary – NOx					
Unit(s)/Fuel	NOx Emission Factor (lb/mmcf)	Base Year Usage (mmcf)	Actual Emission (T/Y)	Projected Usage (mmcf)	Projected NOx Emissions (T/Y)

National Steel's projection of the total post-project natural gas usage in the affected units, including the continuous casting operations, was the same as the pre-project amount, both being 1,145 million cf/year. In other words, the Project would not entail an increase in natural gas usage from the baseline level.

When issuing Permit 95010001 in 1996, the Illinois EPA set limitations on total post-project natural gas usage (1,145 million cf/year) and total post-project NOx emissions from burning natural gas (175.19 tons/year). (Permit 95010001, issued January 26, 1996, Condition 21 and Table 4). These limits match the information shown in Table 3-2 of National Steel's application, which did address natural gas usage by the continuous casting operations. In Condition 21 and Table 4 of this permit, the Illinois EPA also listed the fuel burning units to which these limitations applied. Almost certainly inadvertently, the Illinois EPA omitted the continuous casting operations from the listings of units to which these limitations applied. For the Project, it is undisputed that Illinois EPA accepted and relied upon both the baseline information and the projections presented in Table 3-2 of National Steel's application related to usage of natural gas and associated emissions.[147]

In the prior application submitted in March 2020 and in the Application, the total natural gas usage by affected units during the pre-project baseline period is shown as 1,145 million cf/year. However, consistent with the Illinois EPA's error in drafting Permit 95010001, US Steel omitted the continuous casting operations from the list of units burning natural gas and contributing to the total associated NOx emission from burning natural gas with project. Nevertheless, as explained above, the contribution of the continuous casting operations to NOx emissions from natural gas combustion were actually accounted for, both in pre-project baseline emissions and in

Boiler House 1 (Blrs 1-10) – NG	306	361	55.23	included below	
Boiler #11 – NG	306	226	34.58	included below	
Boiler #12 – NG	306	218	33.35	included below	
BOF Preheaters/Dryers – NG	306	283	43.30	included below	
Continuous Caster #1 & #2 – NG	306	57	8.72	included below	
Totals		1,145	175.18*	1,145	175.19*

* These numbers appear as not being the same due to the difference in the rounding of results, with baseline emissions being the sum of separate calculations for emissions and the project emissions being the result of a single calculation for emissions.

[147] The total NOX emissions increase from the Project, prior to contemporaneous emissions decreases, as addressed by Permit 95010001 in 1996, is also the same as shown by National Steel in Table 3-2. i.e., 238.8 tons/year. (Permit 95010001, issued January 26, 1996, Condition 42 and Table 6.)

the post project emissions.

This comment does not actually respond to the relevant deficiency in the Application identified by the Illinois EPA in the Draft Denial Letters. Moreover, it also identifies an error in the Application as the Application perpetuates an error in Permit 95010001 on the units that are identified as being subject to certain limitations set by this permit. That is, the Application continues to omit the continuous casting operations from the limitations set by this permit for the usage of natural gas and associated emissions.

Specifically with regard to Denial Point 2 as it addresses the NOx emissions of the continuous casting, the Illinois EPA did not claim that the Application's "failure to double-count" certain NOx emissions was problematic. Indeed, the Illinois EPA did not express concern about historic double-counting and, as explained by this comment, the original approach to baseline usage of natural gas and baseline NOx emissions were not inflated due to double-counting. Rather, the Denial Letters indicated that the corrections proposed by the Application were problematic for several reasons, as they did not fully address the issues associated with accounting in the Application for the NOx emissions of the continuous casting operations. The first issue is that the Application does not appear to address NOx emissions from the natural gas-fired torches used in the slab cutting and slab ripping processes that take place as part of continuous casting or otherwise show that these processes do not emit NOx. (For example, are there any such emissions? Does Permit 95010001 actually account for such emissions? Should the listing of units whose usage of natural gas is limited be broadly stated so as to simply apply to the "continuous casting operations"?) Second, the Application does not show that the NOx emissions factor used to calculate NOx emissions from burning of natural gas in the continuous casting operations, 306 pounds/million cf, which is proposed to be used for other units burning natural gas is also appropriate for use for the caster molds. Third, the Application does not identify the caster molds as "Project-affected fuel burning units," with the blast furnace stoves, boilers, etc., in the various listings of Project-affected fuel burning units in the Application (e.g., Application, Table 6-5).

E. Post-Project NOx Emissions (Denial Point 3)

In the draft denial letters, Attachment 1, the Illinois EPA asserts that the Application is deficient because it does not include supporting information related to the maximum future NOx emissions of 706 tons per year from the certain fuel burning units affected by the Increase Project, such as "the maximum annual amounts of fuels burned in these units" and "the emission factors used to calculate annual emissions." As discussed in detail in other comments (US Steel Comment

XII.J), US Steel included all of this information in the permit application submitted in March 2020 but omitted it from the Application based on Illinois EPA's informal comments regarding the initial submittal. Notably, the Application does not request a new construction permit; rather, it requests revision of an existing permit, which existing permit has since 1999 limited the NOx emissions from the Project-affected fuel burning units to 706 tons per year. Because the Application requests no change in the maximum NOx emissions from the fuel burning units, US Steel reasonably assumed that no additional information was needed with respect to this calculation.

Of course, in accordance with 35 IAC 201.152, the Illinois EPA retains authority to request additional information in conjunction with a construction permit application, but that was not done here.

This comment does not show that the Application should not be denied. As a preliminary matter, the claim made in this comment is false. The information that is lacking in the Application, which is the reason for this denial point, was not provided in the earlier application received by the Illinois EPA in March 2020. In fact, in that application, the proposed revised NOx emissions cap from "certain fuel burning units" was 632.5 tons/year (March 2020 application, p. 8-7, Table 8-8). As such, that application would not have provided supporting information for a proposed value for post-project NOx emissions of these units of 706 tons/year. The value of 706 tons/year for the proposed revised NOx emissions cap for these units first appeared in the Application, i.e., the current application, as submitted in October 2022. (Application, pp. 6-6 and 6-7, Tables 6-6 and 6-7.) It is perhaps noteworthy that Table 8-8 in the March 2020 application also shows an increase in the NOx emissions of these units with the Project of 137.4 tons/year (the difference between the revised baseline emissions of 495.2 tons/year and proposed revised emission cap of 632.5 tons/year as provided in the application).

More generally, as related to the revised NSR applicability analysis for NOx in the Application, this analysis cannot simply rely on certain elements of a previous analysis without showing that those elements are still correct and appropriate. In the Application, US Steel provides a revised NSR applicability analysis for NOx with the objective of showing the Project would still not be a major modification for NOx for purpose of NSR with the requested increases in the permitted NOx emissions of the blast furnace casthouse and the BOFs. The revised NSR analysis addresses higher NOx emissions from the casthouse and BOFs with the Project. It also accounts for NOx emissions from Project-affected fuel burning units from use of COG, which was not done in previous NSR analyses. The baseline NOx emissions of these fuel burning units in the revised NSR analysis are now higher than in the original NSR analysis. To the extent that there are errors that overstate the

baseline NOx emissions of these units, as would be perpetuated by using a value of 706 tons/year for emissions of the Project, the requested revised permit would potentially allow circumvention of the substantive requirements of NSR for a major modification for +NOx. Finally, as part of the Application, US Steel also requests that the current emission factor limits for Project-affected fuel burning units be eliminated and their NOx emissions be addressed with, at most, annual limitations for their NOx emissions. This is more than enough to support the reopening of the entire revised NSR analysis, with explanation and justification for this analysis by US Steel in the Application and opportunity for scrutiny by the Illinois EPA. In summary, the fact that since 1999, Permit 95010001 has suggested that it allows NOx emissions from the Project-affected fuel burning units of 706 tons/year is not sufficient support to justify use of this value in the revised NSR applicability analysis for NOx.[148] In addition, in light of the above, it is questionable that the Illinois EPA ever suggested in informal discussions on the March 2020 application that support for information in the revised NSR applicability analyses should not be included in the application for revisions to Permit 95010001.

Finally, as already discussed and as addressed in General Response 1, 35 IAC 201.152 does not act to block denial of a permit application if the application does not include information providing proof of compliance with relevant requirements. As this rule provides that the Illinois EPA may adopt procedures elaborating on the required contents of air pollution control permit applications, it does not require that the Illinois EPA adopt such procedures.

---

[148] In fact, for Project-affected fuel burning units, Condition 22 and Table 4 of Operating Permit 95010001, as issued in 1999, specifically limits NOx emissions from use of natural gas to 205.94 tons/year, use of BFG to 488.48 tons/year, and use of fuel oil to 10.04 tons/year. The sum of these individual limits is 704.46 tons/year. (These limits were not altered when Construction Permit 95010001 was revised in December 2012.) The value of 706 tons/year, which is in Table 5 of these permits, is more than the sum of the fuel-specific limitations. As such, it is unclear that Permit 95010001 has in practice ever allowed NOx emissions of 706 tons/year from the Project-affected fuel burning units, even assuming that this overall limit was not intended to also limit NOx emissions from use of COG in these units.* Thus, the Application actually proposes a new value for the overall permitted NOx emissions of the Project-affected fuel burning units with the Project.

*** Table 4 of Permit 95010001 has never included specific limits for the emissions of NOx from burning COG in the affected units. The applications that were the basis of these permits did not quantitatively address those NOx emissions. These NOx emissions were first quantified and explicitly addressed in the revised analysis of NSR applicability for NOx in the Application.**

X. THERE ARE NOT QUANTIFIABLE FUGITIVE EMISSIONS OF NOx OR VOM FROM THE BOFs (DENIAL POINT 4 – NOx and VOM[149])

In the draft denial letter, Attachment 1, the Illinois EPA states that the Application "does not address uncaptured emissions" of NOx and VOM from the BOFs and that the emissions calculations presented in the Application reflect an assumption "that all emissions of these pollutants from the BOFs are now captured" and routed to atmosphere through the electrostatic precipitator or baghouse. Illinois EPA also acknowledges that such uncaptured emissions, if they exist, are not significant and that, if estimated quantities of such uncaptured emissions were added to the calculations supporting the PSD/NaNSR non-applicability demonstrations, would yield smaller (rather than greater) emissions increases.

With one minor exception, Illinois EPA's general statements characterizing the emissions increase calculations presented in the Application, as summarized above, are correct. The minor exception is this: The application does not reflect an assumption that there are zero uncaptured emissions of NOx and VOM from the BOFs but rather reflects the conclusion that, if there are any such uncaptured emissions, those emissions are fugitive emissions[150] and are not quantifiable. Fugitive emissions are counted for purposes of PSD and NaNSR applicability determinations only to the extent that such emissions are quantifiable.[151] The emissions capture systems serving the

---

[149] In this comment, US Steel only responded to Denial Point 4 as it addressed the deficiency in the Application that emissions of NOx and VOM that occurred through the roof monitor on the BOF Shop. It did not respond to the denial point as it also addressed uncaptured emissions of carbon monoxide (CO) through the roof monitor. As such, this comment does not show that the Application should not be denied based on Denial Point 4, as has now occurred, because it did not address uncaptured emissions of CO, which occur through the roof monitor.

In its Comment VI, US Steel does acknowledge the fact that the Application does not address the uncaptured CO emissions of the blast furnace casthouse in the revised CO air quality analysis for the Project provided in the Application. This analysis reflects a greater increase in CO emissions from the Project, as described by the Application, compared to the original quantification of the emissions of the Project by National Steel, which has been found to understate the CO emissions increase from the Project. As explained in its response to US Steel's Comment VI, this comment also does not show that the fact that the Application does not consider uncaptured CO emissions in the revised CO air quality analysis in the Application is not a reason why the Application should not be denied.

[150] Fugitive emissions are "those emissions which could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening." 40 CFR 52.21(b)(20). (Footnote 33 in US Steel's Comments of January 2024.)

[151] See, *e.g.*, 40 CFR 52.21(i)(4)(vii)(exempting a project from PSD permitting requirements if it would be major "only if fugitive emissions, to the extent

BOFs satisfy the stringent requirements of 40 CFR Part 63 Subpart FFFFF, which reflects USEPA's determination of the maximum degree of reduction in emissions that is achievable for existing BOFs. (Section 112(d)(2) of the federal Clean Act (42 U.S.C. 7412(d)(2)).) These capture systems reflect the state of the art and that, to the extent there are any uncaptured emissions of NOX or VOM, those emissions could not reasonably be captured or controlled and thus are fugitive emissions.

Although Illinois EPA presents speculation regarding possible fugitive emissions of NOX and VOM from the BOFs, that speculation is not a sufficient basis to determine that such emissions exist and are quantifiable. Neither US Steel nor Illinois EPA has not identified any evidence of such quantifiable emissions in the literature or in the permitting records of other iron and steel mills.
The fact that there are fugitive particulate emissions from the BOFs is not indicative of the formation of NOX or VOM emissions. The capture system for the baghouse for the BOFs is a large ventilation system that generally evacuates the space around the BOF vessels during charging, refining, and tapping. The primary mechanism for formation of particulate during charging and tapping is the oxidation of molten metal. This formation mechanism cannot be expected to result in the formation of NOx or VOM.

This comment does not show that there is not a deficiency in the Application as addressed by this denial point, much less meaningfully challenge this denial point. Rather, this comment reflects a misapplication of the term "fugitive emissions," as defined in the NSR rules. The deficiency in the Application addressed in this denial point involves "uncaptured emissions" from the BOF, not fugitive emissions. Even if the capture systems serving the control systems of the BOFs are state-of-the art, this is irrelevant.[152] USEPA's commentary in

---

quantifiable, are considered" and it would occur at a source that is not in a listed source category); *see, also,* 45 FR 52676 at 52692 (Aug. 7, 1980)(USEPA explains that it is declining to extend the exemption at § 52.21(i)(4)(vii) to the listed source categories, such as iron and steel mills, but stated, "EPA emphasizes, however, that fugitive emissions from a source in one of the listed categories will only be included in threshold calculations 'to the extent quantifiable'"). (Footnote 33 in US Steels Comments of January 2024.)

[152] Whether the capture systems in the add-on particulate control systems serving the BOFs are state-of-the-art is also arguable. A determination by USEPA as to what is appropriate for capture of emissions as a matter of rule in the context of a NESHAP rulemaking should not be assumed to be transferable to determinations for what should be considered reasonable for the possibility of enclosure and capture of emissions for purposes of the NSR definition of fugitive emissions. In addition, if the BOF shop at the Granite City Works were new for purposes of the NESHAP, 40 CFR 63.7790(a) would set a more stringent limit for the opacity of emissions from the roof monitor, i.e., 10 percent

rulemakings concerning fugitive emissions, as cited in this comment, is not applicable. Rather the NOx and VOM emissions addressed in this denial point are governed by the fundamental principle that air pollution control permit applications must accurately and reasonably reflect or address the emissions of the units for which a permit is requested.

By way of explanation, the terms "uncaptured emissions" and "fugitive emissions" are not synonymous. Uncaptured emissions are the emissions of unit(s), which although served by control system(s), do not pass through those system(s). In other words, uncaptured emissions are the emissions that go directly to the atmosphere bypassing the control system(s). Uncaptured emissions, as is the case for uncaptured emissions of the BOFs, are not necessarily fugitive emissions. Uncaptured emissions may still enter the atmosphere through a stack, vent or other functionally equivalent opening, as occur for the BOFs as their uncaptured emissions enter the atmosphere through the roof monitor on the building housing the BOF shop. In this regard, this comment does not explain why the NOx and VOM emissions that are addressed by this denial point should be considered fugitive emissions even though they enter the atmosphere through a roof monitor. Accordingly, as this comment is based on the NOx and VOM emissions at issue being "fugitive emissions" rather than "uncaptured emissions," the comment is not responsive to this denial point.

The claim that this denial point is insufficient because the Illinois EPA does not show that there are "fugitive emissions" is baseless. First, US Steel must address uncaptured emissions of the BOFs in its permit application as revisions to Permit 95010001 are requested to increase the permitted emissions of the BOFs such the Project would become a major modification for NOx for both PSD and NaNSR. Under the NSR programs, as the Granite City Works are an iron and steel mill, USEPA has explained that US Steel would, at most, only be excused from addressing fugitive emissions in threshold calculations for NSR applicability to the extent that those emissions are not quantifiable. However, US Steel has not made a showing that the emissions of NOx and VOM through the roof monitor serving the BOFs are not quantifiable. Estimates for the amounts of these emissions can be made from: 1) the results of testing of the captured emissions of NOx and VOM, which occur through the stacks of the electrostatic precipitator (ESP) and baghouse that control particulate emissions of the BOFs, and 2) engineering design and calculations for the capture efficiency achieved by these control systems for the emissions of the BOFs. This is what

---

opacity on a 3-minute average, except for one period during each steel production cycle with opacity greater than 10 percent but less than 20 percent. As this BOF shop is considered an existing shop, the NESHAP limits the opacity from its roof monitor to only 20 percent opacity on a 3-minute average.

was done for the uncaptured particulate emissions of the BOFs, which also are not directly measured.

This claim is also flawed because it downplays the fact that the existence of uncaptured emissions of NOx and VOM from the BOFs was overlooked during the original permitting of the Project.[153] The representation in this comment about the origins of the NOx and VOM emissions specifically addresses the primary mechanism for formation of particulate during charging and tapping of BOFs, then claiming, without any support, that this mechanism cannot be expected to result in the formation of NOx and VOM. This does not address mechanisms that might directly result in the formation of NOx and VOM during charging and tapping of the BOFs. For example, during charging are NOx and VOM formed by the oxidation of nonmetallic material present in the scrap metal, such as paint or plastic? Since the BOF shop is equipped with a roof monitor and is not a closed building, to what extent do uncaptured emissions of NOx and VOM from the BOFs consist of a portion of the NOx and VOM formed in the BOFs vessels during refining that simply eludes capture by both the ESP and baghouse control systems? Even if a search of the literature or permitting records for other steel mills indicates that uncaptured emissions of NOx and VOM have not been previously addressed, this does not show that such emissions do not exist. The traditional focus for control of emissions of BOFs has been on their particulate emissions, which are amenable to add-on control.

Finally, this claim is flawed because it does not consider the empirical evidence indicating the existence of uncaptured emission of NOx and VOM from the BOFs, as discussed in Denial Point 4 in the Draft Denial Letters. The emission testing conducted for the new baghouse control system for the BOFs measured emissions of NOx and VOM in the

---

[153] As cited in Denial Point 4, with respect to the NOx emissions of the BOFs, the Application explains the following. (A similar statement is made for VOM emissions.) The Application does not go on to address whether the Application fully addresses the uncaptured emissions of NOx and VOM of the BOFs that were overlooked in 1996.

> **At the time of the 1999 Application, the BOF Shop did not include a baghouse to capture secondary emissions. Secondary emissions were released to the atmosphere through the BOF Shop roof monitor. No information was available at that time about the NOx emissions from the BOF Shop roof monitor. Since then, the BOF Shop includes a capture system for secondary emissions that are routed to a baghouse. NOx emission testing for the BOF Shop baghouse, completed in 2019-2020 timeframe, shows an average NOx rate of 0.0075 lb/ton for the BOF Shop Baghouse stack, USS Granite City added the BOF Shop secondary NOx emission baseline based on the result of the stack test for the BOF Shop Baghouse stack.**
>
> **Application, p. 6-4, Section 6.2.6 "BOF Baghouse – Secondary Emissions (New)".**

exhaust from the baghouse. As this baghouse system was installed to enhance control of particulate emissions from charging and tapping of the BOFs, a portion of these measured NOx and VOM emissions should be attributed to the improvement to the capture of emissions from charging and tapping of the BOFs provided by this new system. However, with respect to emissions of particulate, the Application does not suggest that 100 percent capture of the particulate emissions of the BOFs is now achieved, instead still accounting for the presence of uncaptured particulate emissions through the roof monitor on the BOF shop. This indicates that there are also still uncaptured emissions of NOx and VOM from the BOFs even with the improvement in capture of emissions provided by the new baghouse system.

XI. THE APPLICATION INCLUDES ALL REQUIRED INFORMATION PERTAINING TO PRE- PROJECT (BASELINE) PARTICULATE MATTER EMISSIONS CALCULATIONS (DENIAL POINT 11 – DEFICIENCY WITH REGARD TO BASELINE EMISSIONS)

In the draft denial letter, Attachment 1, the Illinois EPA asserts that the Application is deficient for the following reason:

> With regard to baseline particulate emissions, the determination of baseline emissions from handling of coke, iron pellets and limestone provided in the revised netting analysis cannot be independently confirmed. In this regard, the 2022 application does not provide needed supporting information for the "corrected" determinations of baseline particulate emissions of these operations as it is not accompanied by detailed calculations for the emissions from handling each material.

The assertion regarding a deficiency in the application is, without merit. The Application includes all information required by the applicable permitting rules. The Illinois EPA's characterization of these pre-project (baseline) emission rates as "corrected" is erroneous. These are the values presented in the original permit application submitted by National Steel and accepted by Illinois EPA when issuing Permit 95010001 in 1996.[154] US Steel made no change to these values and is not in possession of information that would allow such change. In light of Illinois EPA's acceptance of and reliance on these values during that prior permitting action, which preceded US Steel's ownership of the facility, US Steel reasonably concluded that

[154] The Application indicates that this information is provided in Table F-3 of National Steel's application, "Granite City Division of National Steel: Base Case PM10 Emissions and Contemporaneous Emissions Reductions – Material Handling Table." A copy of Table F-3 is included in the Application in Appendix B, "Emissions Calculations."

no further justification was needed as part of the present permit application.

The Illinois EPA does not identify any provision of the Act or the Illinois Code requiring that a permit application include any particular supporting information, nor does the Illinois EPA point to even an application form or guidance document suggesting that such documentation or additional explanation be provided. Of course, Illinois EPA retains authority to request additional information in conjunction with a construction permit application pursuant to 35 IAC 201.152, but that was not done here.

This comment does not show that there is not a deficiency in the Application and the Application should not be denied. As explained in this denial point, the deficiency in the Application is that the summary information for PM10 emissions in National Steel's Table F-3 is not sufficient. This table only provides information for emissions on an annual basis. It does not include calculations and background information for how annual emissions from handling the various material were determined, including the specific emission units that were addressed. Table F-3 also only provides information for the PM_{10} emissions of these operations, not the PM emissions. However, in the Application, like current Permit 95010001, baseline PM emissions are unrealistically assumed to be no more than the PM_{10} emissions. As such, it is reasonable for concerns to exist about the nature of and the accuracy of the information for baseline particulate emissions from handling of coke, pellets, and limestone, as represented in the Application in Table 5-5, "Pre-project Actual Emissions and Summary of Proposed Changes to Pre-Project PM Emissions Factors for Affected Units" and Table 5-6, "Pre-project Actual Emissions and Summary of Proposed Changes to Pre-Project PM_{10} Emissions Factors for Affected Units,", as they rely on Table F-3 from National Steel's application.[155] The presence of errors in this

[155] It is also noteworthy that Permit 95010001, Table 5, "Limits on Emissions from Major Processes Activities," indicates that the PM and PM_{10} emissions of the subject material handling operations should both be no more than 2.0 tons/year. In fact, the Application requests that revised Permit 95010001 provide for more than 2.0 tons/year of PM and PM_{10} emissions from the subject operations. This is an aspect of revised NSR applicability analyses for the Project for PM and PM_{10}, as summarized in the tables in Appendix B of the Application, "USS Granite City – 1996 Production Increase Project: Revised PM PSD Net Emissions Increase Analysis," and "USS Granite City – 1996 Production Increase Project: Revised PM PSD Net Emissions Increase Analysis." As the Application requests a revision to a provision in Permit 95010001 that currently addresses the emissions of the subject operations, it is essential that the Application include supporting information for the baseline emissions of the subject operations as now being represented in the Application.

information would have become apparent and likely avoided if US Steel had provided detailed calculations in the Application for the baseline emissions of these operations.[156] In summary, this comment did not show that the Application should not be denied based on Denial Point 11 as it addresses a deficiency in the Application with regard to the information that is provided for the baseline emissions of these material handling operations.

Finally, as discussed in General Response 1, Section 8A of this Responsiveness Summary, it is not necessary for there to be a provision of the Act or the Illinois Code, or other guidance that specifies the particular information that must be included in an application for an air pollution control construction permit. The application must include information that is sufficient to provide proof that the facility or equipment that is the subject of the application will not violate applicable provisions of the Act and the Illinois Code. The Illinois EPA is also not required to request information from a permit applicant to address deficiencies in the submitted application before proceeding to deny the application.

XII. THE APPLICATION INCLUDES ALL REQUIRED INFORMATION RELATING TO POST- PROJECT ACTUAL EMISSIONS OF PM, PM_{10}, NOX, AND VOM AND TO ENFORCEABLE LIMITATIONS ON POTENTIAL EMISSIONS OF THESE POLLUTANTS (VARIOUS DENIAL POINTS)

A. It Is Feasible to Establish Enforceable Emission Caps for Groups of Emissions Units and Emission Points as Proposed in the Application (Denial Point 6)

As correctly observed by the Illinois EPA in the draft denial letter, Attachment 1, the Application proposes that PM, PM_{10}, NOx and VOM emissions be subject to annual emission caps covering groups of related emissions units and emission points. For the blast furnace operations and the BOF shop, the proposed groupings include the principal emission points and lesser emission units. For example, for particulate, the grouping would include the casthouse (the main baghouse, the iron spout baghouse and the roof monitor), and charging of the blast furnace and the slag pits. The Application also acknowledges that these emission caps must be made enforceable as a

[156] The issue addressed by Denial Point 11 relative to baseline emissions was raised in the informal discussions between US Steel and the Illinois EPA on the March 2020 application. US Steel acknowledged that the baseline emissions of the subject operations should be greater. US Steel prepared its own calculations of emissions for these operations, which among other things, showed that their PM emissions were more than the PM_{10} emissions.

practical matter as they would serve as synthetic minor limitations (See discussion of synthetic minor limitations in US Steel's Comments, Section VIII.B.)
In the Draft Denial Letter, the 1Illinois EPA explains that there may be alternative groupings of emissions units and emission points that could be addressed by enforceable emission caps or other limitations:

> … It would be reasonable and appropriate for both the annual emissions of the casthouse and the annual emissions of the two basic oxygen furnaces to be directly limited separately from the emissions of any other units. …
>
> Revised Denial Letter, Attachment 1, p. 28
>
> …
>
> … Alternatively, limits specifically for the emissions of the casthouse for the blast furnaces and the basic oxygen furnaces, i.e., the principal units at the facility for iron and steel production, could be accompanied by group limits for the overall emissions of these principal units and the other, "non-principal" units in these areas of the facility. For example, limits could be set for both emissions of the casthouse and for the emissions of the casthouse, charging of the blast furnaces, and the slag pits. …
>
> Revised Denial Letter, Attachment 1, p. 29, Footnote 33.

US Steel generally agrees that there are potentially suitable groupings other than those proposed in the Application and that the approach suggested by Illinois EPA is likely permissible under the applicable permitting rules. However. it is unclear whether Illinois EPA's discussion of other potentially suitable groupings of other emissions units and emission points is intended to explain Illinois EPA's proposed denial of the Application. Notably, Illinois EPA has not claimed that the groupings and approaches proposed by Illinois EPA would result in limitations that are not enforceable as a practical matter or that are otherwise impermissible under the applicable rules. If Illinois EPA's discussion of other potentially suitable groupings of other emissions units and emission points is intended to provide a reason for denial of the Application, this is not a valid basis for such denial. It is the responsibility of Illinois EPA to draft a permit with conditions it judges to be suitable and appropriate. A permit applicant has no obligation to reflect in the application a correct guess as to how the permitting authority will exercise its judgment regarding these matters.

As related to groupings of units addressed by emission caps, the denial of the Application is based on the Illinois EPA's determination that

the group limits proposed in the Application are not acceptable as they would eliminate limitations that actually apply only to the blast furnace casthouse and the BOFs. As this comment explains, "It is the responsibility of the Illinois EPA to draft permits with conditions it judges to be suitable and appropriate." In the Illinois EPA's judgment, the groupings of units that the Application proposes for the emission limitations that would be established in the requested revised permit are not appropriate.[157]

This constitutes a valid reason for the Illinois the EPA to deny the Application. As an initial matter, it would be irresponsible for the Illinois EPA to have omitted this point from the Denial Letter. US Steel should not become aware of this issue only when it is provided with a working draft of a revised permit, after it has remedied the deficiencies in the Application that are identified in the Denial Letter.[158] Then, it is inherent in this denial point that the Application is deficient as related to the groupings of units that it proposes. In this regard, this comment overlooks US Steel's role in providing support in the Application for the groupings of units that are proposed. Such support is essential because the Application requests that Permit 95010001 be revised to set limitations that apply to groups of units. This is a fundamental change to the emissions limitation set in Permit 95010001, which for decades since it was issued in 1996, have limited the emissions of individual units, and, for the casthouse and BOFs separately addressed the emissions of these units from different

---

[157] The Illinois EPA's discussion In the Draft Denial Letters of alternative, potentially acceptable groupings of emission units, other than the grouping proposed in the Application, was not provided to explain the reason for the proposed denial of the Application. Rather, it was provided to convey the Illinois EPA's willingness, at least on a preliminary basis, to pursue group limits as the Illinois EPA had found that the use of group limits to limit potential emissions did not appear to be precluded by applicable rules and USEPA policy. This discussion also served to alert US Steel, USEPA and other interested parties to this fact.

[158] During informal discussions before the Application was submitted, the Illinois EPA's probable position on the grouping of units for the revised limitations planned to be proposed by the Application was conveyed to US Steel.* The Illinois EPA also explained that it was willing to consider "nested" group limits, i.e., limitations for the casthouse and the BOFs by themselves and limitations that applied to each these units and, respectively, the associated iron or steel making operations. However, the Application did not address nested limits, either by altering its proposal for the group limits for the casthouse and the BOFs or, alternatively, providing further support for grouping of limits that was proposed.

*** In light of these discussions, inclusion of Denial Point 6 in the Denial Letter is also reasonable as it officially informs US Steel of the Illinois EPA's position on the groupings of units for the revised limitations proposed in the Application.**

emission points.[159] Indeed, in the Application, US Steel does address why it believes that the proposed groupings of units should be considered acceptable. However, in this comment, US Steel does not more fully explain why the groupings of units that are proposed in the Application should be considered permissible or appropriate notwithstanding the position taken by the Illinois EPA in Denial Point 6 in the Draft Denial Letters. In particular, this comment does not attempt to refute the Illinois EPA's finding, as provided in Denial Point 6 of the Draft Denial Letters, that the three permit actions cited as precedents for group limits as proposed in the Application do not address the circumstances that exist for the Granite City Works and the Project.[160] As such, they do not support establishment of group limits, as proposed by the Application, that would eliminate individual emission limitations for the blast furnace cast house and the BOFs.

B. Particulate Emissions Associated with a Facility Configuration No Longer Authorized Are Immaterial to the "Source Obligation" Demonstration (Denial Point 11 – Deficiency in Information Provided for Emissions from Handling of Coke, Iron Pellets and Limestone with the Project)

In the draft denial letter, Attachment 1, with regard to the particulate emissions from handling of coke, iron pellets and limestone with the Project (post-project emissions), the Illinois EPA correctly observes that the Application does not include supporting information for the emissions from the handling of coal and coke at the by-product coke oven batteries that were permanently shut down in

---

[159] For the casthouse and the BOFs, the Application also proposes that limitations in Permit 95010001 for the emissions from individual emission points, rather than for the total emissions of these units, be eliminated. (While not explicitly stated, this would be a result of the proposed emission caps.) The Illinois EPA does not find this to be unacceptable and it is not an element of Denial Point 6. However, it is recognized that the elimination of limitations for the separate emission points from a unit could affect the compliance provisions that are developed for ongoing quantification of the overall emissions of the unit. In particular, to the extent that the provisions for quantification of the uncaptured emissions of a unit would act to understate those emissions, the provisions would act to allow more captured emissions from the unit, which emissions could actually be verified by testing.

*** The treatment of the two BOFs as a single unit for purposes of permitting is appropriate. Both the BOFs share common control systems and the uncaptured emissions of BOFs occur through the same roof monitor.**

[160] In the Application, Section 3, pp. 3-1 thru 3-3. US Steel points to three permit actions that occurred outside of Illinois as support for group limits as proposed by the Application. These permit actions involved a permit issued to Shell Offshore, Inc., by USEPA Region 10; a permit issued to Tucson Electric Power by the Department of Environmental Quality for Pima County, Arizona; and a permit issued to Pencor-Masada Oxynol, LLC, by the New York Department of Environmental Conservation.

2015. As the Illinois EPA asserts that this omission represents a deficiency in the Application because these emissions should be included in the total post-project actual emissions quantity as used in determining whether NSR permitting requirements should apply, this assertion is without merit. Although this information may be relevant to an evaluation of whether the Project as authorized by Illinois EPA and as implemented by National Steel prior to US Steel's ownership was a major modification subject to the substantive requirements of the NSR programs, it is not relevant to the "source obligation" analysis and demonstration that are required here. As discussed in US Steel's Comment VIII.B, these analyses are prospective, not retrospective; there is no consideration of facts as they may have existed at some prior point in time and no "mixing" of facts from different points in time.

This comment does not show that the Application should not be denied for the reason identified in Denial Point 11 as this denial point addresses the absence of supporting information for "Project Emissions."[161] First, this comment only directly addresses whether supporting information is provided in the Application for the particulate emissions from handling of coal and coke. However, this denial point also observed that the Application did not include supporting information for the Project emissions from handling of iron pellets and limestone, as well as from handling of coke.[162] As such, this comment does not show that there is not a deficiency in the Application as it does include supporting information for project emissions of particulate from handling iron pellets and limestone. These emissions clearly have not been eliminated with the shutdown of the two by-product coke oven batteries in 2015 as iron pellets and limestone are raw materials for the blast furnaces. In this light, the Application should have included detailed emissions calculations to delineate which materials (i.e., coke, coal, iron pellets, and/or limestone) were being addressed by the representation made in the Application for the Project emissions from handling of these materials.

With respect to lack of supporting information for Project emissions of particulate from handling of coke, this comment claims that it is appropriate for the Application to not have even addressed these emissions. The comment claims that because the two by-product coke oven batteries at the facility were permanently shut down in 2015, the Project emissions from handling coke do not have to be

[161] US Steel addresses Denial Point 11 as it concerns baseline emissions in Comment XI, as already addressed earlier in this Responsiveness Summary.
[162] Although emissions from handling of coal are mentioned in this comment, this denial point does not actually address emissions from handling coal.

considered when determining post-project emissions.[163] In particular, as previously discussed in US Steel's Comment VIII.B, when reevaluating applicability of NSR when relaxation of permit limitation(s) for a project are requested, the revised NSR applicability analysis does not have to consider what should have been permitted if the emissions of a project had previously been correctly quantified when the subject limitations were established. However, as explained in detail by the Illinois EPA in its response to that comment, in a situation like that of the Project, the emissions of units that have been shutdown subsequent to a project must still be considered when reevaluating applicability of NSR with the relaxation of permit limitations or the increases in permitted emissions that are being sought for the project.[164]

Moreover, the Application does request a relaxation or an increase in the emissions for which the material handling operations for coke, iron pellets and limestone are permitted. As already discussed, the Application indicates that the emissions of PM and PM10 of these operations with the Project should now both be 17.2 tons/year, rather than the maximum emissions of 2 tons/year from these operations, as currently indicated in Permit 95010001, Table 5, Limits of Emissions of Major Processes and Activities. Notwithstanding various general representations made in the Application,[165] the Application does not

---

[163] This claim is actually flawed as it presumes that the shutdown of the by-product coke oven batteries eliminated all handling of coke as addressed by Permit 95010001. However, coke continues to be a raw material for the blast furnaces and continues to be handled at the facility.

[164] Based on the detailed information for the revised PSD net emissions increase analyses for PM and PM_{10} in Appendix B of the Application, US Steel may have actually included emissions from handling coke in the information provided in the Application for the Project emissions of the material handling operations for coke, iron pellets and limestone, contrary to what is claimed by this comment. In these presentations for the net changes in emissions with the revised NSR applicability analyses for the Project, the baseline emissions and the future or project emissions of these material handling operations both for PM and for PM_{10} are the same, all being 17.2 tons/year. The emissions with the Project are not lower than the baseline emissions.

[165] The actual request for this relaxation in Permit 95010001 is generally discussed in the Application, Section 5.3, "Post-Project PM and PM_{10} Emissions Limitations."

> **A comparison of the PM and PM_{10} emissions caps from Table 5 of Construction Permit No. 950100001 and the proposed revisions to these emissions caps is provided in Table 5-8 [PM and PM_{10} Emissions Caps]. USS Granite City is proposing only minor changes to these emissions limitations as part of this permit application. (The changes are primarily attributable to the redistribution of emission caps, including establishment of a separate emissions cap for certain material handling operations [the material handling operations for coke, iron pellets and limestone addressed in this**

explain why this revision to Permit 95010001 is requested. For example, the Application, Table 5-8, "PM and PM_{10} Emissions Caps," when addressing the current "Emissions Caps" from Permit 9505010001, simply indicates that for Material Handling Operations, such emission caps are "n/a" in Permit 95010001. It then indicates that the Proposed Revised Emissions Caps for Material Handling Operations are 30 and 19 tons/year for PM and PM_{10}.[166, 167] Only in the detailed presentations of the

---

response and the material handling operations currently addressed with blast furnace operations, the BOF shop and continuous casting operations.)

The proposed revisions to post-project PM and PM_{10} emissions caps reflect three categories of changes: corrections of certain emission factors used to calculate both pre-project and post-project emissions as shown in Table 5-5 and Table 5-6 herein;[Footnote]28 changes to post-project operating rates as shown in Table 5-7 ["Project Post-Project Operating Rates for PM and PM_{10}, showing an increase in the use of natural gas and the elimination of use of COG and oil]; and changes to emissions unit groups for certain material handling operations as discussed in footnote (a) of both Table 5-5 and Table 5-6 herein…

[Footnote] 28 In the 1995 Application for post-project PM and PM_{10} emissions from the BOF roof monitor, National Steel proposed lower emissions factor reflecting the implementation of measures to improve capture and control efficiency in the BOF. Illinois EPA agreed with this proposal, incorporated lower emissions factors in the 1996 Construction Permit and recognized the PM and PM_{10} emissions reductions in the netting analysis for these pollutants. No changes are proposed by USS Granite City to the post-project PM and PM_{10} emission factors for the BOF Shop roof monitor. [Emphasis added, as this statement is inconsistent with Section 5.5.2.2 of the Application as it requests that the revised Permit 95010001 prescribe use of particulate emission factors for the BOF Shop roof monitor that are lower or more stringent than the current emission limits for those emissions.]

[Footnote of both Tables 5-5 and 5-6} (a) Emission unit grouping have been revised slightly. The identified line items associated with material handling operations were grouped with the blast furnace operation of BOF in Construction Permit No. 95010001. Material handling for coke, [iron] pellets and limestone are now included in project emissions. Baghouse 1 for Material Handling is also now grouped with material handling operations. In addition, the Baghouse 3 for Argon Stirring and Ladle Metallurgy is now grouped with BOF shop operations.

Application, Section 5.3, "Post-Project PM and PM_{10} Emissions Limitations," pp. 5-11 and 5-12.

166 Incidentally, Table 5.8 of the Application erroneously repeats the proposed revised emissions caps for Material Handling Operations, 30 and 19 tons/year for PM and PM_{10}, respectively, as the totals of the revised emission caps that are proposed for all of the various groups of units.

167 As already discussed, project emissions of 17.2 tons/year from these operations are more than the maximum emissions of these operations, 2 tons/year as now indicated in Permit 95010001, Table 5, Limits of Emissions of Major Processes and Activities. The value of 2 tons/year for maximum future PM_{10} emissions of these operations is consistent with information in Table F-3 from

revised net emissions increases analyses in Appendix B of the Application, "USS Granite City – 1996 Production Increase Project: Revised PM PSD Net Emissions Increase Analysis," and "USS Granite City – 1996 Production Increase Project: Revised PM_{10} PSD Net Emissions Increase Analysis," is it apparent that relaxations in Permit 95010001 are being requested for the material handling operations for coke, iron pellets and limestone. However, these tables do not explain why these relaxations are being requested or why the specific changes that are requested would be appropriate. They also do not explain why the baseline emissions for these operations for PM and PM_{10} are identical at 17.2 tons/year.[168]

National Steel's original application. Table F-3 indicates that the baseline PM10 emissions of these operations, 17.2 tons/year, would be reduced with the Project by the required control measures to no more than about 2 tons/year (actually 2.26 tons/year), with an increase in PM_{10} emissions with the Project of 0.79 tons/year. As such, the Application requests a relaxation in Permit 95010001 relative to the maximum emissions of these operations as currently indicated in this permit. Accordingly, it was clearly appropriate for the Application to provide supporting information for the representations that it makes with regard to the emissions of these material handling operations with the Project.

[168] The two tables in Appendix B of the Application that set forth US Steel's revised PSD applicability analyses for the Project for PM and PM_{10}, provide the following information for the Material Handling Operations at BF (Blast Furnace) and BOF:

Information Provided for Material Handling at BF and BOF*					
Emissions Point	Pre-Project Annual Throughput and Units	PM/PM_{10} Pre-Project Emission Factor	PM/PM_{10} Baseline Emissions (T/Y)	PM/PM_{10} Future Emissions (T/Y)	Change from 1996 analysis
Material Handling for Coke, Pellets, Limestone	Table F-3 of the 1995 Permit Application	_	17.2/17.2	_	This activity was previously only listed in the contemporaneous changes
Iron Pellet Screen	2,803,242 tons of charge material	0.00375/0.00131 lb/ton charge material	5.3/1.8	_	USS representation of 85% control to crushed stone EF
BOF Hopper Baghouse	2,413,406 tons of steel	0.00032/0.00032 lb/ton steel**	0.4/0.4	_	No change other than regrouping
BOF Bin Floor Baghouse	"	0.0016/0.0016 lb/ton steel**	1.9/1.9	_	"
Baghouse 1 for Material Handling	"	0.00355/0.00355 lb/ton steel**	4.3/4.3	_	"
Subtotal	_	_	29.0/25.6	30.0/19.0***	-

*** This heading suggests that only emissions from material handling operations for coke, pellets and limestone at the blast furnaces were being addressed.**
**** These emissions factors are identical to the applicable emission factor limits currently set in Table 2 and Table 3 of Permit 95010001.**

C. The Application Includes All Required Information Relating to Quantifying Emissions of NOx and VOM from the Casthouse Roof Monitor (Denial Point 9)

In the draft denial letter, Attachment 1, the Illinois EPA correctly observes that, among the procedures proposed by US Steel in the Application for demonstration of compliance with the proposed NOx and VOM emission caps, US Steel proposed that emissions of these pollutants from the Blast Furnace Casthouse Roof Monitor be calculated as 5.3 percent of the measured emission rate from the Blast Furnace Casthouse Baghouse. (This value reflects the assumption that the emissions from the baghouse represent 95.0 percent of the total emissions from the casthouse and the uncaptured and unmeasured emissions represent 5.0 percent of the total (0.05 ÷ 0.95 = 0.053.)

The Illinois EPA then asserts that the Application does not demonstrate that the proposed methodology would yield calculated emission factors that are representative of actual emissions from casthouse roof monitor under all conditions. In particular, the proposed methodology might underestimate actual emissions if the capture efficiency is less than the 95 percent assumed in the Application. Finally, the Illinois EPA suggests that prescribing specific emission factors for NOx and VOM in the permit could be more easily shown to be representative than the approach proposed in the Application. As these assertions are intended to support the proposed denial of the Application, they are not a valid basis for denial of the Application. It is the responsibility of Illinois EPA to draft a permit with conditions it judges to be suitable and appropriate; the permit applicant has no obligation to reflect in the permit application a correct guess as to how the Illinois EPA will exercise its judgment regarding these matters.

There is potentially a problem, as discussed in Denial Point 9, that an actual capture efficiency less than 95 percent would not be reflected in the calculation methodology proposed in the Application. However, this problem is only theoretical. This scenario is effectively prohibited, as operation of the blast furnace casthouse capture system is subject to stringent requirements under 40 CFR Part 63 Subpart FFFFF, particularly 40 CFR 63.7790(b). Thus, if it were up to US Steel to decide on an appropriate emission determination methodology for the revised permit, the proposed 5.3 percent ratio

***** The revised PSD analyses in the Application also address the changes in the overall emissions of these material handling operations, indicating an increase of 1.0 ton/year for PM and a decrease of 6.6 tons/year for PM_{10}.**

approach would be used. However, US Steel recognizes that this decision is within the judgment and discretion of Illinois EPA.

As an initial matter, as the comment acknowledges the responsibility of the Illinois EPA to prepare permits that it considers suitable, it is unclear whether a detailed response is even needed to this comment. With respect to the emission determination methodology for NOx and VOM emissions from the casthouse roof monitor proposed by the Application, the Illinois EPA has determined that it cannot prepare a permit that would prescribe use of such methodology because the Application does not show that this would be appropriate. In particular, as discussed in detail in General Response 2, Section 8B of this Responsiveness Summary, when a permit applicant requests an air pollution control construction permit that would prescribe use of an emission factor, including a methodology that would set forth how emission factors would be developed on an ongoing basis, it is incumbent on the applicant in its application to show that the requested emission determination methodology would be appropriate. If an application for an air pollution control construction permit does not make such showing, the application would not meet the standard for issuance of a permit at Section 39(a) of the Act.

That said, the Illinois EPA will provide a brief explanation why, in the absence of any meaningful substantive support in the Application, the Illinois EPA has determined that the proposed emissions determination methodology should not be considered appropriate. This is because it presumes that a positive correlation or relationship will always exist between NOx and VOM emissions measured from the baghouses controlling particulate emissions of the casthouse (i.e., captured emissions) and the NOx and VOM emissions that occur through the roof monitor on the casthouse (uncaptured emissions).[169] As such, the Application does not confront the possibility that the actual rate of NOx or VOM emissions through the

[169] Of particular concern for the proposed emission determination methodology is what would occur when the rate of NOx or VOM measured by testing is lower than the rate measured in the previous test. With the proposed methodology, it would be presumed that if testing shows a lower rate of captured NOx or VOM emissions, the rate of uncaptured emissions is also lower. However, the Application does not show there could be other causes for the lower measured rate of NOx or VOM. For example, lower measured emissions could be due to atypical operating conditions during the casting process in the casthouse. It could also reflect operation of the capture systems for the particulate control devices at minimum operating levels necessary to comply with the opacity standards that apply to the casthouse roof monitor, rather than at normal levels of operation. The Application does not address the possibility that the emission factors for NOx and VOM resulting from the proposed emission determination methodology could be affected or impacted by such phenomena.

casthouse roof monitor is unchanged even though the measured emissions of captured NOx or VOM are lower.[170]

Finally, this comment does not support its claim that an actual capture efficiency for the casthouse that is less than 95 percent is only theoretical because of applicable requirements of 40 CFR 63 Subpart FFFFF, e.g., requirements under 40 CFR 63.7790(f). This rule involves operational requirements for the capture systems on casthouses for compliance with the standard for the opacity of particulate emission from any opening in the casthouse or structure housing the casthouse, e.g., the roof monitor. However, this NESHAP does not directly address the level of capture efficiency that must be achieved for particulate emissions. The Application also does not show that at this facility, a capture efficiency of at least 95 percent must be achieved for particulate emissions of the casthouse to be able to comply with the applicable standard in 40 CFR 63 Subpart FFFFF for the opacity of emissions from the roof monitor.

D. The Application Includes All Required Information Relating to Quantifying Emissions of Particulate from the Blast Furnace Casthouse Roof Monitor (Denial Point 10 – Particulate Emissions from the Casthouse Roof Monitor)

In the draft denial letter, Attachment 1, Illinois EPA correctly observes that, among the things requested by the Application, the Application requested that revised Permit 95010001 prescribe that particulate emissions from the casthouse roof monitor be calculated using emission factors for PM and PM_{10} of 0.030 and 0.0153 lb/ton of iron, respectively.[171] The Illinois EPA then asserts that the Application

---

[170] The Application also does not explain why an emissions determination methodology is proposed to be prescribed for uncaptured emissions of NOx and VOM from the casthouse that relates the emissions factors that are used to calculate these emissions to the measured NOx and VOM emission rates of captured emissions. For particulate emissions, specific emission factors are proposed for uncaptured emissions of the casthouse, which factors would be independent of the rates of captured emissions of particulate measured in periodic emission tests. For uncaptured NOx and VOM emissions of the casthouse, what makes it preferable to prescribe an emission determination methodology whereby the emission factors that must be used to calculate uncaptured emissions of NOx and VOM would change over time as testing is conducted for captured emissions of these pollutants?

[171] These emission factors for emissions through the roof monitor are derived from the factor for uncontrolled or "pre-control" PM emissions, 0.6 lb/ton of iron, in USEPA's *Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area Sources (AP-42)*, 4th Ed. (May 1983), Section 7.5, "Iron and Steel Production," Table 7.5-2, "Particulate Emission Factors for Iron and Steel Mills."

is deficient as relating to these factors because the Application "does not include relevant supporting information," "only references a single memorandum from 2019 by various USEPA staff and a consultant as support for achievement of 95 percent capture efficiency," and therefore does not demonstrate that the proposed emission factors would yield calculated emission rates that are representative of actual emissions from the casthouse roof monitor.

This assertion of a deficiency in the Application is without merit. The Illinois EPA does not identify any provision of the Act or the Illinois Code requiring that a permit application include any particular supporting information, nor does the Illinois EPA point to even an application form or guidance document suggesting that such documentation or additional explanation be provided. The Application includes all information required by the applicable permitting rules. Notably, the supporting information provided in the Application regarding the emission factors at issue is more extensive than the documentation provided in the application submitted by National Steel and accepted by Illinois EPA when issuing Permit 95010001 in 1996. Emission factors of 0.031 and 0.155 lb/ton for PM and PM_{10}, respectively, based on the assumption that 95 percent capture efficiency is achieved at the casthouse at this facility, have been consistently used by Illinois EPA in permitting for decades.[172]

By way of some background on this issue, in the application submitted in March 2020, US Steel used PM and PM_{10} emission factors of 0.031 and 0.0155 lb/ton of iron, respectively, which were also proposed to be prescribed. Among Illinois EPA's informal comments regarding that application, the Illinois EPA pointed out that these historically assumed emission factors are slightly higher than the values that would result from correctly deriving the emission factors using an assumptions of 95 percent capture efficiency. It was also explained that the Illinois EPA's records do not appear to contain an explanation for this discrepancy. It was suggested that US Steel use the revised and corrected emission factors, i.e., factors of 0.030 and 0.0.0153 for PM

The factor for PM then assumes 95 percent capture efficiency, *i.e.*, uncaptured emissions are 5 percent of the factor for uncontrolled emissions (0.05 x 0.6 = 0.030). The factor for PM_{10} is based on 51 percent of the PM being PM_{10} (0.51 × 0.030 = 0.0153), based on the particle size distribution in USEPA's *Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area Sources (AP-42)*, 5th Ed. (January 1995), Section 7.5, "Iron and Steel Production," Table 7.5-2, "Size Specific Emission Factors." (Adapted from Footnotes 37 and 38 of US Steel's Comments of January 2024.)

[172] See, *e.g.,* Permit 95010001 issued January 25, 1996, and the "Statement of Basis for the Planned Issuance of a Revised Clean Air Act Permit Program (CAAPP) Permit for: United States Steel Corporation, Granite City Works," Illinois EPA, February 4, 2013, p. 41. (Footnote 39 of US Steel's Comments of January 2024.)

and PM_{10}, respectively, which it did in the Application submitted in October 2022.

In light of Illinois EPA's repeated acceptance of and reliance on the assumption of 95 percent capture efficiency in numerous permitting actions over many years, including several permitting actions occurring prior to US Steel's ownership of the facility, and in light of the informal suggestion by Illinois EPA to correct the emission factor calculations in the manner described above, US Steel reasonably concluded that no further justification was needed as part of the Application, as submitted in October 2022. Of course, Illinois EPA retains authority pursuant to 35 IAC 201.152 to request additional information in conjunction with a construction permit application, but that was not done.

Alternatively, if the Illinois EPA now believes there is insufficient data to quantify the capture efficiency of the state-of-the-art capture systems at the casthouse at this facility and that the emissions from the casthouse roof monitor, are therefore not quantifiable, then, as these emissions are fugitive emissions under the NSR rules (e.g., 40 CFR 52.21(b)(20)), these emissions should be omitted from the analyses performed to determine whether the source obligation provisions apply in conjunction with the permit revisions requested by US Steel. As already discussed in Comment XI, fugitive emissions are counted for purposes of PSD and NaNSR applicability determinations only to the extent that such emissions are quantifiable.

This comment does not show that the Application should not be denied based on Denial Point 10 as it addresses particulate emissions from the roof monitor on the casthouse. In this regard, the comment ignores the fact that the Application requests that the revision to Permit 95010001 that is sought prescribe the emission factors that US Steel must use for these particulate emissions. As a consequence, the Application must also provide substantive support for the emission factors that are being proposed, as discussed in the "General Response 2, Section 8B of this Responsiveness Summary. The Application did not do this. As discussed in General Response 2, the fact that the Illinois EPA has historically accepted the emission factors that are now proposed for purposes of applicability of NSR is not sufficient to show that it would be appropriate for the requested revision to Permit 95010001 to now prescribe the use of such factors on an ongoing basis. Similarly, US Steel's expectations for the information that needed to be included in the Application are not relevant to the standards for issuance of a construction permit or denial of an application.

In addition, as in the alternative, this comment claims that the uncaptured particulate emissions of the blast furnace casthouse should be treated as "fugitive emissions" for purposes of NSR, such treatment

would be contrary to the definitions of fugitive emissions under the NSR programs. Tapping of the blast furnaces occurs in a structure, the casthouse. The uncaptured emissions that accompany tapping of the furnaces are released to the atmosphere through the roof monitor on the casthouse, an opening that is designed to facilitate venting of hot air and emissions from the casthouse. As such, the uncaptured emissions of the casthouse are emissions that pass through a stack, chimney, vent or other equivalent opening. The fact that these emissions are not captured and directed to the particulate control systems on the casthouse is not relevant to the appropriate treatment of these emissions under the NSR programs.

The claim in the comment that the capture systems on the casthouse are state-of-art is also irrelevant. This is because the issue is whether uncaptured emissions from the casthouse would be appropriately quantified based on the emission factors proposed in the Application. The issue is not whether the level of capture being achieved for the emissions of the casthouse is appropriate.[173]

Finally, as discussed in General Response 1, Section 8A of this Responsiveness Summary, it is not necessary for there to be a provision of the Act or the Illinois Code, or other guidance that specifies the particular information that must be included in an application for an air pollution control construction permit. The application must include information that is sufficient to provide proof that the facility or equipment addressed by the application will not violate applicable provisions of the Act and the Illinois Code. The Illinois EPA's ability to request additional information to remedy deficiencies in permit applications is not provided by 35 IAC 201.152. The Illinois EPA may directly proceed with denial of an air pollution control permit application without requesting that the applicant supplement or revise the submitted application.

---

[173] The claim that the capture systems for the emissions of the casthouse are state-of the art is also questionable. Under the Clean Air Act, Maximum Achievable Control Technology (MACT) for a source is not necessarily identical to "state-of-art."* Moreover, even if the NESHAP is considered to require state-of-art technology, the capture systems for the casthouse should at least comply with the opacity limit of the NESHAP for new sources, not the limit for existing sources, i.e., a limit for opacity on a 6-minute average of no more than 15 percent, rather than 20 percent.

*** Under Section 112(d)(3) of the Clean Air Act, for existing sources MACT need only be at least as stringent as the average emission limitation achieved by the best performing 12 percent of the existing sources in a source category or, if emission information is only available for less than 30 sources, at least as stringent as the average emission limitation achieved by the best performing five sources.**

E. The Application Includes All Required Information Relating to Quantifying Particulate Emissions of the Slag Pits (Denial Point 10 – Slag Pits)

In the draft denial letter, Attachment 1, the Illinois EPA correctly observes that, among other things, the Application requests that the revisions to Permit 95010001 prescribe use of an emission factor of 0.00417 lb/ton of hot metal for the particulate emissions of the Slag Pits. The Illinois EPA then asserts that the Application is deficient as relating to this emission factor because the Application "does not include relevant supporting information" and therefore does not demonstrate that the proposed emission factor would yield calculated emission rates that are representative of actual emissions of the Slag Pits.

This assertion regarding a deficiency in the Application is without merit. The Illinois EPA does not identify any provision of the Act or the Illinois Code requiring that a permit application include any particular supporting information, nor does the Illinois EPA point to even an application form or guidance document suggesting that such documentation or additional explanation be provided. The application includes all information required by the applicable permitting rules. Notably, the supporting information provided in the Application regarding the emission factor at issue is more extensive than the documentation provided in the permit application submitted by National Steel in 1995 and accepted by Illinois EPA when issuing Permit 95010001 in 1996. The emission factor of 0.00417 lb/ton for the Slag Pits at the facility has been consistently applied by Illinois EPA for decades. The summary of the derivation of that factor as provided by US Steel in the Application is simply a paraphrasing of Illinois EPA's description.[174]

In light of Illinois EPA's repeated acceptance of and reliance on this emission factor in permitting actions over the years, including several

---

[174] See, *e.g.,* "Statement of Basis for the Planned Issuance of a Revised Clean Air Act Permit Program (CAAPP) Permit for: United States Steel Corporation, Granite City Works," Illinois EPA (February 4, 2013), p. 42, as it indicated stated the following relative to the PM/PM_{10} emissions of the slag pits:

> Emission Factor: 0.00417 lbs/ton of iron
> Origin of EF: Calculated from EPA Assessment of Atmospheric Emissions from Quenching of Blast Furnace Slag. Also, AP-42, Table 13.2.4-4, Fugitive Uncontrolled emissions. Summation of the following emission factors:
> a. Slag Quenching = 0.0026 lbs/ton iron,
> b. Slag Digging = 0.00157 lbs/ton iron.
> Update Methodology: Refer to Conditions 7.4.9(i). 5.9.6(c) and 5.13 of the permit.

(Footnote 45 of US Steel's Comments of January 2024.)

permitting actions occurring prior to US Steel's ownership of the facility, US Steel reasonably concluded that no further justification was needed as part of the permit application supplement submitted in October 2022. Of course, Illinois EPA retains authority to request additional information in conjunction with a construction permit application pursuant to 35 IAC 201.152, but that was not done here.

This comment does not show that the Application should not be denied based on Denial Point 10 as it addresses particulate emissions from the slag pits. In particular, as discussed in detail in General Response 2, Section 8B of this Responsiveness Summary, when a permit applicant requests an air pollution control construction permit that would prescribe use of certain emission factors, it is incumbent on the applicant in its application to show that the proposed factors would be appropriate. Absent such a showing, the Illinois EPA cannot issue the requested permit as it would not meet the standard for issuance of a permit at Section 39(a) of the Act. As explained in General Response 2, as well as in General Response 1, even if the Illinois EPA had prescribed the use of certain emissions factor(s) in past permitting actions, which it has not done,[175] this would not be sufficient to justify issuance of a revision to Permit 95010001 that would prescribe the continued use of such factors. This comment ignores the all-important fact that US Steel, in its Application, requests that revised Permit 95010001 prescribe the emission factors that US Steel is to use on an ongoing basis to calculate emissions of certain units and emission points for the purpose of determining compliance with limitations on annual emissions. The Illinois EPA does not have the obligation to show that emission factors that a permit applicant, not the Illinois EPA, itself, proposes to be prescribed are appropriate.

In addition, this comment's claim that the Illinois EPA prescribed use of emission factors in 2013 when acting on Permit 96030056, the CAAPP permit for the facility, does not hold up to scrutiny. The Illinois EPA's February 4, 2013, Statement of Basis for the planned revisions to Permit 96030056, as referenced by this comment, does not show that a revision of Permit 96030056 was planned that would prescribe the use of specific emission factors for particulate emissions of the slag pits, much less that the Illinois EPA actually issued a revised permit that

[175] As already discussed, the Illinois EPA considers the provisions in Permit 95010001 that limit emissions of units in pounds/ton produced or handled; pounds/million cubic feet of fuel burned; or pounds/hour, including the limits for the slag pits, to be enforceable limits on the emissions of the subject units. These limits were included in Permit 95010001 in 1996 to enforceably limit the emissions of these units either so that the Project would not be a major modification for a pollutant or, as the Project was a major modification for SO_2 and CO, to enforceably limit emissions of SO_2 and CO to the amounts provided for by means of the PSD approval.

prescribed use of particular emissions factors. The information for the slag pits in the attachment to that Statement of Basis, as referred to by this comment, was provided in this document to inform the USEPA and the public of the emission factors that US Steel was using to determine emissions of Project-affected process emission units at the time this document was prepared.[176]

F. The Application Includes All Required Information Relating to Quantifying Particulate Emissions of the Continuous Casting Operations (Denial Point 8 – Continuous Casting Operations)

In the draft denial letter, Attachment 1, the Illinois EPA correctly observes that, among the procedures proposed by the Application for the ongoing demonstration of compliance with the proposed emission caps, US Steel proposed that the PM and PM_{10} emissions of the Caster Mold, Slab Cutoff, and Slab Ripping operations be calculated using prescribed emission factors. Illinois EPA then asserts that as related to these emission factors, the Application is deficient because the Application does not include supporting information "sufficient to show that the emission factors that are proposed as prescribed factors are representative."

The assertion of a deficiency in the Application is without merit. The Illinois EPA does not identify any provision of the Act or the Illinois Code requiring that a permit application include any particular supporting information, nor does the Illinois EPA point to even an

---

[176] The information in an attachment in the Statement of Basis for the planned revisions of Permit 96030056 referenced in this comment was part of the Illinois EPA's planned response to deficiencies, as identified in USEPA Order,* in the CAAPP permit for the facility that was issued in May 2011. As explained in this statement of basis, in the planned revision to Permit 96030056, the Illinois EPA was not planning to prescribe emission factors for various emission units. Rather the information in the attachment responded to a finding by USEPA in its Order that, "The Illinois EPA shall make available for public comment the emission factors that US Steel initially intends to use to demonstrate compliance with the subject emission limits [emissions limitations for Project-affected process units set by Permit 95010001]." (Statement of Basis, p. 22 of 47.) The cited attachment made the emission factors being used by US Steel directly available for review by the public, as required by the Order. The Illinois EPA also explained, "The revised CAAPP permit that the Illinois EPA now plans to issue would include a listing of the emission factors that US Steel is currently using to determine compliance with the subject limits." (Statement of Basis, p. 22 of 47.)

*** Before the Administrator, United States Environmental Protection Agency, In the Matter of: United States Steel Corporation - Granite City Works, CAAPP Permit No. 96030036 Proposed by the Illinois Environmental Protection Agency. Order Responding to Petitioner's Request That the Administrator Object to the Issuance of State Operating Permit; Order Granting in Part and Denying In Part Petition for Objection to Permit, December 3, 2012.**

application form or guidance document suggesting that such documentation or additional explanation be provided. The Application includes all information required by the applicable permitting rules. Notably, the supporting information provided in the application regarding the emission factors at issue is more extensive than the documentation provided in the application submitted by National Steel in 1995 and accepted by the Illinois EPA when issuing Permit 95010001 in 1996. These PM/PM_{10} emission factors for the continuous casting operation at the facility have been consistently accepted by the Illinois EPA for the purpose of permitting over many years.[177]

In light of Illinois EPA's acceptance of these emission factors in various permitting actions over the years, including permitting actions before US Steel's ownership of the facility, US Steel reasonably concluded that no further justification was needed as part of the Application. Of course, Illinois EPA retains authority pursuant to 35 IAC 201.152 to request additional information in conjunction with a construction permit application, but that was not done here.

This comment does not show that the Application should not be denied based on Denial Point 10 as this denial point addresses particulate emissions from continuous casting. In particular, as discussed in detail in General Response 2, Section 8B of this Responsiveness Summary, when a permit applicant requests an air pollution control construction permit that would prescribe use of certain emission factors, it is incumbent on the applicant in its application to show that the requested factors would be appropriate. If an application does not make such showing, the application would not meet the standard for issuance of a construction permit at Section 39(a) of the Act. In addition, as explained in General Response 2, as well as in General Response 1, even if the Illinois EPA has prescribed the use of certain emissions factors in past permitting actions, which it has not done, this would not be sufficient to justify issuance of a revision to Permit 95010001 that would prescribe the continued use of these factors. Like an earlier comment, this comment again ignores the fact that the Application requests that the revision to Permit 95010001 prescribe the emission factors that US Steel must use on an ongoing

---

[177] See, *e.g.*, "Statement of Basis for the Planned Issuance of a Revised Clean Air Act Permit Program (CAAPP) Permit for: United States Steel Corporation, Granite City Works," Illinois EPA (February 4, 2013) at p. 47. For example, the following was indicated relative to the PM/PM_{10} emissions of Slab Cutoff:

> Emission Factor: 0.0071 lbs/ton of steel
> Origin of EF: Illinois EPA 1991 EIS PM/PM_{10} Report
> Update Methodology: Refer to Conditions 7.6.9(c). 5.9.6(c) and 5.13 of the permit.

(Footnote 47 of US Steel's Comments of January 2024.)

basis for certain units and emission points when determining compliance with limitations on annual emissions.

Again, the Illinois EPA's February 4, 2013, Statement of Basis for planned revisions to Permit 96030056, as referenced by this comment, does not show that the Illinois EPA was planning to issue a revision of this permit that would prescribe use of specific emission factors for particulate emissions of the continuous casting operations. As already discussed earlier in response to US Steel's Comment XII.E concerning the slag pits, the information for the continuous casting operations in the attachment to this Statement of Basis, as referred to by this comment, was provided to inform the USEPA and the public of the emission factors that US Steel was using to determine emissions of Project-affected process operations at the time that this statement of basis was prepared.

Finally, as discussed in General Response 1, Section 8A of this Responsiveness Summary, it is not necessary for there to be a provision of the Act or the Illinois Code, or other guidance that specifies the particular information that must be included in an application for an air pollution control construction permit. The Illinois EPA is also not required to request information from a permit applicant to address deficiencies in the submitted application before proceeding to deny the application.

G. The Application Includes All Required Information Relating to Quantifying Particulate Emissions from the Iron Pellet Screen (Denial Point 10 – Iron Pellet Screen)

In the draft denial letter, Attachment 1, the Illinois EPA correctly observes that, among the emission factors that the Application proposes be prescribed, for the Iron Pellet Screen, the Application proposes an emission factor for both PM and PM_{10} of 0.00131 lb/ton of material. As explained in the Application, this emission factor is derived from the PM_{10} emission factor published by USEPA for crushed stone screening, 0.0087 lb/ton of material, applying 85 percent control efficiency.[178]

[178] USEPA, *Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area Sources (AP-42)*, 5th Ed., Aug. 2004, Section 11.19.2, "Crushed Stone Processing and Pulverized Mineral Processing," Table 11.19.2-2, "Emission Factors for Crushed Stone Processing Operations," updated Aug. 2004. A control efficiency of 85 percent was applied for this operation, [USEPA, *Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area Sources (AP-42)*, 4th Ed., Supplement No. 14], May 1983] Section 7.5, "Iron and Steel Production," Table 7.5-2, "Particulate Emission Factors for Iron and Steel Mills." (Footnote 49 in US Steel's Comments of January 2024.)

Illinois EPA then asserts that the Application is deficient as related to its request that the revised permit prescribe the emission factors that are to be used for the iron pellet screen. This is because the Application, "does not include relevant supporting information." In particular, the assumption of 85 percent control efficiency is not supported. The use of an emission factor for PM derived from an emission factor for PM_{10} is also questioned, as USEPA's published factors show that more PM emissions than PM_{10} emissions. Therefore, the Application does not demonstrate that the proposed factor would yield data for emissions that is representative of actual emissions of the Iron Pellet Screen and the Application is deficient. In fact, the proposal of the PM_{10} derived emission factor as the prescribed factor for PM emissions was an error.[179] US Steel's intent was that corresponding PM emission factor of 0.00375 lb/ton of material, as shown in Table 5-5 of the Application, be prescribed.

Nonetheless, the assertion regarding a deficiency in the Application is without merit. The Illinois EPA does not identify any provision of the Act or the Illinois Code requiring that a permit application include any proposed emission quantification methods for fugitive emissions, nor does the Illinois EPA point to even an application form or guidance document suggesting that such a proposal be provided. The Application includes all information required by the applicable permitting rules. It is the responsibility of Illinois EPA to draft a permit with conditions it judges to be suitable and appropriate, including recordkeeping requirements and other compliance demonstration methods. The permit applicant has no obligation to reflect in its application a correct guess as to how the Illinois EPA will exercise its judgment regarding these matters.

This comment does not show that the Application should not be denied based on Denial Point 10 as it addresses the emissions of the Iron Pellet Screen. In particular, as discussed in detail in General Response 2, Section 8B of this Responsiveness Summary, when a permit applicant requests an air pollution control construction permit that would prescribe use of certain emission factors, it is incumbent on the applicant in its application to show that the proposed factors would be appropriate. Absent such a showing, the Illinois EPA cannot issue the requested permit as it would not meet the standard for issuance of a permit at Section 39(a) of the Act. Like earlier comments, this comment again ignores the fact that the Application requests that revised Permit 95010001 prescribe the emission factors

[179] While this comment characterizes this error as a scrivener's error, this characterization in not appropriate. When this comment was made, the Application was still pending. US Steel had the ability to unilaterally, without any concurrence by the Illinois EPA, to submit an erratum to correct the Application.

that US Steel must use on an ongoing basis for certain units and emission points when determining compliance with limits on annual emissions.

Moreover, this comment actually provides support for denial of the Application based on Denial Point 10 as it addresses the Iron Pellet Screen. For this unit, the Application simply identifies the proposed prescribed emission factor without providing any further explanation.[180] The comment indicates that the Application was in error as it proposed the same factor be prescribed for both PM and PM_{10}.[181] In addition, the comment also acknowledges that the proposed factor reflects application of a control efficiency of 85 percent to a published USEPA factor. However, the comment does not identify place(s) in the Application where support was provided for use of a particulate control efficiency of 85 percent for this unit. This comment does not even describe the control measures, control practices or considerations that act to lower its rate of emissions from the uncontrolled factor provided by USEPA.[182]

Finally, as discussed in General Response 1, Section 8A of this Responsiveness Summary, it is not necessary for there to be a provision of the Act or the Illinois Code, or other guidance that specifies the particular information that must be included in an

---

[180] With respect to the Iron Pellet Screen, Section 5.5.4.2, "Prescribed Emission Factors for Material Handling," the Application simply states:

> **USS Granite City is proposing the following prescribed emissions factors for emission points for which emission testing is not feasible.**
>
> **a) For Iron Pellet Screen fugitives, use PM/PM_{10} emission factor of 0.00131 lb/ton."**

[181] Upon reflection, the Application is also likely flawed as Section 5.5.4.2 refers to Iron Pellet Screen <u>fugitives</u>, rather than simply to the emissions of this unit. As the proposed factor is identified as addressing the fugitive emissions of this unit, it suggests that this unit has both "uncaptured emissions" and, as emissions are controlled, "captured emissions." The factor that is proposed only addresses the uncaptured emissions. In fact, the characterization of the proposed factor as addressing the fugitives of this unit is likely gratuitous. All emissions of this unit are likely being addressed. Rather than use of an add-on air pollution control device, the control measures or considerations that lower emissions compared to the published factor for uncontrolled emissions are reflected in the proposed factor.

[182] With respect to use of a control efficiency of 85 percent, this comment attempts in a footnote to now provide support for this efficiency. (This footnote appears to refer to information in a May 1983 update to USEPA's *Compilation of Air Pollutant Emission Factors*.) However, in that document, the referenced table, Table 7.5-2, does not address handling or processing of raw materials at an iron and steel mill, much less the reduction in particulate emissions from various control measures.

application for an air pollution control construction permit. The application must include information that is sufficient to provide proof that the facility or equipment that is the subject of the application will not violate applicable provisions of the Act and the Illinois Code.

H. The Application Includes All Required Information Relating to Quantifying Particulate Emissions of the Mag Lime Silo (Denial Point 8 – Mag-Lime Silo)

In the draft denial letter, Attachment 1, the Illinois EPA correctly observes that the Application proposes a prescribed emission factors for the particulate emissions of the Mag-Lime Silo, i.e., 0.009 lb/hour for both PM and PM_{10}. The Illinois EPA then asserts that the Application is deficient as relating to this factor because the application does not include supporting information demonstrating that the proposed factor is representative of actual emissions from the Mag Lime Silo.

The assertion regarding a deficiency in the Application is without merit. The Illinois EPA does not identify any provision of the Act or the Illinois Code requiring that a permit application include any proposed compliance demonstration methods, nor does the Illinois EPA point to even an application form or guidance document suggesting that such a proposal be provided. The Application includes all information required by the applicable permitting rules. It is the responsibility of Illinois EPA to draft a permit with conditions it judges to be suitable and appropriate, including recordkeeping requirements and other compliance demonstration methods. A permit applicant has no obligation to reflect in the permit application a correct guess as to how the Illinois EPA will exercise its judgment regarding these matters.

This comment does not show that the Application should not be denied based on Denial Point 8 as it addresses the Mag-Lime Silo. The comment does not show that the Application contains any supporting information for the emission factor that it proposes be prescribed for the Mag-Lime Silo by Revised Permit 95010001. As discussed in detail in General Response 2, Section 8B of this Responsiveness Summary, when a permit applicant requests an air pollution control construction permit that would prescribe use of certain emission factors, it is incumbent on the applicant in its application to show that the proposed factors would be appropriate. If such showing is not made, the application would not meet the standard for issuance of a permit at Section 39(a) of the Act. Like earlier comments, this comment again ignores the fact that the Application requests that revised Permit 95010001 prescribe the emission factors that US Steel must use on an ongoing basis for certain units and emission points to

determine compliance with limits on annual emissions.[183]

Finally, as discussed in General Response 1, Section 8A of this Responsiveness Summary, it is not necessary for there to be a provision of the Act or the Illinois Code, or other guidance that specifies the particular information that must be included in an application for an air pollution control construction permit. The application must include information that is sufficient to provide proof that the facility or equipment that is the subject of the application will not violate applicable provisions of the Act and the Illinois Code.

I. The Application Includes All Required Information Relating to Quantifying Particulate Emissions of from the BOF Shop Roof Monitor (Denial Point 8 – Particulate Emissions from the BOF Shop Roof Monitor)

I1. The Proposed Prescribed Factors Are Lower Than the Factors That Were Used by National Steel in Its Emission Calculations

In the draft denial letter, Attachment 1, the Illinois EPA correctly observes that the Application proposes that emissions of PM and PM_{10} from the BOF Shop Roof Monitor be calculated using prescribed emission factors that are lower than the factors used by National Steel in the original application for Permit 95010001.

This comment does not show that the Application should not be denied based on Denial Point 8 as it addresses the particulate emissions of the BOFs from the roof monitor on the BOF shop. In particular, as discussed in detail in General Response 2, Section 8B of this Responsiveness Summary, when a permit applicant requests an air pollution control construction permit that would prescribe use of certain emission factors, it is incumbent on the applicant in its

[183] As US Steel also claimed in this comment that, although it had no obligation to do so, it requested that emissions from the Mag-Lime Silo be subject to limits, this claim is both unsupported and irrelevant. The Mag-Lime Silo is a particulate emission unit, admittedly with very few emissions. It should have been addressed by National Steel in its original Application for the Project.

As US Steel also claims that related to the emissions of the Mag-Lime Silo, the proposed denial of the Application will simply ensure the status quo is maintained, *i.e.,* that US Steel is not subject to any limitations on emissions from this unit, this is both irrelevant and overly simplistic. The particulate emissions of the Mag Lime Silo are trivial due to the filter control that is an inherent aspect of pneumatic loading of this silo. Would this unit appropriately be addressed in the revised permit as an insignificant emission unit? If the particulate emissions of this unit are limited, why should they be limited by an emission cap that applies to this unit along with other more substantial, discrete units that also involve material handling and processing?

application to show that the proposed factors would be appropriate. If the application does not make such showing, application would not meet the standard for issuance of a permit at Section 39(a) of the Act. Like earlier comments, this comment again ignores the fact that the Application requests that revised Permit 95010001 prescribe the emission factors that US Steel must use on an ongoing basis for certain units and emission points when determining compliance with limits on annual emissions.

This comment does not address, much less show that the Application includes substantive information supporting the emission factors that are proposed to be prescribed for the particulate emissions for the BOFs that occur through the roof monitor on the BOF shop.[184] Accordingly, this comment does not show that the Application should not be denied based on Denial Point 8 as particulate emissions of the BOFs from the roof monitor are addressed.[185]

I2. The Application Includes All Required Information Relating to Quantifying Particulate Emissions of the BOF Shop Roof Monitor

The Illinois EPA acknowledges in the Draft Denial Letter, Attachment 1, Footnote 42, that the emission factors proposed by US Steel for BOF emissions through the roof monitor may be representative of the current configuration of the BOF Shop. In Footnote 42, the Illinois EPA further asserts that "particulate emissions factors that are representative of particulate emissions circa 1996, before installation of the baghouse system on the BOFs, should be used in the revised netting analyses for PM and PM_{10}." The Illinois EPA goes on to assert that the Application is deficient as related to these factors because "those prescribed factors would not be representative of emissions before the new baghouse system was installed and operation of this system was required."

These assertions are without merit. Although this information may be relevant to an evaluation of whether the Project as authorized by Illinois EPA and as implemented by National Steel prior to US Steel's ownership was a major modification subject to the substantive requirements of the NSR programs, it is not relevant to the "source

[184] Since the emissions factors that the Application proposes be prescribed for particulate emissions of the BOFs from the roof monitor on the BOF shop are not the emission factors used in previous permitting, this comment cannot even point to "earlier reliance" to support the proposed factors.

[185] Incidentally, in US Steel's Comments of September 2023, attention is called to an error in the Draft Denial Letter with respect to the PM and PM_{10} emissions factors that the Application proposes be established as prescribed factors for the BOF Shop Roof Monitor. The factors for PM and PM_{10} are interchanged. US Steel's Comments of January 2024 again call attention to this error. However, based on the original comment pointing out this error, this error was corrected and was not made in the Revised Draft Denial Letter.

obligation" analysis and demonstration that are required here. As already discussed in US Steel's Comment VIII.B, these analyses are prospective, not retrospective; there is no consideration of facts as they may have existed at some prior point in time and no "mixing" of facts from different points in time.

As this comment does not actually address the deficiency in the Application identified in Denial Point 8, or a deficiency identified in another denial point, this comment is not relevant to the proposed denial of the Application. Rather, this comment responds to possible deficiencies in the Application that are of US Steel's own creation and were not identified as a basis for the proposed denial of the Application in the Draft Denial Letters. In this regard, this comment misrepresents Footnote 43 of the Draft Denial Letters as the footnote addresses the emission factors that are proposed for uncaptured particulate emissions of the BOFs (i.e., the particulate emissions that occur through the roof monitor of the BOF shop).[186] In this footnote, the Illinois EPA does not identify deficiencies in the Application but instead provides some clarifying explanation, as is appropriate in a Responsiveness Summary.[187]

---

[186] **In its entirety, Footnote 43 of the Draft Denial Letter reads is as follows:**

> **The emission factors that the 2022 application proposes to be prescribed for particulate emissions from the roof monitor on the basic oxygen furnaces may be appropriate at the present time given the installation of a baghouse control system on these furnaces. Nonetheless, for a revised permit to be issued that prescribes emission factors for emissions from the roof monitor, the application must show that those factors are representative with the emission control measures that are required by the permit. It must also be recognized that those prescribed factors would not be representative of emissions before the new baghouse system was installed and operation of this system was required. As such, particulate emissions factors that are representative of particulate emissions circa 1996, before installation of the baghouse system on the furnaces, should be used in the revised netting analyses for PM and PM_{10}.**

[187] **The first sentence in Footnote 43 confirms that the deficiency that is identified in Denial Point 8 with respect to the absence of supporting information for the emission factors that are proposed for uncaptured particulate emissions of the BOFs (i.e., the particulate emissions that occur through the roof monitor of the BOF shop), is not that these factors are lower than the rates of emissions that were previously used. That is, factors that are lower than factors that were previously used may now be appropriate given the addition of the baghouse control system to the BOFs. The deficiency in the Application is that the Application does not provide information showing that the "new factors" that are proposed for uncaptured emissions would be representative considering the control measures that would be required by the permit. The footnote then observes that, as the new emissions factors would address emissions with the new baghouse system, they would not address emissions before this system was installed and began operation. The final**

This comment specifically takes umbrage with the last sentence in this footnote. In this sentence, with respect to the uncaptured particulate emissions of the BOFs (i.e., the emissions that occur through the roof monitor of the BOF shop), the Illinois EPA observes that, "As such, particulate emissions factors that are representative of particulate emissions circa 1996, before installation of the baghouse system on the furnaces, should be used in the revised netting analyses for PM and PM_{10}." The position of the Illinois EPA reflected in this sentence is contrary to the position of US Steel, as set forth in Comment XIII.[188] This fact is acknowledged. However, this does not affect the denial of the Application since the Denial Letter does not identify a deficiency in the Application with respect to the particulate emissions data for the BOFs with the Project used in the revised NSR applicability analyses for PM and PM_{10} in the Application.[189]

J. The Application Includes Adequate Explanation of Projected Post-Project Actual Emissions from Fuel Combustion Units (Denial Points 3 and 7))

J1. The Explanation in the Application for Projected Post- Project Actual Emissions from Fuel Combustion Units Is Adequate (Denial Point 3)

In the draft denial letter, Attachment 1, the Illinois EPA correctly observes that the Application represents the maximum total post-project actual NOx emissions from the Project-affected fuel burning units as 706 tons per year. The Illinois EPA then asserts that the Application is deficient because it "does not explain why actual NOx emissions of the subject units would not exceed this amount going forward if the permit

---

sentence of this footnote observes that it would not be proper to use the new emissions factors in the revised NSR applicability analyses for the Project.

[188] As explained in the Illinois EPA's extensive response to US Steel's Comment VIII, the approach to reevaluation of NSR applicability put forth in Comment VIII, which is referred to by this comment, is not correct. Rather, as revised NSR applicability analyses must be prepared to address errors in the original or prior NSR applicability analyses for a project, those analyses must be revisited.

[189] Incidentally, contrary to what this comment implies, it does not appear that the revised PSD applicability analyses in the Application take into consideration the reduction in particulate emissions that resulted from the addition of a baghouse control system for the BOFs. In this regard, for the BOFs, the revised net emissions increase analyses for the Project for PM and PM_{10} indicate "No change" from the 1996 NSR applicability analyses. (Appendix B of the Application, "USS Granite City – 1996 Production Increase Project: Revised PM PSD Net Emissions Increase Analysis," and "USS Granite City – 1996 Production Increase Project: Revised PM_{10} PSD Net Emissions Increase Analysis.")

were revised" as proposed. This assertion is without merit. The explanation is provided in Table 6-7 of the Application, where the proposed revised NOx emissions cap for these units is indicated as 706 ton/year.

This comment does not show that the Application should not be denied. This comment, in condensed form, restates US Steel's Comment IX.E. As explained by the Illinois EPA in response to that comment, the Application did not provide the information identified in this comment in Table 6-7 of the Application. Accordingly, the Application is deficient for the reason detailed in Denial Point 3.

J2. The Application Includes Adequate Explanation of Projected Post-Project Actual NOx Emissions from Fuel Burning Units and Does Not Diminish Illinois EPA's Authority to Impose Enforceable Limits (Denial Point 7)

In the draft denial letter, Attachment 1, the Illinois EPA correctly observes that the Application requests elimination of the gaseous fuel usage limits for Project-affected fuel burning units. The Illinois EPA further asserts as follows:

> While the limits for fuel usage and emissions currently in Permit 95010001 may no longer be relevant, as generally addressed above, this does not mean that other limits for fuel usage and emissions are not appropriate. In this regard, the 2022 application does not show that new limits for fuel usage and emissions would not now be needed and those limits should address fuel burning units other than the Project-affected units currently addressed by the permit. In this regard, limits for usage of fuels and emissions should not extend to Boilers 1 through 10, as they are no longer in operation, having been shut down a number of years before the coke oven batteries were shutdown. As the four slab reheat furnaces at the facility were affected by the elimination of COG, new limits may be needed that also extend to these furnaces. It may also be appropriate for the cogeneration boiler to be addressed by the new limits as this boiler began operation several years before the by-product coke oven batteries at the facility were shutdown. (Internal footnote omitted.)

By way of a brief review of US Steel's approach to this issue, the application submitted in March 2020 expressly requested enforceable emission caps for emissions of NOx and other pollutants from the Project-affected fuel burning units and provided emission calculations supporting these proposed caps. Among Illinois EPA's informal comments regarding that application, it was correctly pointed out that enforceable emission caps are superfluous and unnecessary where the

potential emissions of the affected unit or units are less than or equal to the emission caps that would be under consideration. Accordingly, in the Application, US Steel omitted the express request for enforceable emission caps for the Project-affected fuel burning units.

Notwithstanding this history, it remains the responsibility of the Illinois EPA to draft a permit with conditions it judges to be suitable and appropriate. If Illinois EPA is not persuaded that the future actual emissions from the Project-affected fuel burning units will be less than or equal to the values represented in the Application in the absence of enforceable limits on fuel usage in or enforceable emission caps for these units, then the Illinois EPA undisputedly has the discretion and authority to impose such limits in the permit. A permit applicant has no obligation to reflect in the permit application a correct guess as to how the Illinois EPA will exercise its judgment regarding these matters. That should be especially true where, as here, the Illinois EPA conveys its preliminary judgment, the applicant revises its permit application to be consistent with that representation, and then the Illinois EPA vacillates.

With regard to Illinois EPA's observation that the revised limitations may need to "address fuel burning units other than the Project-affected units currently addressed by the permit," such as the slab reheat furnaces and the co-generation boiler at the facility, US Steel disagrees that such limits would be appropriate. As these emissions units were not among the units affected by the Project, the emissions from these units are not relevant to the "source obligation" analysis and demonstration that are required here, as already discussed in US Steel's Comment VIII.B.

This comment does not show that the Application should not be denied based on Denial Point 7. As acknowledged by this comment, for Project-affected fuel burning units, the Illinois EPA informally questioned whether emission limitations in Permits 95010001 needed to be perpetuated in the requested revision to Permit 95010001. This is because, with the shutdown of ten boilers, the potential emissions of certain pollutants from these units may now be less than would be allowed based on revised analyses of NSR applicability for the Project.[190] However, the Application does not concretely respond to this issue. Instead, when discussing the requested revision to Permit 95010001 related to emissions of PM, PM_{10}, NOx and VOM, the Application,

[190] As this comment addresses the actual emissions of fuel burning emissions units, e.g., "the future actual emissions from the Project-affected fuel burning units will be less than or equal to the values represented in the Application," this comment is not responsive to Denial Point 7. As discussed, this deficiency involves the potential emissions of these units, not their actual emissions.

p. 2-4, simply states that, "USS Granite City is also requesting revision/elimination of gaseous fuel usage limits for project-affected combustion units." The Application proceeds to explain that the shutdowns of the two by-product coke oven batteries and ten of the twelve boilers at the facility, "… have greatly reduced the emissions from fuel combustion in project-affected emission units and obviate the need to preserve limits to restrict PTE (potential to emit) of the remaining units." However, the Application does not actually explain or show how these actions have obviated the need for the revisions to Permit 95010001 to continue to limit fuel usage and emissions of Project-affected fuel burning units. That is, the Application does not provide information for the potential emissions of relevant pollutants from the Project-affected fuel burning units, i.e., units other than the ten boilers that are now shutdown, with use of only BFG and natural gas, since COG is no longer available. In these circumstances, as the Application requests a particular revision to Permit 95010001 but does not provide support for such revision, it is appropriate that this deficiency in the Application be a reason for denial of the Application.[191]

This comment also does not show that the Application is not deficient as related to the four slab reheat furnaces and co-generation boiler at the facility that are not Project-affected fuel burning units. In this regard, however, the Illinois EPA does not claim in Denial Point 7 that the Application is deficient because the revised NSR applicability analyses for the Project do not address these units. Rather, the observation made in Denial Point 7 is that the Application may be deficient as it does not address the effects of the shutdown of the two by-product coke oven batteries on the operation and emissions of the four reheat furnaces that historically burned both COG and natural gas. Moreover, given the timing of the shutdown of the coke oven batteries and any resulting increase in the usage of natural gas by these reheat furnaces, the increases in emissions from the new co-generation boiler may be contemporaneous relative to any increases in emissions from the reheat furnaces. In summary, the Application does not show that requested revision to Permit 95010001 should not continue to include

---

[191] As this comment broadly claims that it is the Illinois EPA's responsibility to draft a revised permit with conditions that the Illinois EPA judges to be suitable and appropriate, this comment does nothing to refute the proposed denial of the Application, as detailed in Denial Point 7. If anything, it supports this denial as the Application does not include information that would be needed to impose permit conditions in the requested revised permit that, in the judgment of the Illinois EPA, would be suitable and appropriate.

Moreover, if this general pronouncement concerning permit conditions were to actually reflect the authority given to the Illinois EPA to impose conditions on permits, the Illinois EPA would have the authority in the requested revision to Permit 95010001 to impose conditions to carry out the purposes of the Act without regard to information provided by US Steel in the Application.

limitations for fuel burning units at the facility, that now also address emissions of the four reheat furnaces, to ensure that the increased use of natural gas due to the shutdown of the coke oven batteries has not resulted in a major modification for NSR. The Application simply requests an increase in the permitted usage of natural gas and allowable emissions of the Project-affected fuel burning units.[192] As such, given this comment does not address this second aspect of Denial Point 7, this comment also does not show that the Application should not be denied.[193]

---

[192] For example, as related to NOx emissions from use of fuels, the Application explains:

> **The post-project emission caps for the project affected emissions units are developed by USS Granite City using the operating rates shown in Table 6-6. Other than the natural gas usage, which is proposed to increase, and the oil usage, which is proposed to be eliminated, these rates are unchanged from the operating rates in the permit [maximum annual rate or iron production, maximum annual rate of steel production, and maximum annual rate of generation/burning of BFG]. As previously noted in Section 5.3 [Post-Project PM and PM_{10} Emission Limitations], due to the 2015 shutdown of the Coke Plant, this application addresses [an] increase in the natural gas usage for the fuel burning units affected by the project and also addresses elimination of COG at the affected units.**
>
> **Application, Section 6.3, Post-Project NOx Emissions Limitations, p. 6-6,**

[193] In this comment, with respect to the broad claim that a permit applicant need not reflect in its application, "… a correct guess as to how the Illinois EPA will exercise its judgment," a further claim is made, "That this should be especially true where, as here, the Illinois EPA conveys its preliminary judgment, the applicant revises its permit application to be consistent with that representation, and then the Illinois EPA vacillates." It should first be noted that the Illinois EPA did not vacillate. Rather, when informally reviewing the March 2020 application, the Illinois EPA questioned whether, because of the shutdown of ten boilers at the facility, certain limitations for fuel burning units would still be necessary in the requested revision to Permit 95010001. Moreover, even if the Illinois EPA had vacillated, it would not act to shield the Application from denial.

By way of restatement, the deficiency in the Application being addressed here does not involve guesses for how the Illinois EPA will judge the Application. The deficiency involves the absence of relevant information that directly supports a request made by the Application. As US Steel was informed about an issue that is posed by its request for revision of Permit 95010001, US Steel could have substantively addressed this issue in the Application, as submitted in October 2022. In this regard the Application does claim that the elimination of COG and the shutdown of boilers eliminates the need for limits to restrict the potential emissions of the remaining units. However, this claim is not actually accompanied by data for the potential emissions of the "remaining units." This data was needed in the Application so that the validity of the claim and the request, which would possibly simplify one aspect of the revisions to Permit 95010001, could have been reviewed.

XIII. THE APPLICATION INCLUDES ALL INFORMATION NECESSARY FOR INTEGRATED PROCESSING UNDER THE CAAPP OR, IN THE ALTERNATIVE, ANY DEFICIENCIES ARE NOT A BASIS FOR DENYING THE APPLICATION (VARIOUS DENIAL POINTS)

A. Claimed Deficiencies in the Application As Related to Integrated Processing Under the CAAPP Do Not Form a Basis for Denying the Application

As correctly observed by Illinois EPA in the draft denial letter, in the Application, US Steel requests that the revision of Permit 95010001 be subjected to "integrated processing," as provided for by Subsections 39.5(13)(a) and (c)(v)of the Act. This would allow the requirements in the requested revision to Permit 95010001 to be incorporated into the facility's CAAPP permit using the CAAPP's process for administrative amendment.

Numerous deficiencies in the Application detailed in the Draft Denial Letter are claimed to be deficiencies only because of US Steel's request for integrated processing. US Steel does not agree with these deficiencies, as discussed in US Steel's Comments XIII.B through X.III.I, below. In addition, none of these deficiencies form a valid basis for denying the Application. Even if Illinois EPA were correct that these deficiencies would prevent the use of integrated processing, that would only provide a valid basis for denial of the request for integrated processing of the revised permit and associated revisions of the CAAPP permit.

This comment does not show that the Application should not denied because of deficiencies in the Application that are a result of the Application's request that the revision of Permit 95010001 be subject to Integrated Processing.[194] In this regard, Integrated Processing affects the Application. It sets certain criteria for the contents of

---

[194] The authorization for Integrated Processing of a construction permit application and an associated construction permit is provided in Subsections 39.5(13)(c) and (c)(v) of the Act. They provide that:

> **c. For purposes of this Section [Section 39.5 of the Act] the term "administrative permit amendment" shall be defined as a permit revision that can accomplish one or more of the changes described below:**
>
> **…**
>
> **v. Incorporates into the CAAPP permit the requirements from preconstruction review permits [construction permits] authorized under a USEPA-approved program, provided the program meets procedural and compliance requirements of this Section.**

the revised permit that is sought by this Application. It also addresses the procedures by which this revised permit is processed. Both must be substantially equivalent to what would be required if a CAAPP permit were being issued, rather than a revised state construction permit/PSD approval. It is also noteworthy that public notice and opportunity for comment are not required for the administrative amendment of a CAAPP permit.[195] The actual administrative amendment of a CAAPP permit for a CAAPP source by the Illinois EPA once a construction permit that has been subject to Integrated Processing has been issued is a ministerial function. The Illinois EPA does not have the authority to reconsider the revisions to the CAAPP permit that are allowed by such construction permit.

The claim in this comment that the request for Integrated Processing made in the Application could be denied separately from the rest of the Application is unsupported. When reviewing an air pollution control construction permit application, the Act does not give the Illinois EPA the authority to divide an application, issuing a permit for part of an application and denying a permit for the rest. Rather, when taking final action on a construction permit application, Section 39(a) of the Act only provides for the Illinois EPA to either grant a permit or deny the application. For the Application, the Illinois EPA must necessarily consider the request for Integrated Processing as it is an element of the Application. The deficiencies in the Application related to Integrated Processing of the requested revision of Permit 95010001 are not of the type that are amenable to remedy by means of permit conditions.[196]

B. The Application Includes All Necessary Information Relating to General Provisions in the CAAPP Permit Governing Selection of Emission Factors (Denial Letter, Point 13)

In the draft denial letter, Attachment 1, the Illinois EPA correctly

---

[195] For the administrative amendment of a CAAPP permit, the Illinois EPA must only provide a copy of the amended CAAPP permit to USEPA (Subsection 39.5(13)(a) of the Act). A source may implement the changes addressed by its request for an administrative amendment immediately upon submittal of the request (Subsection 39.5(13)(f) of the Act).

[196] The deficiencies in the Application related to Integrated Processing could have been readily disposed of if US Steel simply submitted a modification to the Application removing the request for Integrated Processing. Of course, any revisions to Permit 95010001 issued pursuant to such a modified application would not serve to also provide for changes to Permit 96030056, the CAAPP permit for the facility, as are ultimately desired. Integrated Processing of the Application is of benefit for both US Steel and the Illinois EPA. This is because it would enable the issues that are raised in US Steel's appeal of Permit 96030056, as it includes certain limitations established in Permit 95010001, to be directly addressed and potentially resolved by means of the revisions to Permit 95010001.

observes that Permit 95010001 does not specify how emissions are to be quantified for purposes of demonstrating ongoing compliance with annual emission limits set by this permit and that, in the absence of such provisions, the Illinois EPA imposed monitoring and recordkeeping requirements in the CAAPP permit for the facility sufficient to assure compliance with applicable emission limits as required by Subsection 39.5(7)(p) of the Act.

The Illinois EPA then asserts that the Application does not request revisions to Permit 95010001 "that would enable revisions to the CAAPP permit for the facility, Permit 96030056, to be made by administrative amendment to allow prescribed emission factors to be used to determine ongoing emissions of certain units." However, in the Application, US Steel generally requested that the requested revision to Permit 95010001 be subjected to "integrated processing." This requires the Illinois EPA to process the Application and draft any revised permit using a program that "meets procedural and compliance requirements substantially equivalent to those" imposed in the CAAPP program. Although this request was general, and the Application did not specify with precision the monitoring and recordkeeping requirements to be imposed in the revised construction permit and the amended CAAPP permit, that was appropriate. It is the responsibility of Illinois EPA to draft a permit with conditions it judges to be suitable and appropriate; the permit applicant has no obligation to reflect in the permit application a correct guess as to how the Illinois EPA will exercise its judgment regarding these matters. Inherent in the request for integrated processing is an implied request that Illinois EPA satisfy its mandate to draft a revised permit that includes the minimum elements of a CAAPP permit, including monitoring, reporting, and recordkeeping requirements sufficient to assure ongoing compliance with applicable emission limits and to remove or revise conflicting or redundant permit terms.

This comment appears to be directed at Denial Point 13 in the Draft Denial Letters. However, this comment does not respond to the actual deficiency in the Application identified in Denial Point 13. As such, this comment does not show that this denial point should not be a basis for the denial of the Application. In this regard, this denial point is not concerned with the detailed "compliance provisions" that would be included in any revision to Permit 95010001 to set forth how US Steel is to determine the emissions of various emission units on an ongoing basis to demonstrate continuous compliance with the annual emission limits set by the revised permit and other applicable emission standards. The Illinois EPA recognizes that compliance provisions, e.g., provisions for ongoing operational monitoring, emission testing, recordkeeping, and reporting, are usually developed by the Illinois EPA during the drafting of a construction permit, with consideration given to relevant information provided in a permit application for, e.g., the

operational monitoring and recordkeeping, related to compliance that a source is currently conducting for emission units and control devices.[197] Moreover, as the Application proposes that Permit 95010001 be revised to prescribe the emission factors that are to be used for certain units, the Application does not address the nature of the compliance procedures that are expected to then be required for such units.[198]

The deficiency in the Application addressed by Denial Point 13 relates to a specific provision currently in Permit 96030056, the CAAPP permit for the facility. This provision, CAAPP Condition 5.13, sets forth the approach that must generally be used to determine compliance with emission limits for process units set by Permit 95010001. As explained in Denial Point 13, "The procedures that were established in the current CAAPP permit do not provide for use of established emission factors. Rather, the CAAPP permit generally requires US Steet to use 'appropriate emission factor,' i.e., emission factors that do not understate emissions, with the primary responsibility for the appropriateness of the factors that are used placed on US Steel." Accordingly, as the Application requests that the revision to Permit 95010001 prescribe use of specific emission factors and an emission determination methodology for certain Project-affected process emission units, it is appropriate for US Steel to also propose revisions to Permit 95010001 to facilitate the actual use of such factors and procedures as Permit 96030056 currently does not provide for their use.

Moreover, as noted in this denial point, CAAPP Condition 5.13, is currently the subject of an appeal to the Board, PCB 2013-053. As one objective of US Steel for the revisions of Permit 95010001 requested by the Application is to facilitate the resolution of this appeal, it is certainly appropriate for US Steel in the Application to contemplate and directly address revisions to Permit 95010001 that it considers are

---

[197] The Illinois EPA has the primary role in developing the compliance provisions in Illinois' air pollution control permits. This is because these provisions are largely within the Illinois EPA's area of expertise. When drafting a new, renewed or revised permit, the Illinois EPA also develops the compliance provisions considering the provisions in permits that have been issued for similar or comparable units and control systems. However, such provisions, are ideally developed with timely input and suggestions by the permit applicant based on its review of a working draft of the permit prepared by the Illinois EPA.

[198] For example, for the units for which emissions factors would be prescribed, is it expected that the associated compliance procedures would only entail recordkeeping for monthly and annual emissions? Alternatively, would the associated compliance procedures for such units be expected to also include requirement for operational monitoring and/or recordkeeping to verify that such units are being operated in a manner such that the prescribed emissions continue to be appropriate?

needed to resolve this appeal. It would be unsound for the Illinois EPA to simply proceed with revisions to Permit 95010001 that prescribe use of specific emission factors for certain units and emissions points, as requested by the Application, if the actual implementation of such revisions would not be feasible given what is provided for by CAAPP Condition 5.13. In addition, as related to CAAPP Condition 5.13, the Illinois EPA should not have to make a guess as to the revisions related to this condition that US Steel might find acceptable. US Steel, not the Illinois EPA, has proposed that revised Permit 95010001 prescribe certain emission factors, which is what results in the need for related changes relative to CAAPP Condition 5.13.

Finally, when reviewing the Application, it would be improper for the Illinois EPA to rely on the assertion made in this comment that, because the Application requests the revised permit be subject to Integrated Processing, the Application has by implication requested, "… that the Illinois EPA draft a revised permit that meets the minimum [emphasis added] elements of a CAAPP permit…."[199] At a fundamental level, as is confirmed by this comment, the Application, itself, does not request that the Illinois EPA prepare a revised permit that meets the minimum elements of a CAAPP permit, much less a revised permit that provides for compliance requirements that are substantially equivalent to those that would be provided pursuant to the CAAPP. As such, the Application does not show that the revision of Permit 95010001 requested by the Application would meet the criterion for issuance of a construction permit in Subsection 39(a) of the Act. As a general matter, for a project that has been completed, when an application is submitted for revision(s) to the construction permit for the project, it is essential that the application clearly address the revisions to the permit that are being requested. This is because such an application usually does not reopen the entire permit for review by the Illinois EPA.[200] The implied request for the revisions to Permit

---

[199] For convenience, the entirety of relevant part of this comment is provided below:

> **Inherent in the request for integrated processing is an implied request that Illinois EPA satisfy its mandate to draft a revised permit that includes the minimum elements of a CAAPP permit, including monitoring, reporting, and recordkeeping requirements sufficient to assure ongoing compliance with applicable emission limits and to remove or revise conflicting or redundant permit terms.**

[200] Applications for revisions to a construction permit for a project must be clear and specific as to the revisions to the permit that are being requested. The review by the Illinois EPA of such an application is generally bounded by the revisions that are requested and the consequences or implications of the requested revisions for other provisions in the permit.* The application does not automatically act to reopen the entirety of a project for review by the Illinois EPA as if a new application was being submitted for the project. This

95010001 posited by this comment does not even attempt to identify the implications or consequences of the requested revisions to Permit 95010001 for the provisions currently in the CAAPP permit, Permit 96030056. Finally, the "implied request" that this comment asserts is inherent in the Application is not set forth in sufficient detail to conclude that the request extends to all of the requirements that might be found necessary for the revision to Permit 95010001 to provide for compliance requirements that are substantially equivalent to those that would be required by the CAAPP. Indeed, would the implied request be defective simply because it only extends to "minimum" requirements? This word places a restriction on the requirements that the Application requests be addressed by the revisions of Permit 95010001 that is not present in the CAAPP when it establishes the criteria that a construction permit must satisfy to qualify as having been subject to Integrated Processing.[201, 202]

---

appropriately recognizes and addresses the fact that the applicant for a revised permit already holds a construction permit for the project. Some or many of the provisions in that permit may address units for which construction has been completed that would not be involved in or affected by the requested revisions to the permit.

*** The requested revisions to Permit 95010001 have implications and consequences that extend beyond this permit, itself, to the provisions of the current CAAPP permit. As Integrated Processing is requested for the revised permit, those implications and consequence must be confronted in the Application.**

[201] It also appears that the implied request is defective because, when considered as a whole, it indicates that US Steel has requested that the revisions to Permit 95010001 provide for establishment in Permit 96030056 of appropriate compliance procedures, e.g., provisions for monitoring and recordkeeping. However, for Integrated Processing, the Act requires that a construction permit provide for compliance requirements that are substantially equivalent to those that would be required by the CAAPP. The comment does not use the statutory term. As examples of compliance procedures, the comment only describes activities that might be considered "periodic monitoring" under the CAAPP. The meaning of "compliance requirements" is necessarily broader than "compliance procedures." The CAAPP mandates that CAAPP permits include requirements in addition to compliance procedures or periodic monitoring. For example, CAAPP permits must accurately identify and address the emission units at a facility. CAAPP permits must also accurately identify and address the emission standards that apply to the different units and activities at a facility.

[202] It is also worrisome that the assertion made in this comment is contrary to a statement made in US Steel's Comment XIII.I, as provided below. That comment responds to Denial Point 17, which finds the Application to be deficient because US Steel has not provided information in the Application or in a separate application to amend the CAAPP permit that identifies emission units that are now permanently shut down but are still included in the current CAAPP permit. In particular, the two by-product recovery coke oven batteries at the facility and associated by-product recovery equipment, which ceased operating in 2015, are still identified in Permit 96030056.

C. The Application Includes All Required Information In Conjunction with the Request for Changes to Emission Point Naming (Denial Point 12 – Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy))

In the draft denial letter, Attachment 1, the Illinois EPA correctly observes that the Application asks that the requested revision to Permit 95010001 refer to the unit currently identified as the "Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy)" be renamed and identified as "Baghouse 2 for Argon Stirring and Ladle Metallurgy Facility." The Illinois EPA then asserts that the Application is deficient for the following reasons:

> However, the application does not actually identify the specific units that would be addressed by the proposed new term. In this regard, the application is not accompanied by an itemized list of the equipment and activities that would be covered by this new term or a diagram that identifies this equipment and activities. US Steel's request also does not explain how the requested revision to Permit 95010001 would do what has generally been requested as the proposed new term would refer to a "Material Handling Tripper." As the 2022 application requests changes to terminology in Permit 95010001, the changes should act to better identify the emissions units that would be addressed, improving the specificity and clarity of the revised permit.[Footnotes] 51, 52
>
> [Footnote] 51 For example, the proposed new term would not make clear that the basic oxygen furnace shop actually has two ladle stirring stations and one ladle metallurgy furnace, all served by Baghouse 2.

By this statement, US Steel effectively refuses to provide such information. The Illinois EPA considers such information would be necessary to assure that the amendment of the CAAPP permit that would be authorized by Integrated Processing of the requested revised Permit 95010001 would provide for compliance requirements that are substantially equivalent to those provided for by the CAAPP. In this regard, US Steel's pending application for renewal of the CAAPP permit includes units that are now shut down. Subsection 39.5(5)(i) of the Act requires that when a source becomes aware that it has submitted incorrect information in a CAAPP application, it shall submit correct information to the Illinois EPA.

The Application was submitted for the narrow and specific purpose of addressing the outstanding appeal items and the underlying PSD and NaNSR applicability evaluations relating to the Project implemented by National Steel.

US Steel's Comments of January 2024, p. 37, Comment XIII.I

[Footnote] 52 The requested change to the terminology for these emissions unit(s) is also problematic as it would refer to a control device, Baghouse 2, rather than to the equipment or activities that generate emissions. Applied literally, the proposed term would only address captured emissions; it would not address the uncaptured emissions, which elude capture for control by the baghouse.

The deficiency alleged in the subject denial point is without merit. As an initial matter, US Steel has not characterized the listed item as emissions units, regardless of the naming convention. It is an emission point, and that is how US Steel characterized it in the Application. Permit 95010001 limits both its emissions of both PM and PM_{10} to 0.00715 pounds/ton of steel and 12.8 tons/year, which limitations apply solely to the emission point and not separately to “the equipment or activities that generate emissions.” Any uncaptured emissions from that equipment or activities occur through the BOF Shop Roof Monitor. Those emissions are subject to the separate emission limitations for the item referenced as “BOF Roof Monitor.” This is consistent with the approach originally taken in Permit 95010001, in which the limitations for the particulate emission of casthouse and BOFs apply to emission points. For example, for the BOFs, separate limitations are set for the particulate emissions of the “BOF ESP Stack (charge, refine, tap) and the “BOF Roof Monitor.”

A similar change to the item naming was made by Illinois EPA in 2013 when issuing the CAAPP permit, Permit 96030056. In CAAPP Condition 7.5.6(g), the units to which these particulate emission limits, i.e., 0.00715 pounds/ton and 12.8 tons/year, apply are identified as “Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy Baghouse #2), rather than “Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy),” as in Permit 95010001. The list of the equipment and activities that would be covered by this proposed new term, *i.e.*, “Baghouse 2 for Argon Stirring and Ladle Metallurgy Facility,” is similar to the list of the equipment and activities that are currently covered by the term “Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy)” in Permit 95010001 and by the term “Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy Baghouse #2)” in Permit 96030056. US Steel reasonably concluded that Illinois EPA would understand this fact because the Application requested and enumerated only discrete changes to Permit 95010001, none of which related to reconfiguring the equipment and activities venting to this emission point.

Notwithstanding the above, it remains the responsibility of Illinois EPA to draft a permit with conditions it judges to be suitable and appropriate. The assertion in this denial point that, as the Application requests changes to current terminology in Permit

95010001, "…the changes should act to better identify the emission units that would be addressed, improving the specificity and clarity of the revised permit," is unfounded. If the Illinois EPA wishes to revise the permit to better identify the emissions units that would be addressed by particular emission limitations, Illinois EPA has the authority and discretion to make such revisions.

Finally, the Illinois EPA does not identify any provision of the Act or the Illinois Code requiring that a straightforward request for revision of the name of an emission point be accompanied by a list of the equipment and activities venting to that emission point, nor does the Illinois EPA point to even an application form or guidance document suggesting that such information be provided. A permit applicant has no obligation to reflect in its application a correct guess as to how the Illinois EPA will exercise its judgment regarding these matters. Of course, Illinois EPA retains authority, pursuant to 35 IAC 201.152, to request further information documentation in conjunction with a permit application, but that was not done here.

This comment does not show that the Application should not be denied. The "renaming" of the subject units that is requested by the Application is not trivial. It does not involve a change to reflect the names or designations now used by US Steel for units or equipment.[203] Rather, a revision to Permit 95010001 is requested that would entail a change to the units to which certain emission limitations in this permit currently apply. However, the Application does not address the implications of the requested change as to the units for which these limitations would then apply. An applicant for an air pollution control permit has a general responsibility to submit an application that clearly identifies the emission units and control devices that are the subject of the application and to provide information for their emissions.[204]

---

[203] For example, US Steel has changed the name of the new boiler constructed pursuant to Permit 06070023. In this permit, this boiler is referred to as the "Cogeneration Boiler." In the subsequent CAAPP application for the facility, this boiler is referred to as "Power Boiler 1." The applicability of the emissions limitations established for this boiler by Permit 06070023 is not altered by referring to this boiler as Power Boiler 1 in Permit 96030056, the CAAPP permit for the facility.

[204] US Steel's request for renaming of the subject units is not accompanied by a listing of units or process equipment or a process flow diagram that reasonably provides specific information as to the units or process equipment that are actually the subject of the request. It may be reasonable for an applicant when quantifying emissions to further refine the data that is provided, e.g., the emissions from use of different fuels or the captured emissions from units, which occur from the control device(s), and the uncaptured emissions from units. However, this does not alter the fundamental obligation of a permit

The Illinois EPA cannot issue a revision to Permit 95010001 absent information in the Application for the units served by a particular control device, based merely upon the opinion or belief of the Illinois EPA as to the units at the Granite City Works that such control device serves.

In particular, the change in naming of these units requested by the Application is not a straightforward request. The change would directly alter the applicability of the current emissions limitations. In Permit 95010001, the subject particulate emissions limitations apply to the "Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy))," (Permit 95010001, Condition 20 and Table 3). **If the identification of the operations to which these limitations apply were changed by renaming as requested, these limitations would apply to a particular baghouse. The limitations would not apply to emission units served by that baghouse and would no longer apply to or address all emissions of the subject units. Moreover, as this comment indicates that uncaptured particulate emissions from these units, which would not be addressed with the requested change to the permit, occur through the BOF shop roof monitor, this comment suggests, if anything, another reason to deny the Application.[205] This is because, for the roof monitor on the BOF shop, the Application only accounts for particulate emissions from the BOFs. The Application does not account for the uncaptured emissions of the subject units, which this comment indicates also occur through the roof monitor.[206]**

As a general matter, this denial point reflects the care that should be exercised when making changes to the naming or identification of the emission units and/or emission points to which the emission limitations set by a permit apply. US Steel, not the Illinois EPA, has proposed the renaming of these units. The request does not involve a simple change

---

applicant to clearly identify the units whose emissions are being addressed in its application.

[205] In fact, the Application does not suggest that these limitations apply to an emission point, rather than to emission units. When requesting that these units be renamed, the Application refers to them as emission units or an "operation," (Application, Section 11.1.2, p. 11-2).

[206] Incidentally, the position taken in this comment with respect to the subject emission units is inconsistent with the position taken in the Application with respect to the casthouse and BOFs. For those units, the Application requests that the revision of Permit 95010001 no longer set separate emission limitations for the various emissions points from the units. The Application requests that revised Permit 9501001 prescribe emission factors for uncaptured emissions that occur through the associated roof monitors. For the units addressed by Denial Point 12, the comment simply claims, without support, that the current emission limitations in Permit 95010001 only address emissions of these units that occur through one emission point, i.e., the captured emissions through the stack of a baghouse.

to reflect the names by which these units are now known. As such, it was incumbent for US Steel to adequately support its request, which it did not do. Accordingly, the Application does not show that the requested revision of Permit 95010001 would comply with applicable requirements if these units were renamed as requested by the Application.

Finally, this comment does not support its other claims that the deficiency in the Application addressed by Denial Point 12 relative to the Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy) is without merit or would be improper. The Illinois EPA prepared the Revised Draft Denial Letter to better identify the provisions of the Act and the Illinois Code that might be violated if a revision to Permit 95010001 were issued as requested by the Application. The comment does not address the provisions that were identified for this denial point to show that they do not provide a valid basis for denial of the Application. As this comment observes that the Illinois EPA could have requested relevant supporting information without denying the Application, this fact does not preclude denial of the Application, as explained in General Response 1. As also addressed in General Response 1, 35 IAC 201.152 addresses certain information that is to be included in a permit application. It does not address all information that must be included in an application if the requested permit is to be issued. 35 IAC 201.152 also does not address the process by which the Illinois EPA may request supplemental information be provided for an application after it has been deemed to be administratively complete. Lastly, as also addressed in General Response 1, the historic naming or designations of emissions units or emission points used by the Illinois EPA in prior permitting is not relevant for whether the requested change should be found acceptable. US Steel's expectations for the Illinois EPA's reaction to this requested change are also not relevant to the merits of this denial point.

D. The Application Includes All Required Information Relating to the Steel Slag Removal Station and the Handling Operation for Raw Materials Used in Ladle Metallurgy (Denial Point 12 – Deslagging Station and Material HS (Handling System))

In the draft denial letter, Attachment 1, the Illinois EPA observes that the Application "does not request any revisions to Permit 95010001 with respect to the Deslagging Station and Material HS. These emissions units are currently addressed in Permit 95010001 with Continuous Casting Operations (Permit 95010001, Condition 20 and Table 3.)" Although US Steel did not request any revisions to Permit 95010001 with respect to these units that it considers to be substantive, the Application did request that the units to which these limitations apply be renamed as "Baghouse 1 for Material Handling." This revision was

suggested for two reasons. First, applying these limitations based on the emission point rather than the emitting activity is more consistent with the naming convention generally used in Permit 95010001, as discussed in US Steel's Comment XIII.C, above. Second, the historical naming of this item is misleading, as this baghouse does not serve to control emissions from any slag removal operation; the steel slag removal station at the facility is not served by any capture system or baghouse.

The requested renaming is consistent with the naming used by Illinois EPA in Permit 96030056, Attachment 3, "Current Emission Factors for Certain Emission Limits," which refers to this item as "Baghouse #1." CAAPP Conditions 7.1.6(b)(i) and 7.6.6(a) in Permit 96030056, respectively, limit emissions of the "Material HS and Deslagging Station" and the "Deslagging Station and associated Material Handling System. (Permit 96030056 addresses these units both in Part 7.1 of the permit as a Material Handling Operation and in Part 7.6 as a Continuous Casting Operation.)[207]

As related to the steel slag removal station (i.e., the activity identified as "deslagging station" in past permitting), The Illinois EPA asserts that the Application is deficient because it "does not explain why steel deslagging should not appropriately be categorized as slag skimming and addressed with the other slag skimming operations in the BOF shop." US Steel has claimed neither that the steel slag removal station should not appropriately be categorized as slag skimming nor that it should not be addressed with the other slag skimming operations in the BOF shop. US Steel was under no obligation to offer, as part of the Application or otherwise, a justification for a claim that it was not making.

In addition, the Illinois EPA states that the Application "does not request revisions to Permit 95010001 to facilitate amendment of the CAAPP permit to appropriately address the emissions of this deslagging station and the associated material handling system." The Illinois EPA does not identify any provision of the Act or the Illinois Code requiring that an application for a construction permit revision, even one for which Integrated Processing is requested, include a request for revisions "to facilitate amendment of the CAAPP permit" for the facility. It is the responsibility of Illinois EPA to draft both a construction permit and a CAAPP permit with conditions it judges to be suitable and appropriate. A permit applicant has no obligation to reflect in an application to correctly guess as to what revisions to one permit would be viewed by the Illinois EPA as facilitating

[207] In CAAPP Condition 7.1.2, "List of Emission Units and Air Pollution Control Equipment," the use of Baghouse #1 is indicated for control of emissions of the LMF Conveyors and Storage Bins.

revisions to another permit.

This comment does not show that the Application should not be denied for reasons as detailed in Denial Point 12 with respect to the "Deslagging Station and Material HS." As an introductory matter, the Application does not actually appear to request that these units be renamed, as claimed in this comment.[208] Then, as the comment claims that the Application requests that these units be renamed "Baghouse 1 for Material Handling," the comment, itself, acknowledges a flaw in this request since the emissions of the Deslagging Stations are not controlled by Baghouse #1 (or any other baghouse).[209] Indeed, if units were to be renamed, as this comment claims is requested by the Application, it appears that the Application requests that revised

---

[208] If, in fact, the Application did request that the Deslagging Station and Material HS, be renamed as is claimed by this comment without any reference to the relevant page(s) in the Application, the Illinois EPA did not find this request. Moreover, the approach taken in the Application for the renaming of the Deslagging Station and Material HS would be distinctly different from the approach taken for the Argon Stirring Station and Material Handling Tripper. For the Argon Stirring Station and Material Handling Tripper, the Application requested renaming of these units in three places in the Application, i.e., Section 5.5.2, "Basic Oxygen Furnace Shop Operations;" in Section 5.5, "Requested Changes to Permit Terms Relating to PM and PM_{10} Emissions;" and in Section 11.1.2, "National Emissions Standards for Hazardous Air Pollutants (NESHAP, 40 CFR Part 61 and 63)" in Section 11, "Regulatory Applicability Review." In Section 11.1.2, the Application explains that, "… for clarity and consistency with these federal rule requirements, USS Granite City requests that that this operation be renamed as the 'Baghouse 2 for Argon Stirring and Ladle Metallurgy Facility' and grouped with the BOF Shop Operations." However, comparable requests are not made in the Application for the Deslagging Station and Material HS.*

*** For the Deslagging Station, there is also a similar issue as to whether this station is subject to requirements of 40 CFR 63 Subpart FFFFF, either as it is a "skimming station" or "ladle metallurgy" as defined by 40 CFR 63.7852. That is, is the deslagging Station either a location in a BOF Shop, prior to casting, where slag is removed from the top of the molten metal or a secondary steelmaking process that is typically performed in a ladle after refining in a BOF to adjust or amend the chemical or mechanical properties of steel. The Application does not include a description or other information for the Deslagging Station showing that it is not an affected unit under 40 CFR 63 Subpart FFFFF, such that revised Permit 95010001 need not address requirements of these rules for this unit. This determination is important. If this unit is subject to these rules, the revision of Permit 95010001 must consider the relevant compliance requirements imposed on this unit by these rules.**

[209] This illustrates the deficiency that can result if emission limitations are set for control devices without appropriately addressing all emissions of the units that are being controlled, as is discussed above in response to US Steel's Comment XIII.C, concerning the Argon Stirring Station and Material Handling Tripper.

Permit 95010001 not even address the existing Deslagging Station and its emissions.[210]

The deficiencies in the Application with respect to the Deslagging Station and Material HS are similar to those for the "Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy)," as discussed above in response to US Steel's Comment XIII.C. However, the deficiencies in the Application related to the Deslagging Station and Material HS are more extensive. The Application requests that revised Permit 95010001 address units engaged in handling of raw materials as a separate category of operations, as was done in the CAAPP permit, Permit 96030056. The shifting of the Argon Stirring Station and Material Handling Tripper from Continuous Casting Operations to BOF Shop Operations would simply entail moving these units from one section of Permit 95010001 to another section.[211] Moving the Material HS that is currently addressed with the Deslagging Station would be more involved.[212]

The overarching deficiency in the Application with respect to the Deslagging Station and Material HS is inconsistency in the treatment of these units and the treatment of the Argon Stirring Station and Material Handling Tripper. For the latter units, the Application requests revisions to Permit 95010001 to address issues posed by the conditions currently in this permit that address these units. Most notably, the Application acknowledges applicability of the requirements of 40 CFR 63 Subpart FFFFF. It requests that these units be addressed in the revised permit as BOF Shop Operations rather than Continuous Casting Operations. However, as revisions to Permit 95010001 are not

---

[210] Neither Section 5.5.2 nor Section 5.5.3 of the Application list the Deslagging Station as a unit that would be addressed by, respectively, either the proposed emissions cap for the "Basic Oxygen Furnace Shop Operations" or the proposed cap for the "Continuous Casting Operations." Prescribed emission factors are also not proposed for the Deslagging Station.

[211] The Argon Stirring Station or Stations at the facility are directly subject to requirements of the NESHAP, 40 CFR 63 Subpart FFFFF as they are BOF Shop Ancillary Operations. As such, compliance with the requirements of 40 CFR 63 Subpart FFFFF is also required for the Material Handling Tripper as its particulate emissions are being controlled by a baghouse, Baghouse #2, that also controls NESHAP-subject units.

[212] Moving the Material HS that is currently combined with the Deslagging Station would be more involved as it would entail allocating the current permitted emissions between these units. The allocation for the Material HS would then be addressed in the new section of Permit 95010001 for units engaged in handling or processing of raw materials. The emissions from the Deslagging Station would either stay with the section for Continuous Casting Operations or be moved to the section for BOF Shop Operations. Finally, since emission testing is not feasible for the Deslagging Station, as it is not served by an add-on control device, it is expected that prescribed emission factors would need to be developed and justified for this unit.

requested for the current conditions in Permit 95010001 for the Deslagging Station and Material HS, the implication is that these conditions do not pose issues. As already discussed, this is not the case. The issues that are posed by the current conditions for the Deslagging Station and Material HS and the resolution of these issues would be more involved than resolution of the issues posed by the conditions for the Argon Stirring Station and Material Handling Tripper.

Finally, this comment does not support its other claims that the deficiency in the Application addressed by Denial Point 12 relative to Deslagging Station and Material HS is without merit or would be improper. The Illinois EPA prepared the Revised Draft Denial Letter to better identify the provisions of the Act and the Illinois Code that might be violated if a revision to Permit 95010001 were issued as requested by the Application. The comment does not directly address the various provisions that were identified for this denial point to show that they do not provide a valid basis for denial of the Application. As this comment specifically claims that denial based on this denial point would be improper because the Illinois EPA has not identified a provision that requires this Application to, "include a request for revisions 'to facilitate amendment of the CAAPP permit' for the facility," it ignores the implications of the Application's request for Integrated Processing for the contents of the Application. The amendment to the Permit 96030056 that would be authorized by revised Permit 95010001 must provide for compliance requirements that are substantially equivalent to those that would be required by the CAAPP. The Application proposes that the Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy), that are BOF Shop Operations be transferred from the provisions of Permit 95010001 for Continuous Casting Operations to the provisions for BOF Shop Operations, so the emission standards that apply to those units would be properly addressed. By this request, US Steel directly poses the related question whether other operations, i.e., Deslagging Station and Material HS, should also be transferred from Continuous Casting Operations to BOF Shop Operations.

E. The Application Includes All Required Information Relating to the Ladle Drying Preheaters (Denial Point 12 – Ladle Drying/Preheating)

In the draft denial letter, Attachment 1, with respect to the Ladle Drying Preheaters, Illinois EPA claims that the Application is deficient because US Steel "does not request any changes to Permit 95010001 to maintain consistency with the approach to these units in the CAAPP permit."

This assertion is without merit. The Illinois EPA does not identify any

provision of the Act or the Illinois Code requiring that any application for a construction permit revision, even one for which Integrated Processing is requested, include a request for revisions "to maintain consistency with the approach to these units in the CAAPP permit" for the facility. It is the responsibility of Illinois EPA to draft both a construction permit and a CAAPP permit with conditions that it judges to be suitable and appropriate. A permit applicant has no obligation to reflect in its permit application a correct guess as to what revisions to one permit would be viewed by the Illinois EPA as maintaining consistency with another permit.

This comment does not show that the Application should not be denied based on Denial Point 12 as it addresses a deficiency in the Application with respect to Ladle Drying/Preheating. This comment ignores the fact that the Application requests a revision to permit 95010001 to increase the emissions of NOx for which the BOFs are permitted.[213] In Section 6.5.2, the Application requests changes under Table 2 of Permit 95010001, proposing new Condition 18(b), which would provide that, "NOx emissions from the BOF ESP and BOF baghouse stacks shall not exceed 400 tons/year on a monthly rolling 12 month-total." However, Section 6.5.2 does not propose any changes to Condition 18 and Table 5 of Permit 95010001 as they currently limit NOx emissions of the BOF Shop to 70 tons/year.[214]

The absence of a request in Section 6.5.2 of the Application that new "Condition 18(b)" be accompanied by removal of the limit of 70 tons/year from Permit 95010001 was almost certainly an oversight. The more serious issue for the Application is that Permit 96030056 currently limits the NOx emissions of the BOF shop to 70 tons/year (CAAPP Condition 7.5.6(b)). Ladle Drying/Preheating, which physically takes place in the BOF Shop, is identified as a Basic Oxygen Process (CAAPP Condition 7.5.2, "List of Emission Units and Pollution Control Equipment"). As such, on its face, Permit 96030056 restricts the combined NOx emissions of Ladle Drying/Preheating and the BOFs, with an overall limit of 70 tons/year.[215] The Application does not propose revisions to relevant conditions in Permit 96030056. In the absence of appropriate changes to those conditions, those conditions would be an

---

[213] Permit 95010001 currently limits annual NOx emissions of the BOFs to 69.63 ton/year (Condition 18, Table 2). The annual NOx emissions of the BOF Shop are limited to 70 tons/year (Condition 18 and Table 5).

[214] It should be noted that the Application has also been denied as related to this proposed limitation for the NOx emissions of the BOFs, 400 tons/year, because the Application does not address uncaptured NOx emissions of the BOFs, only the captured NOx emissions of the BOFs. This is addressed in Denial Point 4, for which US Steel submitted its Comment X, as discussed in this Responsiveness Summary.

[215] Ladle Dryer/Preheaters are also addressed elsewhere in Permit 96030056 with other Project-affected fuel burning units.

impediment to amending Permit 96030056 to reflect the increase in permitted NOx emissions of the BOFs as proposed by the Application.[216] This deficiency would not have been present if the Application had proposed revisions to Permit 95010001 that, by means of Integrated Processing, would have enabled appropriate changes to be made to Permit 96030056 by administrative amendment so that Ladle Drying/Preheating would not be addressed as a Basic Oxygen Process.

Finally, this comment does not support its other claims that the deficiency in the Application addressed by Denial Point 12 relative to Ladle Drying/Preheating are without merit or would be improper. The Illinois EPA prepared the Revised Draft Denial Letter to better identify the provisions of the Act and the Illinois Code that might be violated if a revision to Permit 95010001 were issued as requested by the Application. This comment does not directly address the provisions that were identified for this denial point to show that they do not provide a valid basis for denial of the Application. As this comment specifically claims that denial based on this denial point would be improper because the Illinois EPA has not identified a provision that requires this application to maintain consistency with the approach to the emission units in the CAAPP permit, this claim misconstrues the basis of the denial. The Application has been denied because it does not show that the requested revised permit would meet substantive statutory and regulatory requirements. As related to Ladle Drying/Preheating, the Application does not consider the implications of relevant conditions currently in Permit 96030056 for the requested revised permit. That is, the Application does not show that the revisions to Permit 96030056 for Ladle Dryer/Preheaters that would be authorized by the administrative amendment of revised Permit 95010001, as requested by the Application, would provide for compliance requirements for these units that are substantially equivalent to what would be provided for by the CAAPP. In this regard, the Application requests that the Argon and Material Handling Tripper (Ladle Metallurgy) be moved from the provisions of Permit 95010001 for Continuous Casting Operations to the provisions for BOF Shop Operations, so they would be addressed with other BOF Shop Ancillary Operations. This directly raises the question for the Ladle Drying/Preheating whether it is also properly addressed in the provisions of Permit 96030056 for BOF Shop Operations. Alternatively,

[216] For example, the Application does not propose that revised Permit 95010001 set an overall cap for the NOx emissions of the BOFs and the NOx emissions from Ladle Drying/Preheating. Alternatively, the Application does not propose changes to make clear that Ladle Drying/Preheating should only be addressed as it involves Project-affected fuel burning units and not as a Basic Oxygen Process.

as seems more likely, is Permit 96030056 flawed as it addresses Ladle Drying/Preheating as a BOF Shop Operation?[217]

F. The Application Includes All Required Information Related to Identification of the Version of the CAAPP Permit That Would Be Administratively Amended Pursuant to Integrated Processing of the Requested Revised Permit Application (Denial Point 14)

In the draft denial letter, Attachment 1, the Illinois EPA explains that the Application is deficient because it "does not identify the version of the Clean Air Act Permit Program (CAAPP) permit for the facility, Permit 96030056, that would be eligible for administrative amendment pursuant to the Integrated Processing of the revisions to Permit 95010001 that are requested." Relatedly, Illinois EPA asserts that US Steel "has not initiated action for the Illinois EPA to actually issue an amended CAAPP permit with changes as authorized by Permit 11050006."

These assertions are without merit. US Steel has initiated the process of incorporating the provisions of Construction Permit 11050006 into Permit 96030056, the CAAPP permit for the facility. In November 2013, US Steel applied for renewal of this permit for the facility. In that application, US Steel expressly requested that Illinois EPA incorporate requirements from Permit 11050006 into the CAAPP permit and noted that "the Basic Oxygen Furnace process described in the CAAPP permit Condition 7.5 needs to be updated with the new secondary baghouse added as part of the Emission Reduction Project (Construction Permit 11050006)." (CAAPP Renewal Application, p. 2-1.) Pursuant to Subsection 39.5(5)(f) of the Act, that application was subsequently deemed complete by operation of law.

In addition, the Illinois EPA does not identify any provision of the Act or the Illinois Code requiring that any application for a construction permit revision for which integrated processing is requested to specify the "version" of the CAAPP permit that would be amended. It is solely the responsibility of Illinois EPA to make revisions and amendments to CAAPP permits in conformance with applicable rules and laws.

This comment sidesteps the deficiency that is addressed in Denial Point 14. As such, this comment does not show that it was improper to deny the Application for the reason set forth in this denial point. The deficiency

---

[217] It is noteworthy that, as Denial Point 12 calls attention to certain conditions in the CAAPP permit that address Ladle Drying/Preheating, the concern is not that the Application does not request revisions to Permit 95010001 that would be consistent with the approach to these units taken by the CAAPP permit. Rather, the concern is the converse. The approach to these units taken in the Application should not be the approach taken by the current CAAPP permit. That approach is problematic and would be an impediment to effectuating changes requested to Permit 95010001.

arises because a construction permit that was processed with Integrated Processing, Permit 11050006, has already been issued to US Steel, thereby authorizing certain revisions to Permit 96030056 to be made by administrative amendment. However, US Steel has never submitted an application to the Illinois EPA for the administrative amendment to Permit 96030056 that is authorized by Permit 11050006, leading to the actual issuance of an amended CAAPP permit. Thus, for the purpose of the request in the Application that the revision to Permit 95010001 be subject to Integrated Processing, there are effectively two versions of Permit 96030056. One is Permit 96030056 as currently in effect. The other is an "amended" version of this permit that would take effect if and when US Steel submits its application to the Illinois EPA for administrative amendment of 96030056, as has been provided for by Permit 11050006. This would not be the case if US Steel simply submitted an application for the administrative amendment to Permit 96030056 that is already authorized by Permit 11050006.

Simply as related to the physical drafting of the revisions to Permit 95010001 that are requested, the possibly for there to be two different versions of Permit 96030056 obstructs the preparation of a revised version of Permit 95010001. The revision of Permit 95010001 requested by the Application must be crafted so that the amendments to Permit 96030056 that it authorizes can take place seamlessly. The subsequent amendment of Permit 96030056 would be a ministerial function by the Illinois EPA. The nature and location of the specific changes to Permit 96030056 that are being authorized must all be decided upon and laid out during the preparation and issuance of revised Permit 95010001. To do this, the version of Permit 96030056 that would be revised must be known. If not, the revised version of Permit 95010001 could be prepared relative to one version of Permit 96030056 but the other version of Permit 96030056 would have become effective when the administrative amendment of Permit 96030056 is actually submitted.

The forethought and advance planning that are needed when preparing a revised version of Permit 95010001 are critical for the procedures that are followed for this revised permit. The future changes to the Permit 96030056 that are authorized by means of the revised version of Permit 95010001 must be clearly set forth. This is essential so that the public and USEPA may review and comment on the planned changes, as reflected in draft and proposed versions of the revised permit before a revised version of Permit 95010001 is issued and becomes effective. This is because the public and USEPA will not subsequently have the opportunity to review and comment on the administrative amendment of Permit 96030056 that has been authorized.

As already explained, this comment does not respond to the deficiency detailed in Denial Point 14 to attempt to show that it is without merit. The submittal of an application for renewal of the CAAPP permit,

Permit 96030056, is not the submittal of an application for an administrative amendment of this permit.[218, 219] Moreover, Denial Point 14 does not suggest that the deficiency that it addresses necessitates updates to the pending application for renewal of Permit 96030056.

With respect to the other claims in this comment, they are without merit. Indeed, these claims illustrate how similar claims made elsewhere in US Steel's comments are erroneous or inane. US Steel ignores the fact that the Revised Draft Denial Letter does identify the statutory and regulatory basis for Denial Point 14. Notably, Subsection 39.5(13)(c)(v) of the Act is identified, which provides the requirements that a construction permit must satisfy to qualify as having been subject to Integrated Processing.[220] In this case, to accomplish this, it is essential for US Steel to deal with the administrative amendment to Permit 96030056 that is already authorized

---

[218] The renewal of a CAAPP permit is addressed by Subsections 5, 7, 8, 9 and 10 of Section 39.5 of the Act. Among other things, a draft version of the renewed CAAPP permit must be made available to the public for review and comment, pursuant to Subsection 39.5(8); a proposed version of the renewed permit must then be provided to USEPA for its review and possible objection to the proposed permit, pursuant to Subsection 39.5(9). Administrative amendments are addressed by Subsection 39.5(13) of the Act. The issuance of an administrative amendment by the Illinois EPA is a ministerial function. Opportunity for review and comment by the public and USEPA are not provided for administrative amendments of CAAPP permits.

[219] It is also perhaps noteworthy that, with respect to the BOFs, US Steel's 2013 CAAPP renewal application actually explains that "… the Basic Oxygen Furnace process described in CAAPP permit condition 7.5 will eventually [emphasis added] need to be updated with the new secondary baghouse added as part of the Emissions Reduction Project (Construction Permit No. 11050005) once construction is complete."

In addition, in the renewal application, Appendix F - Proposed Permit Changes, more than 25 discrete changes are requested or proposed to Section 7.5 of the CAAPP permit as part of the renewal of the CAAPP permit. The changes that have already been authorized to be made by means of administrative amendment pursuant to Permit 11050006 are not differentiated from other proposed or requested changes.

[220] As already explained, the Act does not require the Illinois EPA to adopt procedural rules that elaborate on the necessary contents of applications for air pollution control construction permits. It would certainly be unreasonable to adopt such rules for applications that request Integrated Processing since such applications are extraordinarily rare. (This is likely because fulfilling the procedural requirements of the CAAPP acts to significantly delay issuance of a permit compared to when a permit might otherwise be issued.) In fact, the Illinois EPA has issued only one construction permit with Integrated Processing, Permit 11050006, the permit issued to US Steel for which it has not submitted an application for administrative amendment of the CAAPP permit. As such, even if such rules were adopted for applications that requested Integrated Processing, it is ridiculous to expect that they would address the situation that is presented with the Application.

by a construction permit but US Steel has not actually initiated. This is something that is outside the ability of the Illinois EPA to remedy through the conditions of the requested revision to Permit 95010001, much less during a subsequent amendment of the CAAPP Permit pursuant to Permit 11050006, the earlier construction permit.[221] As such, as the Application requests that the revision to Permit 95010001 that is sought also be subject to Integrated Processing, the Illinois EPA's responsibility was to deny the Application, which it has done. The Illinois EPA is not required to notify an applicant for an air pollution control construction permit of deficiencies in its application before denying the application.

Finally, as this comment claims that denial of the Application would be improper on procedural grounds because US Steel was not previously informed of this deficiency, this comment by US Steel in response to the Draft Denial Letters confirms that US Steel was informed in writing of the deficiencies in the Application before the Application was denied. What is noteworthy is that US Steel did not utilize the information in the Draft Denial Letters to attempt to remedy deficiencies presented by the Application that could readily be rectified by US Steel, such as Denial Point 14, as is discussed here.

G. The Application Includes All Required Information Relating to the Relationship Between Fugitive Dust Control Measures Required by Permit 95010001 and Requirements of 35 IAC Part 212 (Denial Point 15)

In the draft denial letter, Attachment 1, the Illinois EPA claims that the permit application is deficient because it "does not make clear the relationship between these requirements established by permit [requirement in Condition 23, 24, 26, 27, 28, 28 and 30 of Permit 95010001, relating to emissions of fugitive dust from roadways, parking areas, and open access areas] and state regulatory requirements for

---

[221] As this comment states that, "It is solely the responsibility of Illinois EPA to make revisions and amendments to CAAPP permit in conformance with applicable laws and rules," this observation is irrelevant in the context of Denial Point 14. The issue in this denial point is that the Application does not show that the Project, with revisions to Permit 95010001 as requested by the Application, would meet the standard for issuance of a permit.

In this regard, as related to the request for Integrated Processing, it is essential that the revision to Permit 96030056 authorized by Permit 11050006 be addressed. Otherwise, the Illinois EPA cannot proceed with a revised version of Permit 95010001 as requested by the Application. Accordingly, the Application must be denied. In the context of this denial point, as well as several other denial points, the relevant observation for the Application about the responsibility of the Illinois EPA should be that it is the responsibility of the Illinois EPA to deny a permit application when the application does not meet the standard for issuance of a permit.

fugitive emissions in 35 IAC Part 212 Subpart K." This assertion is without merit. The Illinois EPA does not identify any provision of the Act or the Illinois Code requiring that any application for a construction permit revision, even one for which Integrated Processing is requested, specify the relationship between existing permit terms and applicable rule requirements. It is the responsibility of Illinois EPA to draft a permit with conditions it judges to be suitable and appropriate and in conformance with applicable rules and laws.

This comment does not show that the Application should not be denied based on Denial Point 15. This comment downplays the implication of the Application's request for Integrated Processing of the requested revisions to Permit 9501000. This request affects the required contents of the revised permit and, therefore, the required contents of the Application. As already discussed, Subsection 39.5(13)(c)(v) of the Act provides that for a construction permit to qualify for having undergone Integrated Processing, the compliance requirements in the permit must be substantially equivalent to the requirements that would be required by the CAAPP. As related to the provisions of Permit 95010001 that require implementation of control measures for sources of fugitive dust, the Application is deficient as it does not show that these compliance requirements, either in Permit 95010001 or in Permit 6030056, the CAAPP permit for the facility, are substantially equivalent to those that would now apply if Permit 96030056 were being renewed or modified. In this regard, Denial Point 15 identifies several deficiencies in the Application related to the requirements for the control measure for fugitive dust, including the following, This comment does not show that these deficiencies are not present in the Application.

> **The Application does not propose revisions [to Permit 95010001] to clarify the interplay between the associated recordkeeping and reporting that are required by Permit 95010001 and the associated recordkeeping and reporting required by Board rules. In this regard, except for Condition 25 [addresses 35 IAC 216.361(e)(1), which limits opacity for roadways and parking areas at the facility to more than 5 percent], Permit 95010001 does not address the Board's rules for control of fugitive dust.**
>
> **…**
>
> **While the CAAPP permit for the facility addresses requirements in Board rules for control of fugitive dust, it is unclear whether the requirements for recordkeeping and reporting in 35 IAC 212.316(g) are applicable for the public roadways for which specific measures to reduce emissions of fugitive dust are required by Permit 95010001…**
>
> **… the amendments of the CAAPP permit that are authorized by means of the requested revisions of Permit 95010001 would be deficient.**

> **For roadways, parking areas and other open areas, such an amended CAAPP permit would not clearly delineate the standards for opacity of emissions pursuant to Board rules that apply to different categories of emission units (e.g., 5 percent for roadways and parking areas at the facility, 10 percent for storage piles, and 20 percent for the on-site landfill). In addition, if provisions of 35 IAC 212.316 should not be applied to public roadways, as they are not part of the Granite City Works, such an amended CAAPP would improperly perpetuate errors in the current CAAPP permit regarding applicability of Board rules.**
>
> **Revised Draft Denial Letter, Attachment 1, pp. 55 and 56.**

In addition, this comment does not support its claims that the deficiency in the Application addressed by Denial Point 15 is without merit. The Illinois EPA prepared the Revised Draft Denial Letter to better identify the provisions of the Act and the Illinois Code that might be violated if revisions to Permit 95010001 were simply made as requested by the Application. This comment does not address those provisions to show that they do not provide a valid basis to deny the Application. As the comment specifically claims that Denial Point 15 would be improper because the Illinois EPA has not identified a provision of the Act or the Illinois Code that requires an application for a construction to specify the relationship between existing permit terms and applicable requirements in rules, this claim misrepresents the basis of the denial. As related to requirements for control of fugitive dust, the Application would be denied because the Application does not show the content of the requested revision of Permit 95010001 would meet the statutory requirements for this revised permit to qualify for having been subject to Integrated Processing.[222] This comment also does not refute the inadequacies in the compliance requirements related to control measures in the current permits for sources of emissions of fugitive dust, as also addressed in this denial point.

---

[222] In the Application, US Steel could have proposed specific compliance requirements related to control measures for fugitive dust that it considered would be substantially equivalent to the requirements that would be provided for by the CAAPP, subject to review of the proposal by the Illinois EPA. Alternatively, the Application could have acknowledged that Permit 95010001, as well as Permit 96030056, currently do not contain compliance requirement that fulfill this criterion, identifying areas in which these permits are inadequate. This could be accompanied by a request that the revisions of Permit 95010001 prepared by the Illinois EPA pursuant to the Application include compliance requirements for the control measures for fugitive dust that are intended to be substantially equivalent to the requirements that should now be required under the CAAPP.

H. The Application Includes All Required Information Relating to Applicable Provisions of 40 CFR Part 63 Subpart FFFFF (Denial Point 16)

In the draft denial letter, Attachment 1, the Illinois EPA asserts that the Application is deficient because it "does not address revisions to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Integrated Iron and Steel Manufacturing Facilities, 40 CFR 63 Subpart FFFFF, made by USEPA in July 2020." In Denial Point 16 in the Draft Denial Letter, the Illinois EPA observes that:

> These revisions to 40 CFR 63 Subpart FFFFF are relevant for Permit 95010001 and the revisions to this permit requested by the 2022 application. This is because Permit 95010001 relies on the applicable compliance procedures of 40 CFR 63 Subpart FFFFF (i.e., requirements for emission testing, opacity observations operational monitoring and recordkeeping), to verify consistent operation of the casthouse, the basic oxygen furnaces and other NESHAP-subject units and their emission controls, for the purposes of assuring compliance with the emission limits set by this permit for their emissions of particulate.

US Steel generally agrees with Illinois EPA's regarding the relevance of the requirements of the NESHAP. However, the current requirements of the NESHAP, as adopted by USEPA, are legally enforceable. The work practice, monitoring, testing, and recordkeeping requirements of 40 CFR 63 Subpart FFFFF provide a sound technical basis for demonstrating compliance with limits for particulate emission. This is the case regardless of whether the Illinois EPA would reopen Permit 96030056, the CAAPP permit for the facility, to assure compliance with 40 CFR 63 Subpart FFFFF, as reopening of a CAAPP permit is provided for by Subsection 39.5(15)(a)(iv) of the Act.

However, the assertion regarding a deficiency in the Application is without merit because the Illinois EPA does not identify any provision of the Act or the Illinois Code requiring that any application for a construction permit revision, even one for which integrated processing is requested, to include suggested bases upon which Illinois EPA might reopen the facility's CAAPP permit. It is solely the responsibility of Illinois EPA to reopen a CAAPP permit when the Illinois EPA determines that the permit must be revised or revoked to assure compliance with all applicable requirements.

Contrary to the claims made in this comment, the deficiency in the Application addressed in Denial Point 16 is an appropriate basis for the Application to be denied. In particular, for this denial point,

the Revised Draft Denial Letter summarizes the deficiency in the Application. It also provides the reason why this deficiency results in the legal standard for issuance of a permit not being met for the revision to Permit 95010001 that is requested by the Application.

> **The 2022 application [Application] does not address or identify changes to Permit 95010001 and by means of Integrated Processing of the revision to Permit 950100001, the changes to the CAAPP permit for the Granite City Works, Permit 96030056, that are appropriate as a result of certain revisions of the Iron and Steel NESHAP, 40 CFR 63 Subpart FFFFF. …**
>
> **Absent explicit recognition in the 2022 application of the recent revisions to 40 CFR 63 Subpart FFFFF, the version of Permit 96030056 that would be authorized by means of Integrated Processing of revised Permit 95010001 could continue to reflect the historic version of 40 CFR 63 Subpart FFFFF, prior to the revisions related to startup, shutdown and malfunction….**
>
> **It would clearly be contrary to the compliance requirements of the CAAPP if for the casthouse and the BOFs, the amended CAAPP permit that would be authorized [to] be issued by means of Integrated Processing would still include provisions of the historic version of 40 CFR 63 Subpart FFFFF that have ceased to apply.**
>
> **Revised Draft Denial Letter, Attachment 1, pp. 58 and 59.**

As the comment observes that the Illinois EPA may undertake the reopening of a CAAPP permit if it determines that a CAAPP permit must be revised to assure compliance with applicable requirements (e.g., limitations established in construction permits and applicable requirements of 40 CFR 63 Subpart FFFFF), this observation is not relevant. Denial Point 16 concerns a deficiency in the Application, not Permit 96030056. While this deficiency results because certain provisions in Permit 96030056 do not reflect revisions to 40 CFR 63 Subpart FFFFF made by USEPA,[223] this is not the actual reason for denial of the Application. Rather, the Application is being denied because it does not show that the Project-affected emissions units that are subject to 40 CFR 63 Subpart FFFFF would be required to comply with the current requirements of these rules, rather than with

---

[223] As discussed in the Draft Denials, due to USEPA's revision of 40 CFR 63 Subpart FFFFF, certain provisions in Permit 96030056 are now not correct. In particular, in July 2020, USEPA revised 40 CFR 63 Subpart FFFFF to remove the exemption from applicable standards during periods of startup, shutdown and malfunction (SSM). The conditions in the Permit 96030056 addressing 40 CFR 63 Subpart FFFFF are now flawed as they continue to provide that the applicable standards do not apply during SSM. Instead, other, alternative work practice requirements apply for SSM.

the provisions of Permit 95030056 as it indicates these rules provide exemptions from certain standards during periods of startup, shutdown and malfunction. The Application also does not request revisions to Permit 95010001 or alternatively, by means of Integrated Processing, administrative amendments to Permit 96030056 that would explicitly provide that Project-affected units that are subject to 40 CFR 63 Subpart FFFFF must comply with the current requirements of these rules.[224] In the absence of such information in or request by the Application, the Application would not show that the requested revisions to Permit 95010001 would provide for compliance with 40 CFR 63 Subpart FFFFF. Indeed, the Application does not even address USEPA's revision to 40 CFR 63 Subpart FFFFF related to periods of startup, shutdown and malfunction.[225] In summary, this comment does not confront, much less refute, Denial Point 16.

This comment also does not support its claim that denial of the Application based on Denial Point 16 would be improper because the Illinois EPA did not identify the provisions of the Act or the Illinois Code that would require that the Application suggest reason(s) why the

---

[224] Since the applicable requirements of 40 CFR 63 Subpart FFFFF must be addressed in detail in the CAAPP permit for the facility, it would seem preferable that the Application set forth these requirements in the CAAPP permit by means of or reliance upon Integrated Processing of the revision to Permit 95010001. Otherwise, if the detailed requirements of 40 CFR 63 Subpart FFFFF are set forth in Permit 95010001, these requirements would have to again be set forth in the CAAPP permit.

[225] For what is referred to by Permit 95010001 as the "Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy)," the Application specifically addresses applicability of 40 CFR 63 Subpart FFFF as follows:

> **… for clarity and consistency with these federal rule provisions [provisions of 40 CFR 63 Subpart FFFFF], USS Granite City request that this operation … be grouped with BOF Shop Operations.**
>
> **Application, Section 11.1.2, "National Emission Standards for Hazardous Air Pollutants (NESHAP), 40 CFR Parts 61 and 63," p. 11-2.**

This is noteworthy because it means that the Application requests changes to Permit 95010001 that involve 40 CFR 63 Subpart FFFFF. However, the Application does not set forth the specific requirements of 40 CFR 63 Subpart FFFFF that apply to the units for which applicability of these rules are addressed. Instead, the Application presumably relies on the provisions of Permit 96030056 that set forth the requirements of these rules for a "ladle metallurgy operation." For example, CAAPP Condition 7.5.3(e)(iii) sets forth the standard of 40 CFR 63.7790(a) for the PM emissions from a control device applied to such an operation. The Application does not acknowledge that USEPA has revised 40 CFR Subpart FFFFF so that it no longer provides an exception to certain requirements for SSM, contrary to what is currently indicated in Permit 96030056.

CAAPP permit for the facility should be reopened. As explained above, the absence of such information from the Application is not the deficiency in the Application identified in this denial point.[226] The Illinois EPA prepared the Revised Draft Denial Letter to better identify the provisions of the Act and the Illinois Code that might be violated if a revision to Permit 95010001 were issued as requested by the Application. This comment does not address the provisions that were identified for this denial point show that they are not a valid basis for denial of the Application.[227]

I. The Application Includes All Required Information Relating to Equipment that is Listed in the CAAPP Permit and Has Been Permanently Shut Down (Denial Point 17)

In the draft denial letter, Attachment 1, the Illinois EPA asserts that the Application is deficient because it "does not identify changes to the CAAPP permit for the Granite City Works, Permit 96030056, that are a consequence of permanent shut down of emissions units" and further asserts that "[t]he responsibility to identify provisions in the CAAPP permit that should not be carried forward initially falls on US Steel as it is the CAAPP Permittee for the Granite City Works."

The Application was submitted for the narrow and specific purpose of addressing the outstanding appeal items and the underlying PSD and NaNSR applicability evaluations relating to the Project implemented by

---

[226] US Steel does not need to provide a basis upon which the Illinois EPA could initiate a reopening of Permit 96030056 to address USEPA's revisions to 40 CFR 63 Subpart FFFFF. As acknowledged by this comment, under both the Clean Air Act and the Act, US Steel must comply the requirements of 40 CFR 63 Subpart FFFFF as they currently exist without consideration of the outdated provisions of Permit 96030056 that indicate that certain requirements do not apply during periods of startup, shutdown and malfunction. As a practical matter, a reopening of Permit 96030056 to specifically address these outdated provisions would only be needed if US Steel attempts to rely on the outdated provisions of Permit 96030056 to excuse violations of applicable standards during period of startup, shutdown or malfunction.

[227] For Denial Point 16, the provisions of the Act that are cited as the basis for denial of the Application are Sections 9(a), 39(a),* 39.5(5)(i), 39.5(7)(a), 39.5(10)(a)(iv) and 39.5(13)(c) (v). The regulation that is cited as the basis of this denial point is 35 IAC 202.160(a).

*** Section 39(a) of the Act is cited as it provides the statutory standard for issuance of permits. In addition, this section is cited as it provides that when granting permits, the Illinois EPA may impose conditions as necessary to accomplish the purposes of the Act provided they are not inconsistent with Board rules. As discussed in the Revised Draft Denial Letter, Appendix A, p. 2, this second element of Section 39(a) is cited as a basis for denial as the Application does not include information that may be needed for the Illinois EPA to impose necessary conditions in a revision to Permit 95010001 as requested by the Application.**

National Steel. This application was not intended to address changes that are not directly relevant to that purpose. In addition, an application is pending to renew the CAAPP permit for the facility, which application was submitted by US Steel in November 2013, received by the Illinois EPA on December 3, 2013, and subsequently deemed complete by operation of law.

These assertions are without merit. Illinois EPA does not identify any provision of the Act or the Illinois Code requiring that any application for a construction permit revision, even one for which integrated processing is requested, request changes to the facility's CAAPP permit other than those directly resulting from the requested revisions of the underlying construction permit. It is the responsibility of Illinois EPA to draft a permit with conditions it judges to be suitable and appropriate and in conformance with applicable rules and laws.

The comment does not show that the Application should not be denied. In rebuttal to Denial Point 17, this comment simply claims that denial based on this denial point would be improper because, "The Application was submitted for the narrow and specific purpose of addressing the outstanding appeal items and the underlying PSD and NaNSR applicability evaluations relating to the Project implemented by National Steel [presumably, referring to the correction of errors in the original quantification of emissions]." However, US Steel's purpose for the Application is irrelevant to the denial of the Application on this denial point. That a separate application for renewal of Permit 96030056 is pending with the Illinois EPA is also irrelevant.[228]

What is relevant, as was discussed in the Draft Denial Letters, is that the Application requests that the revision of Permit 95010001 sought by the Application be subject to Integrated Processing. As such, pursuant to Subsection 39.5(13)(c)(v) of the Act, the Application effectively becomes a CAAPP application. To the extent that the Application would not address an administrative amendment of Permit 96030056 and does not address units that are now shutdown, the Application requests, by omission, that the Illinois EPA issue an amended CAAPP permit that would, on its face, continue to address units that are now shutdown, e.g., the two by-product recovery coke oven batteries that were shutdown in 2015 and associated by-product recovery equipment. As such, the Application requests a revision to

[228] This comment also observes that the Illinois EPA has not formally requested US Steel to provide information that remedies this deficiency in its application for renewal of Permit 96030056, as the Illinois EPA is authorized to do pursuant to Subsection 39.5(5)(g) of the Act. This fact does not affect US Steel's obligation under Subsection 39.5(5)(g) of the Act.

Permit 95010001 that would authorize issuance of an amended CAAPP permit that on contain blatant errors. This would be contrary to Subsection 39.5(5)(i) of the Act, which provides as follows for applicants for CAAPP permits.

> **Any applicant who fails to submit any relevant facts necessary to evaluate the subject source and its CAAPPP application or who has submitted incorrect information in a CAAPP application shall upon becoming aware of such failure or incorrect submittal, submit supplementary facts or correct information to the Agency. …**
>
> **Illinois Environmental Protection Act, Subsection 39.5(5)(i).**

By means of the Draft Denial Letters, US Steel has been informed of this deficiency in the Application. However, US Steel has not undertaken action to remedy this deficiency.[229] Moreover, US Steel is the permittee for the Granite City Works. As such, US Steel should initiate actions to appropriately address the changes that it has made at its facility; the Illinois EPA should not initiate such actions on behalf of US Steel.

---

[229] Denial Point 17 does not require US Steel to make a revision to the Application detailing the emission units addressed by the current CAAPP permit that are now shutdown. Alternatively, US Steel could take the necessary action with an appropriate application for an administrative amendment or minor modification of the CAAPP permit. This would also enable issuance of an amended CAAPP permit pursuant to the Application that would no longer address units that have been shut down.

8A. General Responses to Certain Comments by US Steel, As Referred to by the Illinois EPA in Its Responses in Section 7

General Response 1: General Response to Comments As They Address Facts or Matters That Are Extraneous to the Planned Denial of the Application

In many of its comments, as addressed in this General Response 1, in addition to the other specific point(s) that are made by the comments, US Steel also makes observations or claims with regard to facts or matters that, even as they may be true, are appropriately considered extraneous to the planned denial of the Application. As such, as explained in this General Response, these "generic" comments did not show that the Application should not be denied.

Denial of the Application Would Be Improper Because the Illinois EPA Did Not Notify US Steel That the Application Was Deficient Before Beginning the Process for Denial of the Application

In a number of generic comments, US Steel observes that the Illinois EPA did not take certain actions before beginning the preparation of the Initial Draft Denial Letter. In particular, the Illinois EPA did not notify US Steel in writing that the Application was deemed incomplete and that certain information, as the Illinois EPA considered necessary, needed to be submitted as part of a new or revised application.[230] As US Steel's comments make this observation, the

---

[230] In particular, in its comments, US Steel references 35 IAC 201.158 in Part 201, "Permits and General Provision," and 35 IAC 204.1300 in Part 204, "Prevention of Significant Deterioration," which provide as follows:

> **Section 201.158 Incomplete Applications**
> **An application shall not be deemed to be filed until the applicant has submitted all information and completed application forms required by Section 201.152 or 201.157 of this Subpart, whichever is applicable, and procedures adopted and effective pursuant hereto. Provided, however, that if the Agency fails to notify the applicant within 30 days after the filing of a purported application that the application is incomplete and of the reasons the Agency deems it incomplete, the application shall be deemed to have been filed as of the date of such purported filing. The applicant may treat the Agency's notification that an application is incomplete as a denial of the application for purposes of review, pursuant to Section 40 of the Act [415 ILCS 5/40].**
>
> **Section 204.1300 Notification of Application Completeness to Applicants**
> **The Agency shall notify the applicant within 30 days after receipt as to the completeness of an application for a permit under this Part or any deficiency in the application or information submitted in such an application. In the event of such a deficiency, the date of receipt of the**

comments suggest that the Application should not be denied. However, these comments do not show that the Illinois EPA had to request information that was not provided in the Application or that was needed to correct deficiencies in the Application as a prerequisite to beginning the process of denying the Application. The comments certainly do not show that it would be improper for the Application to be denied due to the deficiencies in the Application that have been identified simply because US Steel was not notified of any such deficiencies within the 30 day timeframes in the cited rules.[231] Indeed, the cited rules could be considered a reason why the Application must be denied given that the Illinois EPA did not notify US Steek of deficiencies in the Application within 30 days of the date that the Application was received by the Illinois EPA.

Moreover, the fact that certain earlier actions did not occur also does not bar or block denial of the Application. The standard for review of a permit application under Section 39(a) of the Act, that is, whether permit requested by the application should be issued or the application should be denied, addresses the submitted permit application, without consideration of the actions that the Illinois EPA did or did not take before denying the application. In addition, if the Act's standard for issuance of a permit would not be met by an application, the Act does not provide that the requested permit must be issued even if an action specified by the Act was not taken, e.g., the denial letter did not identify the provisions of the Act or the Illinois Code that might be violated if the permit requested by the application were issued. In such circumstances, if the denial of an application were appealed to the Board, the Board would properly return or remand the application back to the Illinois EPA so that it could resume its review of the application. This further review could still result in preparation of an appropriate denial letter if the permit applicant did not supplement its application to address the substance of the issues that were identified in the denial letter that the Board found to be defective on procedural grounds.

---

application shall be the date on which the Agency receives all required information.

[231] As a practical matter, it is unrealistic to expect the Illinois EPA to identify all deficiencies in applications for air pollution control permits within 30 days given the often complicated nature of such applications and the workload of the Illinois EPA, Air Permit Section. At most, the cited rules should be considered to provide for an administrative determination for of the completeness of an application rather than technical completeness based on the review of the application by the professional staff of the Air Permit Section. Moreover, given the time required to prepare for and hold a public comment period on a draft of a permit or a permit denial letter, when a public comment period is held for a permit application, deficiencies in the application may not be identified until many months after it was received.

The Denial of the Application Would be Improper Because the Illinois EPA Has Not Adopted Procedures Pursuant to 35 IAC 201.152 Addressing the Deficiencies that Have Been Identified in the Application.

In a number of generic comments, US Steel observes that the Illinois EPA has not adopted procedures as provided for by the Board in 35 IAC 201.152,[232] that would specify that applications for state construction permits must include certain information that was not included BU US Steel in the Application. By these comments, it is suggested that since the Illinois EPA has not adopted such procedures, it would be improper for the Application to be found deficient and denied because certain information was not provided in the Application. However, the issue before the Illinois EPA is whether the Application meets the standard for issuance of a permit in Section 39(a) of the Act.[233] The fact that

---

[232] **In its entirety, 35 IAC 201.152 provides:**

> **Section 201.152 Contents of Application for Construction Permit**
> **An application for a construction permit shall contain, as a minimum, the following data and information: The nature of the emission unit and air pollution control equipment, including the expected life and deterioration rate; information concerning processes to which the emission unit or air pollution control equipment is related; the quantities and types of raw materials to be used in the emission source or air pollution control equipment; the nature, specific points of emission and quantities of uncontrolled and controlled air contaminant emissions at the source that includes the emission unit or air pollution control equipment; the type, size, efficiency and specifications (including engineering drawings, plans and specifications certified to by a registered Illinois professional engineer) of the proposed emission unit or air pollution control equipment; maps, statistics and other data reasonably sufficient to describe the location of the emission unit or air pollution control equipment. The Agency may waive the submission by the applicant of such engineering drawings, plans, specifications or such other portions of the above data or information as it shall deem inappropriate or unnecessary to the construction permit application. The Agency may adopt procedures that require data and information in addition to and in amplification of the matters specified in the first sentence of this Section, that are reasonably designed to determine compliance with this Chapter and ambient air quality standards, or that set forth the format by which all data and information shall be submitted.**

[233] **It should be noted that the Act does not identify or prescribe the particular information that must be included in an application for a state air pollution control permit for it to be considered to provide proof that the relevant substantive requirements of the Act and the Illinois Code related to emissions would not be violated by the facility and/or equipment for which a permit is being requested. Similarly, except for rare instances, the Illinois Code does not address the particular information that must be included in an application for a state air pollution control permit for it to be considered to provide proof that the relevant substantive requirements of the Act and the Illinois Code would not be violated. Decisions about the information that should be included in an application are entrusted to the Illinois EPA and its**

the Illinois EPA has not adopted procedural rules regarding the required contents of state construction permit applications, as addressed by 35 IAC 201.152, is irrelevant. The Illinois EPA is not required to adopt such rules.[234] In 35 IAC 201.152, the Board simply

---

technical judgment. Even where the Illinois Code specifies information that must be included in an application to address an applicable requirement, it may be done in terms of what must be shown by the information that is required to be included, as well as in terms of the specific information that must be provided. For example, with respect to the BACT requirement of the PSD rules, 35 IAC 204.810 provides as follow:

> **Section 204.810 Source Information**
> **The owner or operator of a proposed major stationary source or major modification shall submit all information necessary to perform any analysis or make any determination required under this Part.**
>
> **a) With respect to a source or modification to which Sections 204.1100 ["Control Technology Review"] … apply, such information shall include:**
>
> **1) A description of the nature, location, design capacity, and typical operating schedule of the source or modification, including specifications and drawings showing its design and plant layout;**
>
> **2) A detailed schedule for construction of the source or modification; and**
>
> **3) A detailed description as to what system of continuous emission reduction is planned for the source or modification, emission estimates, and any other information necessary to determine that BACT, as applicable, would be applied [emphasis added].**

[234] The Illinois Pollution Control Board (Board) has addressed whether the Illinois EPA is required to adopt procedures and the scope of such procedures in the context of the former program for Underground Storage Tank Remediation pursuant to Sections 22.18, 22.18a, 22.18b and 22.18c of the Act, which are now repealed. The Board found that a determination made by the Illinois EPA denying reimbursement for certain costs under this program was appropriate even though this subject was not addressed by the rules that the Illinois EPA had adopted. The Opinion and Order of the Board in the subject case, PCB 91-201, includes the following statements;

> **The Act "authorizes the Agency [Illinois EPA] to adopt reasonable and necessary rules for the administration of this Section." (Section 22.18(f).) The Agency has chosen not to promulgate rules pertaining to reimbursement but rather evaluates ach application on its own merits, on a case by case basis. (Pet. Br. at 39.) The evaluation of the application by the Agency is governed by the requirements of the statute.**
>
> **The guidance manual has no legal force or affect because it was not promulgated according to the requirements of the APA [Administrative Procedures Act]. Corrective action is an action to stop minimize, eliminate or clean up a release of petroleum, The Strubes have not shown that the**

recognizes the authority of the Illinois EPA to adopt such rules. Moreover, even if the Illinois EPA had adopted such rules it is unreasonable to expect that they would address all the matters that should be considered for the revision of Permit 95010001, as the Illinois EPA would address by denial of the Application.

Denial of the Application Would Be Improper Given Historic Actions by the Illinois EPA That Involved Permit 95010001

In certain generic comments, claims are made that the denial of the Application would be improper because of past actions taken by the Illinois EPA with regard to Permit 95010001. For example, several of these comments observe that the Illinois EPA did not require National Steel in the permit application that resulted in the initial issuance of Permit 95010001 in 1996 to provide certain supporting information or justification for the emission data provided in the Application, as submitted in October 2022. These comments suggest that it would be improper for the Application to be denied because it does not include such supporting information or justification for certain emission data that it contains. This is not the case and the absence of such information from the Application is an appropriate basis for the Application to be denied. These comments should be considered extraneous because they do not directly address the Application that US Steel has submitted.

In this regard, by the submittal of the Application, US Steel requested that the Illinois EPA make certain revisions to Permit 95010001. As revisions to this permit are requested, US Steel cannot simply rely on the Illinois EPA and its past actions to support or justify the revisions to Permit 95010001 that US Steel is now requesting. The Application, itself, must meet the standard in the Act for issuance of a revised permit. In this regard, US Steel's comments do not identify a provision of the Act that establishes a standard for the issuance of revisions of state permits that is different than the standard of issuance that generally applies for issuance of state permits. In other words, the Illinois EPA is not required to and should not perpetuate past decisions or past actions that are or may been erroneous when taking a new action. As recognized by the Board, when acting on a permit, the Illinois EPA must generally act appropriately based on the

---

replacement of the concrete at their station was a corrective action. The Agency did not inform the Strubes about the reimbursements for costs associated with repaving but requested that the bills be submitted for review. Therefor the Board finds that the Strubes are not eligible for reimbursement of the cost of replacement of concrete pursuant to the statute.

Fred M. Strube and Cynthia L. Strube v. Illinois Environmental Protection Agency, PCB 91-205, Order and Opinion of the Board, May 21, 1992, p.3, p.7.

application and the issues that are currently before it irrespective of how it may have previously acted.[235] For example, the fact that certain decisions with respect to Best Available Control Technology (BACT) under the PSD program were made almost 30 years ago when initially issuing Permit 95010001 to National Steel is irrelevant to the review of the Application. This is because the Application requests increases in the permitted emissions of these units such that new determinations of BACT now also need to be made.[236]

The Illinois EPA Could Pursue Resolution of the Issues Identified In the Draft Denial Without Denying the Application

In a number of generic comments, US Steel observes that the Illinois EPA could pursue resolution of the deficiency that is identified in the Draft Denial Letter by a means other than denial of the Application. For example, it could continue informal discussions with US Steel about the revisions of Permit 95010001 and resolution of the permit appeals current pending with the Pollution Control Board. Alternatively, the Illinois EPA could have asked US Steel to supplement or revise the Application to address the deficiencies in the Application that have been identified.

While the Illinois EPA could have chosen to continue to engage in further informal discussions with US Steel or to attempt to get

---

[235] For example, refer to the following statement by the Board in Chemrex, Incorporated v. Illinois Environmental Protection Agency, PCB 92-123, Order and Opinion, February 4, 1993. This statement formally confirms, as a matter of principle, that in its review of an application, the Illinois EPA is not constrained to the decision that was made for an earlier application.

> **…the Board believes that the Agency is entitled to change its position, rather than maintain consistency with an incorrect eligibility determination, in light of the fact that there is no statutory provision, regulation or case law that addresses the issue at hand.**
>
> **PCB 92-123, Opinion and Order, February 4, 1993, p. 7.**

[236] Based on certain past actions by the Illinois EPA, as mentioned by US Steel in its comments, US Steel may think that the level of information that was provided in the Application was reasonable, as is also observed in certain comments. (These observations are similar to incidental observations made in other comments that US Steel was not obligated to correctly guess as to how the Illinois EPA would exercise its judgment with respect to certain aspects of the requested revisions to Permit 95010001.)
However, these observations are clearly irrelevant to the denial of the Application. The Illinois EPA's review of the Application must consider whether the Application meets the Act's standard for issuance of a permit. The opinion of US Steel, the permit applicant, as to whether the level of information was "reasonable" or "appropriate" is irrelevant to whether the Application should or should not be denied.

deficiencies in the Application dealt with by US Steel by a means short of denial of the Application, this does not show that denial of the Application would be inappropriate. These generic comments do not point to a provision of the Act that requires the Illinois EPA to take such action on an application for state construction permit that it finds to be deficient prior to denying the application.[237] Indeed, these comments do not even show that denial of the Application would be unreasonable if one considers when issues with certain emission limits in Permit 951010001 were first identified.

[237] **While these comments acknowledge that the Illinois EPA has, "authority to requests additional documentation in conjunction with a construction permit application," (for example, see US Steel's Comment VI), the comments point to 35 IAC 201.152 as the basis for such authority. As discussed above, this rule recognizes that the Illinois EPA may adopt procedures that expound upon or further specify the required content of an application for a construction permit as also specifically addressed by this rule. This rule does not address the process whereby the Illinois EPA may request a permit applicant supplement or revised the application that has been submitted.**

8B. General Responses to Certain Comments by US Steel, as referred to by the Illinois EPA in its responses in Section 7

General Response 2: General Response to Comments Concerning Prescribed Emission Factors and Emission Determination Methodology

For various emission units, the Application requests that the revision to Permit 95010001 specify or "prescribe" the emission factors that US Steel must use on an ongoing basis to determine or calculate emissions for the purpose of demonstrating compliance with limitations in the permit for annual emissions. In addition, for the roof monitor for the blast furnace casthouse, the Application requests that the revised permit specify use of an "emissions determination methodology" that would yield specific emission factors for emissions of NOx and VOM. (To simplify this response, in the remainder of this response, this emissions determination methodology proposed by the Application will not be addressed separately but will instead be considered as being within the broad scope of the term emission factor.)

The emissions units and emission points for which the Application requests that the revision to Permit 95010001 prescribe emission factors are ones for which direct measurement of the rate of emissions by USEPA Reference Test Methods or, alternatively, material balance based on the amount of the pollutant precursor(s) in process materials, is not feasible. The Application does not request that the revised permit specify emission factors for emission units and emissions points whose circumstances are such that direct measurement of the rate of emissions is feasible.

For example, for the particulate emissions of the blast furnace casthouse, the Application proposes that the revision to Permit 95010001 prescribe the specific emission factors that are to be used to determine the uncaptured emissions from the casthouse. As these emissions occur through the roof monitor of the casthouse, rather than through the stacks of the particulate control devices serving the casthouse, these emissions are not amenable to quantitative measurement by established USEPA Reference Test Methods.[238] All calculations for the

---

[238] In the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Integrated Iron and Steel Mills, 40 CFR 63 Subpart FFFFF, USEPA has recognized that the emissions through roof monitors on casthouses are not amenable to emission testing. This NESHAP does not set quantitative emission standards for the amount or mass of particulate emissions from the roof monitors on blast furnace casthouses. These emissions from the roof monitors are constrained with standards for the opacity of emissions. These standards also serve to indirectly address the effectiveness with which the particulate emissions from tapping of blast furnaces, as occurs in casthouses, must be captured and directed to particulate control devices pursuant to this NESHAP.

amounts of particulate emissions from the casthouse roof monitor must necessarily be made by use of emission factors that are developed or derived relying on something other than direct measurements of the emissions through the roof monitor.[239]

As the Application requests that the revision to Permit 95010001 prescribe emissions factors for the determination of the emissions of certain emission units or certain emission points, the Application requests a fundamental change in Permit 95010001 as it would address the emissions of these units or emission points. This change also has important consequence for the content of the Application. As delineated in Denial Points 8, 9 and 10, the Application is deficient as it does not contain the additional information that must necessarily accompany its request that the revised permit prescribe use of certain emission factors.[240] In particular, the Application does not provide information justifying the specific values of the emission factors that are proposed or would be generated. Moreover, the various comments that are made with respect to the emission factors that are proposed by the Application do not show that such information need not be included in

---

[239] It should also be understood that for units at the facility for which emission testing is performed, emissions factors must also be used to calculate emissions on an ongoing basis. This is because emission testing occurs periodically. On a routine basis other than when testing is actually being conducted, the emissions of such units must be calculated using emission factors developed from the results of the testing that is conducted.

However, as provided in the CAAPP permit for the facility, Permit 96030056, the "test-based" factors may be refined to address the actual operation of the emission units and their control devices. In particular, if the operation of a control device is impaired lowering its effectiveness, the emission factor used to calculate emissions during the period of impaired operation must be refined so that it reasonably reflects the actual effectiveness of the control device during such period.

[240] The three categories of emission factors that the Application requests be prescribed by revised Permit 95010001 are addressed in Denial Points 8, 9 and 10. In addition, Denial Point 8 generally addresses the deficiencies in the Application as it requests that revised Permit 95010001 prescribe certain emission factors.

Denial Point 8, after the initial general discussion, addresses deficiencies in the Application with respect to proposed emission factors that appear to directly reflect published emission factors. Denial Point 9 further addresses the deficiencies in the Application with respect to the emission determination methodology that is proposed for uncaptured emissions of NOx and VOM from the blast furnace casthouse. Denial Point 10 addresses the deficiencies in the Application with respect to certain proposed emissions factors that appear to be derived from published emissions factors using process-specific information. For example, for the Iron Pellet Screen, the Application proposes a particulate emission factor that is 85 percent of a factor for uncontrolled emission, presumably to account for the control measures that are present for this unit. However, the Application does not justify the use of 85 percent control efficiency for this unit.

the Application. Instead, they generally argue that the previous acceptance by the Illinois EPA in previous permit actions involving the emission factors that the Application now requests be prescribed is sufficient to show that use of the selected emission factors should be prescribed by the requested revised permit. In addition, these comments argue that it is responsibility of the Illinois EPA to draft the requested revision to Permit 95010001 with conditions that it judges to be suitable and appropriate. As such these comments relinquish any responsibility by US Steel to provide substantive support and justification in the Application for the emission factors that it proposes be prescribed.

Accordingly, as the Application does not provide substantive support for the emission factors that it proposes to now be prescribed by the requested revised permit, it is appropriate that the Application be denied for reasons as set forth in Denial Points 8, 9 and 10, as has been done. Moreover, as US Steel argues that the Illinois EPA is responsible for imposing conditions in the requested revised permit that the Illinois EPA deems suitable and appropriate, it is also proper for the Application to have been denied. This is because the judgment of the Illinois EPA is that the Application does not include information showing that the specific emission factors that the Application requested be prescribed are suitable or appropriate.

By way of explanation, as the Application requests that revised Permit 95010001 specify use of specific emission factors for certain units and emission points, the Application requests a fundamental change to how the emissions of those units and emission points would be addressed on an ongoing basis. This is because this permit currently does not prescribe the specific emission factors that US Steel must use on an ongoing basis to determine compliance with the emission limits set by this permit. In addition, rather than prescribing use of specific emission factors, the Illinois EPA made clear when issuing the CAAPP permit for the facility, Permit 96030056, that emission factors that do not understate actual emissions, essentially "appropriate emission factors," are to be used on an ongoing basis when calculating emissions of the units for which Permit 95010001 sets limitations.[241] This happens

---

[241] For Project-affected process units, Condition 5.13(a) of Permit 96030056, if not stayed, would provide that, "The emission factors used by the Permittee [US Steel] to determine compliance with these emission limits [the emission factor limits and annual emission limits from Permit 95010001 for process emission units as they are restated in Permit 96030056] shall not understate actual emissions." In this regard, the subsequent provisions in Condition 5.13 distinguishes between the emission factors for emissions units for which Permit 96030056 requires emissions testing and emission factors for units for which emission testing is not required. The further requirements imposed by Condition 5.13, if it were not stayed, for these two categories of factors are different because of what would be expected to result in a change in the factor that US

as Permit 96030056 restates the emissions limitations set by Permit 95010001, as these limitations are applicable requirements for purposes of the CAAPP. For the various Project affected units at the facility, the obligation to show that appropriate emissions factors are being used to calculate emissions is placed on US Steel.[242]

As discussed by the Illinois EPA in the introductory paragraphs of the discussion for Denial Point 8 in the Denial Letters, if Permit 95010001 is to be revised as requested by the Application, to now prescribe the emission factors that US Steel must use to calculate emissions from certain units and emissions points, it must be determined that the factors that would be prescribed should be considered representative of those emissions. In particular, as reflected in various determinations by USEPA cited in this discussion, the record supporting the issuance of such a permit must contain the basis or rationale for the Illinois EPA's determination that the emissions factors that are being prescribed would be appropriate, i.e., representatives of actual emissions. However, the responsibility to provide the basis or rationale for the emission factors that are proposed to be prescribed rests, at least initially, upon US Steel and the information that it provides in its application for revisions to Permit 95010001. This is because US Steel has requested the revisions to Permit 95010001 to prescribe the emission factors that are to be used on an ongoing basis for certain emission units and emission points. Notwithstanding the fact that the Application requests that certain emission factors be prescribed, the Application does not provide substantive support for why the specific values of the emission factors that are proposed would

---

Steel is using, i.e., the emissions measured in a periodic emission test or new information that becomes available about the emissions from an emissions unit or emission point, including new information published by USEPA.

Condition 5.13 of Permit 96030056 is, in fact, stayed pursuant to a May 2, 2013, Order of the Illinois Pollution Control Board (Board), which responded to a motion for stay of the effectiveness of appealed conditions made by US Steel in the permit appeal for Permit 96030056 (PCB 2013-053). However, this stay does not affect Condition 5.13(a) as it is also a public pronouncement by the Illinois EPA for how US Steel should determine emissions of Project-affected process units for purposes of addressing ongoing compliance with the limits on emissions set by Permit 95010001. That is, emissions shall not be determined simply based on an emission factor that may nominally address the emissions of a Project-affected process unit or emission point but, in reality, may understate the actual emissions of the unit or emission point.

[242] To facilitate review by the Illinois EPA and interested parties of the emission factors that US Steel is using to determine compliance with the relevant emission limitations, Permit 96030056 would also impose certain procedural requirements. For example, this permit would require US Steel to review the emission factors that it is using for units for which emission testing is not required on at least an annual basis (Condition 5.13(c)(ii)) and to inform the Illinois EPA if it updates the emission factors that it is using based on such review (Condition 5.13(d)(i)).

appropriately be set as prescribed factors by the revised permit. Instead, the Application simply identifies the purpose for which the proposed factor has been used earlier in the Application in the revised NSR applicability analyses for the Project.[243] This information is not sufficient to serve as a basis or rationale for the revision to Permit 95010001 to prescribe use of the proposed factors.

Moreover, with regard to the emission factors that the Application proposes be prescribed, US Steel's comments rejects responsibility for justifying the use of the specific factors that are proposed. The comments ignore the USEPA's Order concerning BP Amoco Chemical Company cited in Denial Point 8 (Denial Letters, Footnote 40). This decision concerning a Title V permit issued in Texas is relevant as it discusses what must be shown if a revision to Permit 95010001 is to be issued that would now prescribe use of certain emissions factors on an ongoing basis.[244] It is implicit in USEPA's decision that for the emissions units

---

[243] For example, when describing the requested changes to permit terms for PM and PM_{10} emissions, for the proposed prescribed emission factors for certain blast furnace operations, the Application simply states that:

> **Prescribed emission factors consistent with the approach described in Section 3 [Discussion of Permit Conditions used to Restrict PTE] are provided herein. USS Granite is proposing the following prescribed emission factors for the emission point for which emissions testing is not feasible [Footnote] 31. Each of these emission factors is the same as the corresponding emission factors used to calculate pre-project actual emissions as shown in Table 5-5 [Pre-project Actual Emissions and Summary of Proposed Changes to Pre-Project PM Emission Factors for Affected Emissions Units] and Table 5-6 [Pre-project Actual Emissions and Summary of Proposed Changes to Pre-Project PM_{10} Emission Factors for Affected Emissions Units].**
>
> **(a) For Blast Furnace Casthouse Roof Monitor, use PM emissions factor of 0.030 lb/ton and PM_{10} emission factor of 0.0153 lb/ton.**
> **(b) For Blast Furnace Charging, use PM emission factor of 0.0024 lb/ton and PM_{10} emissions factor of 0.0012 lb/ton.**
> **(c) For slag pits, use PM and PM_{10} emission factor of 0.00417 lb/ton. Application, 5-14, Section 5.5.1.2 Prescribed Emission Factors for Certain Blast Furnaces Operations.**
>
> **[Footnote][31] PM and PM_{10} emission factors are appropriately determined from the results of emissions testing per 40 CFR 63 Subpart FFFFF to determine PM and PM_{10} emissions rates for the Blast Furnace Casthouse baghouse and the Iron Spout baghouse.**
>
> **Application, Section 5.5.1.2, "Prescribed Emission Factors for Certain Blast Furnace Operation," pp. 5- 14 and 5-15.**

[244] When responding to a petition requesting that USEPA object to a Title V permit issued by the Texas Commission on Environmental Quality (TCEQ) as it addressed the emission factors that the permit allowed the source to use to

and emissions points for which the Application requests that Revised Permit 95010001 prescribe use of specific emission factors, the Application must provide a substantive, technical justification for the proposed factors. It is then incumbent upon the Illinois EPA to exercise its judgement to decide whether such justification should be considered adequate.

---

determine emissions of NOx and CO from certain fuel combustion units, the USEPA found the following, granting the petition on this point:

> **Instead of providing technical justifications, TCEQ's RTC [Response to Comments] redirected the public as follows: "The rationale for the emission factors and emission calculations is included in the application representations that were made during the NSR permit action that authorized these terms and conditions." RTC at 11. This cursory reference to an unspecified permit application is not enough to justify the sufficiency of monitoring [*], nor to adequately respond to significant public comments questioning the same. TCEQ's response leaves the public—and for that matter, the EPA—in the dark about where to look, and what to look for.{Footnote} [26] Moreover, a justification provided by a permittee in a permit application should not substitute for the judgement of the permitting authority (TCEQ) with responsibility for ensuring that a title V permit contains sufficient monitoring to ensure compliance.**
>
> > **[* As this response uses the term "monitoring," it refers to "periodic monitoring" as used in the federal operating permit program required by Title V of the Clean Air Act to refer to the collection of requirements for emission unit(s) imposed by such a permit to reasonably address compliance with applicable substantive requirement(s) that apply for the emissions of such unit(s). "Periodic monitoring" may include requirements such as requirements for periodic emission testing, operational instrumentation, certain work practices, recordkeeping, and reporting, as well as requirements for operational monitoring and emissions monitoring.]**

[Footnote][26] As the Petitioners suggest, this is no simple task for a permit like Permit No. 1176/PSDTX782, which has been revised numerous times. Although the 2013 version of this permit includes a date next to some permit terms indicating the last time that a permit term was revised, it is unclear whether the application associated with the initial establishment of the term, or the latest revision, or something in between, might contain the information that TCEQ deems relevant. Moreover, the 2020 version of this permit no longer includes these date references, further obscuring the location of any potentially relevant application representations.

Before the Administrator, United States Environmental Protection Agency: In the Matter of: BP Amoco Chemical Company, Texas City Chemical Plant, Galveston County Texas, Permit O1513 Issued by the Texas Commission on Environmental Quality; Petition No. VI-2017-6, Order Responding to Petition Requesting Objection to the Issuance of Title V Permit; Order Granting in Part and Denying In Part a Petition for Objection to Permit, July 20, 2021, p.18.

It should be understood that the Illinois EPA does not dispute that as related to the Project, it has accepted certain emission factors during past permitting actions. However, in the permits that were issued, the Illinois EPA did not prescribe the specific emissions factors that US Steel must use when calculating emissions of process units for purpose of compliance with applicable emissions limitations, as is now requested by the Application.[245] Moreover, the question of how compliance should be determined in practice with the emission factor limits and annual emission limits set by Permit 95010001 was not directly confronted until the 2010 time frame, almost 15 years after the initial issuance of Permit 95010001. This happened when the Illinois EPA began processing US Steel's initial application for a CAAPP permit for the facility. It was in this period that the Illinois EPA formalized its very straightforward position that compliance with the emission factor limits and annual emissions in Permit 95010001 was to be calculated using appropriate emission factors.

Finally, even if the Illinois EPA had prescribed emission factors in past permits, it would still be necessary during the issuance of the requested revisions to Permit 95010001 for there to be substantive information showing that any emission factors that would be prescribed by such revised permit would be appropriate. In other words, in the proceeding for revision to Permit 95010001, it would have to be shown either that the previously prescribed emissions factors should still be considered appropriate or, otherwise, that the new emissions factors that are being proposed to be prescribed by the revised permit would be appropriate.

---

[245] While some of US Steel's comments claim that the Illinois EPA has already prescribed the use of emission factors in Permit 95010001, these claims are not supported. The comments do not identify language in Permit 95010001 that suggests that the emissions factor limits set by this permit are anything but enforceable limitations. The comments do not explain why Permit 95010001 would prescribe emission factors for all Project-affected units and emission points rather than only for units and emission points for which emission testing is not feasible. Finally, if US Steel believed that the Illinois EPA considered that the subject provisions in Permit 95010001 prescribed the emission factors that US Steel must use to address limitations set for annual emissions by Permit 95010001, as claimed in its comments, why did US Steel file permit appeals with the Board challenging the emission factor limits in Permit 95010001 as they were or would be restated in Permit 96030056 (PCB 2013-053 and PCB 2013-062). Indeed, one of the reasons that US Steel filed these permit appeals is precisely because the Illinois EPA made clear in the subject permit proceedings that the provisions in Permit 95010001 addressing emissions of process units in terms of pounds/ton of production or pounds/ton of material handled, as they were present in the appealed permits, set limitations on emissions.

9. Attachment A: The Proper Approach, As Prepared by the Illinois EPA, to the Increase and Net Increase in the NOx Emissions of the Project with the Requested Revisions to Permit 95010001.

In this attachment, the Illinois EPA sets forth how the increase and net increase in the NOx emissions of the Project with the requested increases in the NOx emissions of the blast furnace casthouse and BOFs would properly be addressed. This attachment shows that if the applicability of NSR for NOx were properly evaluated, excluding the unrelated post-project decreases in NOx emissions, the Project would almost certainly be a major modification for NOx with the increases requested by the Application in the permitted NOx emissions of the blast furnace casthouse and the BOFs.

This attachment includes three tables with accompanying discussion. Table 1 addresses the increase in NOx emissions simply from the project itself. Table 2 addresses the net increase in NOx emissions from the Project also considering the contemporaneous increases and decreases in emissions that accompanied the Project. Table 3 also addresses the net increase in NOx emissions from the Project but describes how the post-project emission decreases should be disregarded in an appropriate analysis. The purpose of this table is to highlight the errors in the revised NSR analysis in the Application. As neither US Steel's comments nor the Application provide information for the NOx emissions of the Project as should have been permitted in 1996 if the NOx emissions of the emissions of the blast furnace casthouse and BOFs had been correctly quantified, these tables use a variable, "*p*", to represent the extent to which the permitted NOx emissions of the Project-affected fuel burning units and the Project would have been more than the baseline NOx emissions.[246] Likewise, because information was not provided for the decrease in NOx emissions that accompanied each of the three actions that lowered NOx emissions of Project-affected fuel burning units, variables, "*q*," "*r*," and "*s*," are used to represent these

[246] In Attachment A, the approaches taken by the Illinois EPA to estimating the NOx emissions of the Project-affected fuel burning units with the Project are more refined than those discussed in the Draft Denial Letters. The approaches now indicate that the increase in the NOx emissions of the Project-affected fuel burning units with the requested revisions to Permit 95010001 could be about 200 tons/year, rather than being in the range of 400 to 500 tons/year. (For example, refer to the revised Draft Denial Letter, Attachment 1, Footnote 11.) In any case, if one accepts that the Project involved an increase in the permitted annual NOx emissions of Project-affected fuel-burning units in the hundred tons, rather than a decrease in their emissions, as improperly claimed by the Application, it is apparent that the Application does not provide proof that the Project would not become a major modification for NOx with the requested revisions to Permit 95010001 to increase the permitted NOx emissions of certain furnaces.

decreases.

Table 1: Illinois EPA's Presentation for an Appropriate Revised Emissions Increase Analysis for the Project for NOx (NOx Emissions in Tons/Year)			
Emission Units	**Revised Baseline Emissions**	**Project Emissions with Requested Revised Limits**	**Increase in Emissions**
Blast Furnaces	**4.6**	**24.0**	**19.4**
BOFs and Other BOF Shop Operations	**179.8**	**400.0**	**220.2**
Continuous Casting Operations	**0.0**	**0.0**	**0.0**
Project-Affected Fuel Burning Units	**956.3**	**956.3 + *p***	***P***
Total	**1140.7**	**1,380.3 + *p***	**239.6 + *p***
Since the increase in NOx emissions is equal to or greater than the NSR significant emissions rate for NOx, 40 tons/year, contemporaneous changes in NOx emissions may be considered in Step 2 of the revised NSR applicability analysis for NOx to show that the net increase in emissions of the Project is less than significant.			

As already explained, in Table 1, the variable *p* is used to show that the value for the NOx emissions of Project-affected fuel burning units in the Application does not account for the increase in NOx emissions from such units with the use of more fuel, as is specifically allowed by Permit 95010001 to accompany production of more iron and steel as addressed by this permit. As a result, the overall NOx emissions of the Project and the increases in the emissions of the Project should also be increased by *p*. In this regard, US Steel has not provided information for the value of *p*, i.e., the upward adjustment to the NOx emissions of the Project-affected fuel burning units making the same corrections that were made in the proposed revisions to their baseline NOx emissions for the Project. For these units, the revised determination for baseline emissions now addresses emissions from use of COG. It also may make certain other corrections to the determination of baseline emissions. For example, the Application indicates that this revised determination addresses the fact that the original determination for baseline NOx emissions incorrectly "double-counted" NOx emissions from use of natural gas in continuous casting operations, which emissions were also being addressed with the emissions of the Project-affected fuel burning units. (Application, Section 6.2.2.7, p. 6-4.) However, as US Steel argues that, at least with respect to Project-affected fuel burning units, the revised NSR applicability analysis for NOx should be prospective in nature, US Steel has not submitted a revised value for the NOx emissions of these units with the

Project that would reflect the circumstances of the Granite City Works circa 1996 when Permit 95010001 was originally issued.

Table 2: Illinois EPA's Presentation for an Appropriate Revised Net Emissions Increase Analysis for NOx for the Project With Contemporaneous Period From January 1990 through January 1996 (Emissions in tons/year)		
Value for NOx Emissions Used in the Analysis/ Is the Net Increase in Emissions Significant?	**Emissions**	**Totals**
Emissions Increases and Decreases in the Contemporaneous Period		
Decrease from Blooming Mill Shutdown (April 1991)	**-217.8**	
Decreases from Batch Annealing Shutdown (December 1991)	**-8.7**	
Contemporaneous Increases & Decreases – Total		**-226.5**
Overall Revised Net Emissions Change of the Project		
Increase in Emissions from the Project (From Table 1)	**239.6 + *p***	
Contemporaneous Increases and Decreases in Emission	**-226.5**	
Total	**13.1 + *p***	**13.1 + *p***
Is the Increase Significant?	**Yes, as explained below**	

It is reasonable to expect that *p* is much greater than the amount that would be necessary for the Project to become a major modification for NOx with the requested increases in permitted NOX emissions of the blast furnaces and BOF.[247] For the net increase in NOx emissions of the

[247] **The Project was originally permitted for a net increase in NOx emissions of 38.3 tons/year. (Permit 95010001, issued May 30, 2012, Condition 41(c).) The Application requests that Permit 95010001 be revised to increase the permitted NOx emissions of the blast furnace casthouse and the BOFs by over 200 tons/year. However, the Application does not identify errors in the original permitting of the Project whose correction would lower the NOx emissions of the Project by a similar amount so as to make up for the requested increase in permitted emissions.**

In particular, for the continuous casting operations, the Application does propose corrections to the original emissions accounting for the Project for NOx. US Steel has determined that there are not "process emissions" from the caster molds, only NOx emissions from burning natural gas, contrary to what National Steel indicated in 1996 in its original application for the Project and provided for by Permit 95010001. However, this correction would not be sufficient to make up for the requested increase in the permitted NOx emissions of the blast furnace casthouse and BOFs. Based on National Steel's original application, the increase in process NOx emissions from the continuous caster molds was only about 29.2 tons/year, i.e., the difference between baseline emissions of 60.34 tons/year and emissions with the Project of 89.50 tons/year. (Application, Appendix C – Emission Calculations, Emissions Calculations

Project to become 40 tons/year, the NSR significant emission rate for NOx, *p* would only need to be 26.9 ton/year. (40 tons/year – 13.1 tons/year = 26.9 tons/year.)

Since the Application did not provide a revised determination for the potential/permittable NOx emissions of Project-affected fuel burning units with the Project circa 1996, the Illinois EPA has made estimates for the value of *p*. Based on these estimates, the Illinois EPA has concluded that the Application does not provide proof that the net increase in NOx emissions from the Project with the requested increases in permitted NOx emissions of the blast furnace casthouse and BOFs would be less than 40 tons/year, the NSR significant emissions rate for NOx. An estimate for *p* can be made from the information in the Application, including the copies of Permit 95010001 in Appendix D of the Application. Since production of iron by an integrated iron and steel mill is more fuel intensive than production of steel, requiring use of more fuel by the facility in Btu/ton produced, it should be expected that *p,* the increase in NOx emissions of the Project-affected fuel burning units with the Project, is proportional to the permitted increase in iron production. Permit 95010001 provides for an increase of about 50 percent in the production of iron.[248] The permitted NOx emissions from Project-affected fuel burning units from use of BFG and natural gas were originally about 664 tons/year (175.19 tons/year for natural gas + 488.48 tons/year for BFG = 663.67 tons/year). (Permit 95010001, issued January 25, 1996, Condition 22, Table 4.) This yields a value for *p* of about 220 tons/year {664 tons/year x (150% – 100%) ÷ 150% = 221.3, ~ 220 tons/year). If it is assumed, as was done during the original permitting

---

Included in the 1995 Construction Permit Application, Table 3-2: Granite City Division of National Steel, Netting Analysis Summary – NOx (originally dated 1/16/96).

> **Any NOx emissions from this operation [the continuous caster molds] are <u>due to combustion of natural gas</u> [emphasis added] and are already accounted for under gaseous fuel burning activities listed above [fuel burning emissions units]. Therefore, in the revised analysis, NOx emissions are not included from this operation.**
> **Application, Section 6.2.2.7, p. 6-4.**

[248] As explained in its introductory paragraph, Permit 95010001 provided for an increase in the permitted production of iron by the facility to 3,165,000 tons/year. The baseline iron production was 2,059.557 tons (Application Table 6-3). As such, Permit 9501001 addresses an increase in iron production of about 50 percent ({3,165,000 – 2,059,557} ÷ 2,059,557 = 0.537, ~ 50 percent). A similar calculation for production of steel shows an increase of 0.483, or again about 50 percent.

of the Project,[249] that the increase in production would be enabled solely by increased use of BFG, the resulting value for *p* is only about 160 tons/year {488.48 tons/year x (150% – 100%) ÷ 150% = 162.8, ~ 160 tons/year}. With either of these values for the increases in NOx emissions from the Project-affected fuel burning units, the decreases in emissions in the contemporaneous period (i.e., January 1990 through January 1996) are not sufficient to compensate for the requested increases in the permitted NOx emissions of the blast furnace casthouse and BOFs.[250]

Values for *p* can also be estimated from information in the Application for the corrected baseline NOx emissions for the Project-affected fuel burning units. In this regard, the Application indicates corrected baseline NOx emissions from these units of 494.73 tons/year from use of BFG and natural gas. The resulting value for *p* is 180 tons/year {494.73 tons/year x (150% – 100%) ÷ 100% = 247.4, ~ 245 tons/year}. This is noticeably greater than the values derived from the emissions limitations in Permit 95010001, i.e., 160 or 220 tons/year. This estimate also indicates that the Project would become a major NSR source for NOx with the increases in the permitted NOx emissions of the blast furnace casthouse and the BOFs that the Application requests.[251]

---

[249] The subsequent issuance of Construction Permit 98110038 in 1999, which provided for an increase in the permitted usage of and emissions from use of natural gas, raises doubts about the validity of this assumption.

[250] If one also assumes for these estimates, as was assumed for the original permitting of the Project, that the usage of COG by Project-affected fuel burning units would not change with the Project, the calculated increases in NOx emissions of the fuel burning units with the Project would be greater. This is because the increases in permitted production with the Project can only be achieved with increases in usage of BFG or natural gas, but not usage of COG. For example, if COG historically provided about 10 percent of the heat input to the Project-affected fuel burning units,* the increase in usage of natural gas and BFG, or BFG by itself, for the increase in permitted production should be expected to be about 7 percent greater than estimated above, i.e., about 170 or 235 tons/year. This is because the factor applied to the permitted emissions should be 35.7 percent, rather than 33.3 percent. {(150% - 100%) ÷ (100% - 10% + 50%) = 0.357; (150% - 100%) ÷ (100%) = 0.333; and 0.357 ÷ 0.333 = 1.0725, or about 7 percent greater.}

*** Information for the contribution of COG to the fuel usage of the Project-affected fuel burning units is provided in the information in the Application supporting the revised determination for the baseline emissions of the Project. (Application, Appendix B – Emission Calculations, Revised NOx PSD Net Emissions Increase Analysis.)**

[251] The Application indicates baseline NOx emissions from the blast furnace stoves, boilers, ladle drying-preheaters and BFG flares from use of BFG and natural gas of 494.7 tons/year (319.5 and 175.2 tons/year from, respectively, use of BFG and natural gas). (Application, Table 6.5, Pre-project Actual

Table 3: Illinois EPA's Presentation for the Application's Revised Net Emissions Increase Analysis for NOx for the Project With Contemporaneous Period From January 1990 through January 1996 (Emissions in tons/year)		
Value for NOx Emissions Used in the Analysis/ Is the Net Increase in Emissions Significant?	Emissions Totals	
Overall Net Emissions Change of the Project		
Increase in Emissions from the Project (From Table 1)	239.6 + *p*	
Contemporaneous Increases & Decreases (From Table 2)	-226.5	
Project Net Increase	13.1 + *p*	
Is the Increase Significant?	Yes, as already explained	
Post-Project "Non-Contemporaneous" Emission Decreases (After 1996)		
Decrease from shutdown of Boilers 1 – 10 (pursuant to C. Permit 06070023, orig. issued Jan. 2008)	-*q**	
Decrease from adding FGR systems to Boilers 11 & 12 (pursuant to C. Permit 10080022, orig. issued Feb. 2011)	-*r**	
Decrease from elimination of COG with the shutdown of the two by-product recovery coke oven batteries (shutdown February 2015)	-*s**	
Subtotal	-(*q* + *r* + *s*)	
Project Net Increase	239.6 + *p*	13.1 + *p*
Contemporaneous Increases & Decreases (From Table 2)	-226.5	
Post-Project Emissions Decreases (from above)	-(*q* + *r* + *s*)	
Total		13.1 + *p* - (*q* + *r* + *s*)
Is the Increase Significant?	Yes, as explained below	

As already discussed, the Application does not provide information for the decrease in NOx emissions from each of the post-project actions

---

Emissions and Summary of Proposed Changes to Pre-Project NOx Emissions Factors for Affected Emissions Units.) With the assumption that the increase in use of BFG and natural gas or only BFG to facilitate the permitted increase in production is in the same proportion as the permitted increase in iron production, the values for *p* that result are 245 tons/year {494.7 x (150% – 100%) ÷ 100%} = 247.37, ~ 245 tons/year; {319.5 x (150% – 100%) ÷ 100%} = 159.75, ~ 160 tons/year. These values for *p* are consistent with the values estimated using information in Permit 95010001, i.e., 160 and 245 tons/year compared to 160 and 220 tons/year. These estimates for *p* also indicate that the Project would become a major modification with the increases that the Application requests in the permitted NOx emissions of the blast furnace casthouse and the BOFs.

that the revised NSR applicability analysis in the Application implicitly relies upon. Indeed, the Application does not actually quantify the overall decrease in emissions that resulted from these actions. Accordingly, *q*, *r* and *s* are used, respectively, to represent the amount by which the three actions that have occurred at the Granite City Works acted to the NOx emissions of affected units.

This revised NSR applicability analysis does not show that the Project would not become a major project for NOx with the requested increases in permitted NOx emissions of the blast furnace casthouse and BOFs. While the Application claims, based on the analysis set forth in Table 6-9, that the net emissions increase for NOx would be a net increase of only 13.1 tons/year, that analysis is flawed. That analysis overlooks the increase in the NOx emissions for Project-affected fuel burning units with the Project. Then, it also improperly takes credit for decreases in NOx emissions that were not part of the Project, i.e., decreases that occurred after January 1996, which was the end of the contemporaneous period for the Project. With appropriate information for the increase in emissions from the Project, absent the post-Project decreases, the Project would still become a major modification for NOx with the requested increases in the permitted emissions of the blast furnace casthouse and BOFs, as previously shown in Table 2.

APPENDICES

Copies of USEPA Determinations Addressing Relaxations of Limitations Established in Permits As Related to Applicability of New Source Review That Are Referred to by US Steel in Certain Comments and the Illinois EPA in Its Responses to Those Comments

APPENDIX 1.1

BOMBARDIER DETERMINATION

September 22, 2005

(A-18J)

Jeffrey C. Hanson, P.E., Chief
Permits and Stationary Source Modeling Section
Bureau of Air Management
Wisconsin Department of Natural Resources
101 South Webster Street
P.O. Box 7921
Madison, Wisconsin 53707

Dear Mr. Hanson:

I am writing in response to your July 28, 2005, letter requesting assistance from the United States Environmental Protection Agency (USEPA) in determining whether a relaxation of synthetic minor permit limits at Bombardier Motor Company of America (Bombardier) would be subject to non-attainment New Source Review (NAA NSR). Bombardier is located in Racine County, Wisconsin, which is designated as a moderate non-attainment area under the 8-hour National Ambient Air Quality Standard (NAAQS) for ozone which has a major source threshold of 100 tons per year (TPY) of volatile organic compounds (VOC). Prior to June 15, 2005, Racine County was designated as a severe nonattainment area under the 1-hour ozone standard and had a major source threshold of 25 TPY of VOC.

The Wisconsin Department of Natural Resources (WDNR) issued Bombardier a permit in 2001 under the 1-hour ozone standard that limited its potential emissions of VOC to less than 25 TPY to avoid classification as a major source and to avoid NAA NSR review that would require emission offsets and the application of Lowest Achievable Emission Reductions (LAER). Bombardier has now requested that the restrictions in its synthetic minor NSR permit be relaxed from 25 TPY to less than 100 TPY.

Wisconsin has a State Implementation Plan (SIP) approved NAA NSR program. This authority was approved by the USEPA on January 18, 1995, and became effective on February 17, 1995. (See 60 FR 3538.) Pursuant to this approval, the WDNR is responsible for issuing NSR related applicability determinations to sources based on Wisconsin's regulations, in compliance with its SIP. USEPA's NSR regulations for nonattainment areas are set forth at 40 CFR 51.165, 52.24 and part 51, Appendix S. The following is our position regarding the application of EPA's NAA NSR requirements.

The NAA NSR rules at 40 CFR §51.165(a)(5)(ii) state:

> At such time that a particular source or modification becomes a major stationary source or major modification solely by virtue of a relaxation in any enforceable limitation which was established after August 7, 1980, on the capacity of the source or modification otherwise to emit a pollutant, such as a restriction on hours of operation, then the requirements of regulations approved pursuant to this section shall apply to the source or modification as though construction had not yet commenced on the source or modification.

It is our view that if a stationary source becomes a major stationary source solely by virtue of a relaxation in any enforceable limitation on the capacity of the source, such as relaxation of a synthetic minor emissions cap, then the NAA NSR requirements apply to the source as though construction had not yet commenced on the source. USEPA's April 30, 2004, phase 1 8-hour ozone implementation rule (69 FR 23986) provides: "emission limitations and other requirements in NSR permits issued under 1-hour NSR programs will continue to be in force when the 1-hour NAAQS is revoked."

Bombardier's 25 TPY emissions limit was a requirement in a minor NSR permit, and the limit was taken to avoid application of major NAA NSR. Based on the language in the rule, the revocation of the 1-hour NAAQS should not allow relaxation of the permit limit without triggering major NSR.

The interpretation above was made in consultation with USEPA's Office of General Counsel and Office of Air Quality, Planning, and Standards.

If you have any further questions regarding this matter, please contact Susan Siepkowski of my staff at (312) 353-2654.

Sincerely,

/s/

Pamela Blakley, Chief
Air Permits Section

cc: Donald Sutton, P.E., Manager
Permit Section
Illinois Environmental Protection Agency

Paul Dubenetzky, Permits Branch Chief
Indiana Department of Environmental Quality

Lynn Fiedler, Supervisor
Permit Section
Michigan Department of Environmental Quality

Carolina Espejel-Schutt, Supervisor
Metro District - Major Facilities Section
Minnesota Pollution Control Agency

Mike Hopkins, Manager
Air Quality Modeling and Planning
Ohio Environmental Protection Agency

APPENDIX 1.2

PSE & G DETERMINATION

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 Broadway
New York, NY 10007-1866

February 11, 2009

Mr. William N. Viola
Director, Power Generation PJM
PSE&G Fossil LLC
80 Park Plaza
Newark, NJ 07102-4194

Re: Request for PSD Applicability Determinations for
Burlington 12 and Kearny 12 Generating Stations

Dear Mr. Viola:

This is in response to your December 3, 2008 letter to me wherein you requested PSD non-applicability determinations for the proposed relaxation of certain operating and emissions limitations contained in the existing permits for the PSE&G Burlington and Kearny Generating Stations. Specifically, you are proposing relaxations that would enable you to increase the annual heat input and resultant emissions for 8 General Electric LM6000 combustion turbines (4 of these "peaking" units are located at each facility) to address proposed NJDEP regulations regarding nitrogen oxide emissions during High Electric Demand Days. Your letter states that the proposed relaxations would allow greater use of these LM6000 units instead of older, less efficient combustion turbines during these high demand days.

In its New Jersey Title V permits, PSE&G restricted the amounts of natural gas and fuel oil to limit the LM6000 units to approximately 15.4% annual capacity at the Burlington Station, and approximately 13.2% annual capacity at Kearny. These permit limits were established upon commencement of operation of the units (the years 2000 through 2001) so that the emissions from these projects would remain below the applicability threshold limits of New Jersey's non-attainment regulations of NJAC 7:27-18. The establishment of these limits also resulted in the non-applicability of the Burlington and Kearny projects to the federal PSD regulations of 40 CFR § 52.21. The proposal that is the subject of your December 3, 2008 letter is to increase the annual capacity at the Burlington Station to 18.6% and at Kearny to 16.8%.

In order to determine PSD applicability in this case, two specific, separate and independent tests must be performed: (1) the standard PSD applicability test pursuant to 40 CFR § 52.21 (a)(2)(ii) to determine whether a significant net emissions increase under a physical change or change in the method of operation would occur; and (2) the 40 CFR 52.21(r)(4) test which treats a modification "as though construction had not yet commenced on the source or modification." Each applicability test is to have its own

baseline period and contemporaneous period that will be different for each test. The general applicability review in accordance with the first citation above would subject a modification to the PSD requirements in those cases where a physical change or a change in the method of operation would result in a significant emissions increase of a regulated pollutant. In the subject case, the change in the method of operation is the increase in the permitted annual turbine capacities, from 15.4% to 18.6% at the Burlington Station and from 13.2% to 16.8% at Kearny. PSE&G performed such an applicability review, delineated in its December 3rd letter, in which it was asserted that the Burlington and Kearny Station projects are not PSD affected under 40 CFR § 52.21 (a)(2)(ii). However, in order for EPA to evaluate your determination, as you have requested, we will need additional information, including: (1) substantiations for all calculations provided such as how they were determined, and any and all assumptions made; and (2) more documentation on the contemporaneous emission increases and decreases, including calculations, assumptions, and the federal enforceability of the emission changes. This information is especially important relative to the "retired Burlington 10 unit," which may be outside of the contemporaneous period.

The second test, under 40 CFR § 52.21 (r)(4), has not been done. While you acknowledge in your December 3rd letter that EPA verbally communicated to your consultant our position that the aforementioned PSD provision would apply in this case, you have indicated that you disagree with this interpretation. In your letter, you state that PSE&G did not originally propose limits to these turbines with the intent of subsequently requesting minor annual capacity increases that would also avoid new source review, which you call "sham" permitting. It was also noted that at the time of initial permitting of these LM6000 turbines, PSE&G did not contemplate the need to relax the operational restrictions of the turbines within several years, and only requested the relaxations based on New Jersey's proposed high electric demand day regulations. Regardless, EPA remains of the opinion that the (r)(4) provision applies in this case. This PSD provision does not discuss intent; it simply states that any relaxation of an established limit that would make the project "major" would at that point in time make PSD applicable. That is, the (r)(4) provision must be considered for the life of any project for which enforceable limits were established such that any subsequent requests for a relaxation of the aforementioned limitations will necessitate their review within the originally-issued permits.

To fulfill your request that we verify your PSD applicability review of the annual heat input increases for 8 General Electric LM6000 combustion turbines at the PSE&G Burlington and Kearny Generating Stations, you must provide an applicability review pursuant to 40 CFR 52.21(r)(4). Such a review must delineate the emissions from the turbines that correspond to the entire 18.6% and 16.8% capacities, as well as the contemporaneous emissions changes based upon the time of the initial permitting (that is, contemporaneous from the commencement of construction of the units, during the years 2000 and 2001). Information and documentation as described above for the emission calculations and contemporaneous emission changes should be submitted to this office for our review to be made. In this case, EPA requests that PSE&G use the actual

commencement of construction date for the contemporaneous emission period rather than the projected date of construction that we presume was originally used.

Once the requested documentation is provided to this office, we will complete our PSD applicability review. If you have any questions regarding this letter, please call me at (212) 637 – 4074 or Mr. Gerald DeGaetano at (212) 637 – 4020.

Sincerely,

/ s /

Steven C. Riva, Chief
Permitting Section
Air Programs Branch

cc: John Preczewski, NJDEP

APPENDIX 1.3

PFIZER DETERMINATION

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

SEP 2 3 2015

Mr. Ramon Frontanes, Site Leader
Pfizer Pharmaceuticals LLC
Barceloneta Site, Rd. 2, KM 58.2
P.O. Box 628
Barceloneta, Puerto Rico 00617

Re: Prevention of Significant Deterioration (PSD) Non-Applicability- Pfizer Pharmaceuticals LLC's Proposed Modification

Dear Mr. Frontanes:

The U.S. Environmental Protection Agency's Region 2 Office (EPA) received Pfizer Pharmaceuticals LLC, Barceloneta Plant's (Pfizer) July 30, 2015, letter, in which it requested EPA's determination whether the PSD regulations codified under 40 CFR 52.21 will apply to Pfizer's proposed modification. Pfizer is proposing to remove an existing oil-fired Heat Recovery Steam Generator (HRSG) and install three new 11.5 MMBtu/hr liquified petroleum gas (LPG)-fired steam boilers. It is also requesting that its current PSD non-applicability related Nitrogen Oxide (NOx) potential to emit (PTE) emission limit be raised from 56 tons/year to 90 tons/year. Pfizer stated that it currently is and it will continue to remain a "synthetic minor" source for PSD and title V purposes; therefore, Pfizer maintains that the existing 56 tons/year NOx PTE limit required pursuant to its 1994 project cannot be considered a relaxation of an emission limit which would otherwise trigger a PSD review under 40 CFR § 52.21 (r)(4). Based on the review of the information Pfizer provided in its letter and in e-mails to EPA through September 1, 2015, it appears that Pfizer's proposed modification will not trigger PSD and that its current NOx limit may be revised from 56 tons/year to 90 tons/year.

Background

Prior to 1994, Pfizer, an active pharmaceutical ingredients manufacturing facility, operated two residual oil-fired (16.5 MMBtu/hour) boilers and four 255 HP fire engines. It did not have a PSD permit but at the time it was an existing major source for PSD applicability purposes because it was a "PSD source category" and its boilers' sulfur dioxide and process-related volatile organic compounds (VOC) PTE exceeded the 100 tons/year major source threshold. The NOx PTE at the time was 55 tons/year. In 1994, under its Utility Plant Expansion Project, Pfizer proposed to remove the two residual oil-fired boilers and install the following: 1) 5 new diesel generators (each with its own selective catalytic reduction (SCR) unit and all of these then connected downstream to a combined secondary SCR); 2) a 37.5 MMBtu/hour No. 2 oil-fired HRSG at the Engines' exhaust and 3) a 37.5 MMBtu/hour oil/LPG-fired steam boiler. Pfizer's PSD non-applicability analysis in 1994 indicated that its net change in sulfur dioxide emissions would be negative whereas its NOx net change in emissions would be 28.88 tons/year. Therefore, its NOx PTE was estimated at 54.44 tons/year. To avoid PSD, Pfizer proposed to limit its total combined fuel oil usage to 6.4 million gallons per year and operate each engine to no more than 7500 hours/year. On November 30, 1995, EPA determined that Pfizer's PSD non-applicability request was approvable and also asked that Pfizer limit its NOx PTE to 56 tons/year. EPA notes that

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Pfizer's current non-applicability request is not proposing to revise any other operational limits required pursuant to EPA's 1995 determination.

The Puerto Rico Environmental Quality Board (EQB) issued a Construction Permit to Pfizer in 2002, which was revised in 2008, 2010, 2012 and 2014. The current EQB Construction Permit allows construction of 5 diesel generators, a 37.5 MMBtu/hr HRSG, a 37.5 MMBtu/hr oil/LPG boiler, and the 4- 255 HP engines. The permit also allows construction of new units which were not part of the original Utility Plant Expansion Project such as 4 fire engines, 3 thermal oxidizers (0.7, 0.1 and 0.1 MMBtu/hour), a 100 HP diesel generator, 3 gasoline generators (14 HP each) and 7 diesel generators (845 HP each). The 2002 permit limited each criteria pollutants' PTE to 90 tons/year and hazardous air pollutants' PTE to below 10/25 tons/year to keep the facility below the PSD/title V applicability's 100/25/10 tons/year thresholds. The permit further limits NOx PTE to 56 tons/year pursuant to EPA's 1995 non-applicability determination. These 2002 PTE limits have remained unchanged as of today despite subsequent changes to the permit in the years that followed to add more units. Pfizer is asking now to relax its PSD NOx limit to 90 tons/year in EQB's Construction Permit. It should be noted that Pfizer stated in its September 1, 2015, e-mail that the 3 gasoline (14 HP) and 7 (845 HP) diesel generators were permitted but never installed.

EPA Review

Pursuant to EPA's 1995 non-applicability determination, Pfizer completed its Utility Plant Expansion Project and operated the source at NOx PTE of 56 tons/year and process VOC emissions above 100 tons/year until 2002. There was no other change made to the Utility Plant during those years of operation. On October 2, 2002, EQB issued a Construction Permit to Pfizer limiting its PTE for all criteria pollutants, including VOC, to below 100 tons/year making the facility a "synthetic minor" source for title V and PSD purposes. The EQB permit also contained the original 1995 NOx PTE limit of 56 tons/year that had been requested by EPA in its PSD non-applicability section. Pfizer stated that it has continued to operate as a "synthetic minor" source for PSD and title V purposes since 2002. Its current proposal to remove the HRSG (37.5 MMBtu/hour) and replace it with three new LPG package boilers (11.5 MMBtu/hour each) will also not increase its 2002 PTE limits and Pfizer will continue to remain a "synthetic minor" source after the change.

EPA's review of the information indicates that Pfizer is not attempting to circumvent PSD applicability by requesting to increase the 1995 PSD non-applicability NOx PTE limit from 56 tons/year to 90 tons/year because the facility or the 1994 modification does not become a major stationary source or major modification solely by virtue of this NOx emission limit relaxation. In addition, the "synthetic minor" status has been maintained by Pfizer since 2002 and will continue to be maintained after the proposed modification. Furthermore, Pfizer is also not requesting any changes to its annual fuel and hours of operation restrictions put in place pursuant to the 1995 non-applicability determination. Therefore, Pfizer's request to revise the NOx PTE from 56 tons/year to 90 tons/year is approvable.

EPA notes, however, that the EQB permit authorized construction of 3 gasoline generators and 7 diesel generators that were never installed and are not expected to be constructed and, as such, must be removed from the EQB Construction Permit as a condition of this approval. EPA is not commenting on other specific changes that relate to the conditions in the Construction Permit that Pfizer is requesting in its July 30, 2015 letter since these changes are related to EQB's permit and EPA is asking EQB to take the lead on those discussions.

Please note that EPA's assessment of the proposed project is not final Agency action and is based on information solely provided by Pfizer. In the event that we learn of facts suggesting a different assessment of the project, EPA may revisit this issue, and invoke any necessary authorities under the Clean Air Act. However, we do not anticipate further action at this time. If you have any questions regarding this letter, please contact Mr. Umesh Dholakia at (212) 637-4023.

Sincerely,

Steven C. Riva, Chief
Permitting Section

cc: Leimarys Delgado, PREQB

RTP ENVIRONMENTAL ASSOCIATES INC.
AIR · WATER · SOLID WASTE CONSULTANTS
304 - A West Millbrook Road
Raleigh, NC 27609
(campbell@rtpenv.com)
(919) 845-1422
Fax: (919) 845-1424

VIA CERTIFIED MAIL

January 8, 2024

Mr. Brad Frost
Office of Community Relations
Illinois Environmental Protection Agency
PO Box 19506
Springfield, Illinois 62794-9506

Re: United States Steel Corporation—Granite City Works
Notice of Intent to Deny Application for Revision to
Construction Permit/PSD Approval (Permit Application No. 95010001)
ID No. 119813AAI

Dear Mr. Frost:

Attached to this letter are comments prepared by my client, U. S. Steel Corporation, in response to the referenced public notice posted to Illinois Environmental Protection Agency's internet website on December 8, 2023. The public notice indicates comments "must be postmarked by 11:59 pm, January 8, 2024." The comments attached to this letter are therefore timely submitted.

We appreciate the opportunity to submit comments on the Notice of Intent, as well as the agency's careful consideration of our comments.

Very truly yours,

RTP ENVIRONMENTAL ASSOCIATES, INC.

Colin M. Campbell
Principal

Comments of the United States Steel Corporation - Granite City Works

Revised Draft Denial Letter Dated December 8, 2023:
Notice of the Intent to Deny Application for Revision to Construction Permit/PSD Approval
Permit Application No. 95010001

While it is with great disappointment that U. S. Steel received Illinois EPA's notice of intent to deny the pending permit application, we respectfully request that the Agency reconsider its preliminary decision and work with U. S. Steel on resolving any outstanding issues. We also request to meet with Illinois EPA in the interest of reaching resolution considering many of the reasons that Illinois EPA raises in its proposed denial were not known to U. S. Steel until it received the notice (or very shortly beforehand) notwithstanding the parties met several times to discuss the permit application. U. S. Steel also notes that Illinois EPA did not notify U. S. Steel of any deficiency in the application or information submitted in such application pursuant to 35 Ill. Admin. Code 201.158 and 204.1300 or 415 ILCS 5/39.5(5). We are greatly disappointed that the Agency took this path, when many of the issues, as explained herein, could have been efficiently resolved if the Illinois EPA raised them during the years while the permit application was pending as is customary. U. S. Steel also notes that the permit application is for a revision to a previously issued PSD permit (as issued to National Steel Corporation in 1996) to a source that has been and continues to operate; and is not a request for a new major modification – and, therefore, the scope of the review is more limited and the process is substantially different than when compared to a major modification or a revision to a PSD permit for a source that has yet to operate.

U. S. Steel also respectfully notes that Illinois EPA does more than "clarify" its previous notice of intent to deny the application; but instead raises new bases for its objections. Instead of working with the applicant on addressing any concerns, Illinois EPA appears to be doubling down on its insistence to deny the permit. In response to comments, Illinois EPA's bases for intending to deny the permit have changed and have become a moving target. U. S. Steel respectfully notes that it would prefer to work with Illinois EPA collaboratively to address Illinois EPA's concerns and to work collaboratively on issuing a permit that complies with statutory and regulatory requirements; not searching for hypothetical and potential reasons why it should not be issued.

The PSD regulations are forward looking. However, in its proposed notice of intent to deny the permit, Illinois EPA is pursuing a path that would make U. S. Steel retroactively address all potential operating scenarios under the facility's prior ownership and footprint, for which U. S. Steel does not have the requisite information and for which U. S. Steel is not responsible. Such an approach is inconsistent with the Clean Air Act and legal precedent.

In Section I below, U. S. Steel addresses Illinois EPA's stated reasons for its proposed denial of the pending permit application In Sections II through XIII below, U. S. Steel addresses the denial points listed in Attachment 1 to the draft denial letter.

I. U. S. STEEL DISAGREES WITH ILLINOIS EPA REGARDING WHETHER ISSUANCE OF THE REQUESTED PERMIT REVISION WOULD VIOLATE PROVISIONS OF THE ILLINOIS

ENVIRONMENTAL PROTECTION ACT OR THE REGULATIONS OF THE POLLUTION CONTROL BOARD

Illinois EPA proposes to deny the permit application, at least in part, because Illinois EPA preliminarily determined that Section 39(a) of the Illinois Environmental Protection Act *might be violated*. Section 39(a) states that "it shall be the duty of the Agency to issue …a permit upon proof by the applicant that the facility, equipment, vehicle, vessel, or aircraft will not cause a violation of this Act or of regulations hereunder." As set forth further herein, U. S. Steel maintains that its application demonstrates that the facility and equipment at issue in the application will not cause a violation of the Illinois Environmental Protection Act or the regulations thereunder. Therefore, it is Illinois EPA's duty, under the statute, to proceed with permit issuance.

For the various reasons set forth herein, U. S. Steel maintains that Illinois EPA is incorrect that any provisions of the Illinois Environmental Protection Act or the regulations thereunder would be violated if the permit were granted; where the Illinois EPA has asserted that information was not provided to the Agency, U. S. Steel is providing that information here, is directing the Illinois EPA to the information in the application, or describes why such information is not pertinent to the issues at hand. Accordingly, Illinois EPA should not issue the proposed permit denial. As stated herein, U. S. Steel stands ready to work with Illinois EPA to resolve any remaining concerns for permit issuance.

Illinois EPA proposes to deny the permit application, at least in part, because Illinois EPA has now preliminarily determined that subsections 39.5(5)(i), 39.5(7)(a), 39.5(10)(a)(iv), 39.5(13)(a), and 39.5(c)(v) of the Illinois Environmental Protection Act, pertaining to administrative amendments of Clean Air Act Permit Program ("CAAPP") permits, might be violated. U. S. Steel notes that, because the listed subsections of the Illinois Environmental Protection Act relate only to the CAAPP, it would be inappropriate to deny the application for a revision of the construction permit and PSD approval based on a failure to satisfy these statutory provisions, as discussed in Section XIII.A herein.

Illinois EPA proposes to deny the permit application, at least in part, because Illinois EPA preliminarily determined that subsection 39.5(5)(e) of the Illinois Environmental Protection Act might be violated. This provision requires a certification of truth, accuracy, and completeness. This is not a valid basis for denial of the permit application for the reasons discussed in Section III herein.

Illinois EPA proposes to deny the permit application, at least in part, because Illinois EPA preliminarily determined that 35 Ill. Adm. Code Sections 203.128 and 204.560 might be violated. The cited rule provisions are definitions, not affirmative requirements, and cannot be violated.

Illinois EPA proposes to deny the permit application, at least in part, because Illinois EPA preliminarily determined that 35 Ill. Adm. Code Sections 201.160, 203.601, 203.602, 204.1100, 204.1110, 204.1120 and 204.1130 might be violated. These claims, which relate to the Prevention of Significant Deterioration ("PSD") and Nonattainment New Source Review ("NNSR") programs under the federal Clean Air Act, are without merit for the reasons discussed in Sections VI through VIII below.

II. THE PERMIT APPLICATION SATISFIES 35 ILL. ADM. CODE SECTION 201.159

In Attachment 1 to the draft denial letter, Illinois EPA asserts that the pending permit application "does not include a signed certification for the truth, accuracy and completeness of this application as

it was actually submitted in October 2022, as required by 35 IAC 201.159" and that "the 2022 application includes a photocopy of an earlier certification, dated February 25, 2020, which was submitted with a prior application." These assertions are incorrect in several respects.

First, the agency misrepresents the requirements of the cited rule provision, which are as follows. There is no requirement for a certification of truth, accuracy, and completeness.

> All applications and supplements thereto shall be signed by the owner and operator of the source, or their authorized agent, and shall be accompanied by evidence of authority to sign the application.

Second, the application that the agency refers to as the "2022 application" is actually a construction permit application submitted on March 2, 2020. This permit application includes a completed 199-CAAPP form, with a certification signed and dated February 25, 2020, and a completed 197-FEE form, with a check for the application fee of $23,000 and a certification signed and dated February 25, 2020.

A supplement to the permit application was submitted in October 2022. As required by 35 Ill. Adm. Code Section 201.159, the supplement was signed by Michael Patton, the General Manager of the Granite City Works. No application fee was provided, as is appropriate for a supplement to a pending application for a construction permit.

Furthermore, U. S. Steel notes that, while Illinois EPA had the permit application supplement for months, and virtually met with U. S. Steel to discuss the pending permit application and the supplement, the Agency never requested such a new signature or certification.

III. U. S. STEEL PROVIDED A SIGNED CERTIFICATION OF TRUTH, ACCURACY, AND COMPLETENESS FOR THE PERMIT APPLICATION SUPPLEMENT SUBMITTED IN OCTOBER 2022

In Attachment 1 to the draft denial letter, Illinois EPA asserts that the pending permit application "does not include a signed certification for the truth, accuracy and completeness of this application as it was actually submitted in October 2022" and that such a certification is required by Section 39.5(5)(e) of the Illinois Environmental Protection Act. This is not a valid basis for denial of the permit application for the following reasons.

As noted in Section II above, the agency mischaracterizes the October 2022 submittal as a new or separate permit application, as it is merely a supplement to the permit application submitted in March 2020. In the transmittal letter for the supplement, and for administrative convenience U. S. Steel suggested that Illinois EPA refer to the supplement rather than to the initial submittal from March 2020 because, as requested by Illinois EPA staff following review of the initial permit application submittal, the sections of the permit application were reordered.[1] The cited provision of the Illinois Environmental Protection Act requires that each submitted permit application include a certification, but it does not expressly require a separate certification for each supplement to a permit application.

[1] For example, the sections summarizing changes to CO emissions and presenting proposed Best Available Control Technology ("BACT") determinations for CO emissions were sections 3 and 4 of the initial permit application and were sections 4 and 8 of the supplement, and these sections were cross-referenced in sections 1 and 2 of each submittal.

Nonetheless, and without waiving any rights or defenses, U. S. Steel provided to Illinois EPA in September 2023 a new certification of the truth, accuracy and completeness of the supplement that was submitted in October 2022. Accordingly, even if Illinois EPA's interpretation of Section 39.5(5)(e) of the Illinois Environmental Protection Act were correct and a separate certification is required for each supplement to a pending permit application, that requirement was satisfied prior to the proposed denial and this claimed deficiency cannot form a valid basis for denial of the permit application. Furthermore, this issue could easily have been avoided if Illinois EPA simply made a request to certify the supplement, which we subsequently completed, yet Illinois EPA inexplicably asserts that this was not sufficient, baselessly claims the application is under a cloud, and further asserts that the certification or application is somehow fraudulent (Per Illinois EPA, "[t]hus, even if the certification had been submitted as a supplement to the 2022 application, its truthfulness and validity would be questionable.") U. S. Steel is unable to respond to these assertions because, frankly, they are absurd and are without merit. U. S. Steel has worked collaboratively with Illinois EPA in responding to inquiries and requests.

IV. PURPORTED FAILURE TO BE CONSISTENT WITH PENDING BOARD APPEALS

In Attachment 1 to the draft denial letter, Illinois EPA asserts that the application must be denied because it does not individually address all items that are currently under appeal with the Illinois Pollution Control Board. In particular, Illinois EPA claims, "the application is not consistent with two pending permit appeals before the Board, PCB 0013-53 and PCB 0013-62." Quite strikingly, Illinois EPA cites to no Board order or regulatory or statutory citation to support its assertion. This is for good reason, as there is none. The assertion is without merit. Although it is logical that Illinois EPA might inquire about contested provisions in the appeals before the Board that may appear to be absent in the application, the absence of such mention is not grounds for denying the permit application. Furthermore, the permit application submitted in March 2020 and supplemented in October 2022 has been pending for nearly four years, during which time Illinois EPA and U. S. Steel met in person and virtually on several occasions to discuss the PSD permit revisions, yet only in the proposal to deny the permit application did U. S. Steel learn of Illinois EPA's apparent contention that U. S. Steel was obligated to address individually in its permit application all items that are currently under appeal with the Illinois Pollution Control Board. U. S. Steel's understanding from these discussions was that, with satisfactory issuance of the revised permit, the pending appeals could be dismissed in their entirety. U. S. Steel would be pleased to discuss Illinois EPA's concerns in the context of the appeal before the Board, but the Agency cannot claim these differences as a basis to deny the permit application.

V. PURPORTED INCONSISTENCY BETWEEN THIS PERMIT APPLICATION AND THE PERMIT APPLICATION SUBMITTED IN 2008 REQUESTING REVISIONS RELATING TO SO_2 EMISSIONS

In Attachment 1 to the draft denial letter, Illinois EPA asserts that the application must be denied because it "is inconsistent with" a separate permit application submitted in 2008.

Unfortunately, the Illinois EPA has not acted on the 2008 application. That application was submitted in accordance with the Consent Decree between U. S. Steel and the Illinois EPA. (*See, People of the State of Illinois v. United States Steel Corporation*, No. 05-CH-750, Third Judicial Circuit, Madison County.) The 2008 application was submitted based on limited information that was available at the time, and subsequent information indicates that when averaged over the year, the emission factor in

the existing permit is appropriate. This topic was discussed with the Illinois EPA as the permit application submitted in 2020 was pending; and the Illinois EPA did not object to this development at the time. To now claim that this discrepancy serves as a basis to deny the PSD application is disingenuous. U. S. Steel cannot simply withdraw the 2008 permit application at this time but would do so following issuance of the revised PSD permit, pursuant to the permit application submitted in 2020 and supplemented in 2022, and termination of the Consent Decree. U. S. Steel has indicated it would work with Illinois EPA on that process and remains committed and willing to do so.

In its explanation of how the claimed inconsistency between the permit applications submitted in 2008 and 2020 purportedly represents a deficiency in the permit application submitted in 2020, Illinois EPA asserts that the more recent permit application "does not meet the standards for issuance of a construction permit" because it does not "show compliance with the SO_2 emission limits for burning BFG that are currently in Permit 95010001." U. S. Steel admits that the permit application submitted in 2020 and supplemented in 2022, which does not request any changes to any SO_2 emission limits, does not include a demonstration of compliance with the referenced SO_2 emission limits, nor does it include demonstrations of compliance with any of the dozens of other emission limits that apply to the Granite City Works and are unrelated to the present application. There is no provision in the Illinois Environmental Protection Act or the regulations thereunder requiring that an application for a construction permit include such compliance demonstrations.

VI. THE PERMIT APPLICATION IS SUFFICIENT AS TO THE PSD AIR QUALITY IMPACTS ANALYSIS FOR CARBON MONOXIDE

The Production Increase Project was a major modification under the preconstruction PSD permitting program because it involved physical and operational changes that would result in a significant net increase in emissions of carbon monoxide (CO). National Steel Corporation, then the owner and operator of Granite City Works, submitted a PSD permit application for this project in 1995. Illinois EPA determined that this PSD permit application included all necessary information and granted PSD approval for the project in conjunction with issuance of Permit No. 95010001 on Jan. 25, 1996. One of the key requirements of the preconstruction PSD permitting program, which Illinois EPA determined had been satisfied by National Steel Corporation's 1995 permit application, is an air quality impact analysis—a demonstration by the applicant that the project will not cause or contribute to a violation of any national ambient air quality standard for CO. 40 CFR § 52.21(k).

As explained in the permit application submitted by U. S. Steel in March 2020 and supplemented in October 2022, recent information suggests that some of the emissions data relied upon by Illinois EPA in issuing Permit No. 95010001 in 1996 are not representative. Therefore, during informal discussions between Illinois EPA and U. S. Steel, the parties agreed that corrective updates to these data and to the CO air quality impact analysis are appropriate. The pending permit application includes such updated analysis.

In Attachment 1 to the draft denial letter, Illinois EPA indicates that a basis for the denial of the permit application is that the updated CO air quality impact analysis "cannot be relied upon because the inventory for the CO emissions of the source with the Project does not address all CO emissions or otherwise explain why the CO emissions of certain units need not be considered." In particular, Illinois EPA indicates it has "concern" there may be some CO emissions from the Basic Oxygen Furnace Shop Roof Monitor which are not reflected in the air quality impact analysis and also

suggests that the analysis should "consider the CO emissions of the former by-product coke oven batteries at the source." In addition, Illinois EPA asserts that the ambient background CO concentration data used by U. S. Steel, gathered by Illinois EPA during the period of three calendar years from 2016 through 2018, are "not necessarily appropriate as a representation of either current ambient air quality or the historic air quality at the time that the Project was originally permitted."

None of the concerns listed by Illinois EPA are deficiencies warranting denial of the permit application. Illinois EPA does not identify any provision of the Illinois Environmental Protection Act or the Illinois Administrative Code requiring that a request for revision of a PSD approval include any of the listed information, nor does the agency point to even an application form or guidance document suggesting that such information be provided. Of course, Illinois EPA retains authority to request additional documentation in conjunction with a construction permit application,[2] but that was not done here.

As it relates to the possibility of CO emissions from the Basic Oxygen Furnace Shop Roof Monitor, U. S. Steel responds further as follows: Illinois EPA's prior determination that the Production Increase Project would not cause or contribute to a violation of any national ambient air quality standard for CO was based on the agency's assumption that there are no CO emissions from this point. In the pending permit application, U. S. Steel did not request any changes to existing permit terms relating to this emission point. Illinois EPA has neither requested that U. S. Steel's updated CO air quality impacts analysis include any emissions from this emission point, nor has the agency provided a quantitative estimate of those emissions. In the absence of such a request, U. S. Steel had no reasonable basis to conclude that the agency had reconsidered its prior determination as relating to CO emissions from the Basic Oxygen Furnace Shop Roof Monitor; it was therefore reasonable for U. S. Steel to conclude that its updated CO air quality impacts analysis, with revisions to the CO emission rates only for those emission points where the parties agreed that National Steel Corporation's modeled rates should be corrected, was sufficient for the purpose of requesting revisions to the permitted CO emissions from certain combustion units burning blast furnace gas and/or natural gas and affected by Production Increase Project.

As it relates to historical CO emissions from the by-product coke oven batteries that were operated by National Steel Corporation at the time the PSD approval was granted by Illinois EPA in 1996, U. S. Steel responds further as follows: It is unclear to U. S. Steel whether this observation relates to the demonstration that was approved by Illinois EPA in 1996 or to the demonstration submitted by U. S. Steel in March 2020 and supplemented in October 2022. If the former, then U. S. Steel notes that those emissions were, in fact, included.[3] If the latter, then U. S. Steel notes that it is not requesting PSD approval or other authorization for CO emissions from by-product coke oven batteries and that there is no basis for considering emissions under a counterfactual scenario in evaluating whether a requested change will cause or contribute to a violation of any national ambient air quality standard.[4]

---

[2] *See, e.g.,* 35 Ill. Adm. Code Section 201.152 ("The Agency may adopt procedures that require data and information in addition to and in amplification of the matters specified in the first sentence of this Section, that are reasonably designed to determine compliance with this Chapter and ambient air quality standards, or that set forth the format by which all data and information shall be submitted.").

[3] *See, e.g.,* permit application supplement submitted by National Steel Corporation Jan. 16, 1996, at Table 5-8.

[4] This is one of several instances where Illinois EPA appears to be asserting that the present permit application is deficient because it does not address a set of facts and circumstances that may have existed at some point in history but do not exist

Finally, as it relates to the use of 2016-2018 background CO concentration data, U. S. Steel responds further as follows: These data were the most current quality-assured data available at the time of U. S. Steel's submittal of the pending permit application in March 2020 and use of these data was approved by Illinois EPA following its review of U. S. Steel's dispersion modeling protocol in February 2020. U. S. Steel agrees that the 2016-2018 background CO concentration data are less current now than they were at the time of permit application submittal. Currentness of air quality data is one aspect of the permit application review process that is ensured by compliance with the procedural requirements relating to timely processing of permit applications.[5]

VII. THE PERMIT APPLICATION IS SUFFICIENT AS TO BEST AVAILABLE CONTROL TECHNOLOGY

A. Introduction

The pertinent provision of the PSD rule governing the required contents of the permit application pertaining to establishment of Best Available Control Technology ("BACT") is a requirement to include in the application:

> A detailed description as to what system of continuous emission reduction is planned for the source or modification, emission estimates, and any other information necessary to determine that best available control technology would be applied. 40 CFR § 52.21(n)(1)(iii).[6]

It is undisputed that the permit application includes estimates of the CO emissions from the casthouse and the blast furnace stoves as well as a detailed description of the systems of continuous emission reduction that U. S. Steel plans to use to control these emissions.

In Attachment 1 to the draft denial letter, Illinois EPA asserts that the application "lacks necessary information" for the agency to make BACT determinations for the casthouse and the blast furnace stoves.

B. CO Emissions from Blast Furnace Casthouse

For the casthouse, as discussed in Section 8.2.3 of the permit application, the only control options identified by U. S. Steel for potential consideration in a BACT determination by Illinois EPA are add-on air pollution control equipment options—specifically, installation and use of a capture system and some type of incinerator. Illinois EPA asserts that this part of the permit application is deficient because it provides neither an explanation of "why process-related control options are not available" nor, with respect to the literature search conducted by U. S. Steel that did not identify any process-related control options for CO emissions from blast furnace casthouses, "documentary support for the review of available control options that was conducted." It is unclear to U. S. Steel how it would be helpful to Illinois EPA's BACT determination to have copies of reports that contain no pertinent

---

presently or in the future. To the extent that Illinois EPA is making such claims, they are without merit, as the requested approval is forward-looking, *i.e.*, is based on the applicable regulations and other circumstances as they exist or will exist at the time of permit issuance. 42 U.S.C. § 7410(j). *See, e.g., United States v. EME Homer City Generation, L.P.*, 727 F.3d 274 (3rd Circuit, 2013)

[5] *See,* 35 Ill. Adm. Code Section 201.158 (providing that a permit application shall be deemed to have been filed 30 days after submittal if Illinois EPA has not notified the applicant that it is incomplete) and 42 U.S.C. § 7475(c) (requiring final action on a PSD permit application not later than one year after filing).

[6] *See, also,* the current PSD rule at 35 Ill. Adm. Code Section 204.810(a)(3).

information, and it is even more unclear how U. S. Steel might be expected to know, without receiving from Illinois EPA a request for specific additional information, which reports containing no pertinent information would be most valuable for this purpose. As to the first of the purported deficiencies listed by Illinois EPA—the failure to explain why no process-related control options are available for controlling CO emissions from the blast furnace casthouse—U. S. Steel notes that Illinois EPA is familiar with the chemical reaction that is intentionally forced to occur in the casthouse as an inherent part of the ironmaking process.[7] Having not received from Illinois EPA a request for specific additional information, U. S. Steel had no way to know that it was necessary to explain in the permit application that the partial combustion of coke inevitably yields carbon monoxide as a reaction product.

U. S. Steel also notes that, as it pertains to CO emissions from the casthouse, U. S. Steel has not requested any changes to its current permits and is currently subject neither to any numeric emission limitations nor to any work practice requirements other than those in 40 CFR part 63, subpart FFFFF. U. S. Steel did not include any information pertaining to BACT for CO emissions from the casthouse in the initial permit application submitted in March 2020; at the request of Illinois EPA, although under no obligation to do so,[8] U. S. Steel voluntarily provided a proposed BACT analysis for CO emissions from the casthouse in the permit application supplement submitted in October 2022. Illinois EPA's proposed denial of the permit application will simply ensure the status quo is maintained, *i.e.*, that U. S. Steel is not subject to any limitations on CO emissions from the casthouse.

C. CO Emissions from Blast Furnace Stoves

In the permit application it submitted in 1995, National Steel Corporation made the following proposal:

> Therefore the BACT recommendation for control of CO emissions from the blast furnace stoves is the maintenance of good combustion practices.[9]

As described in Section 8.1 of the permit application, Illinois EPA reviewed this proposal and agreed with it, determining that work practices constitute BACT for CO emissions from the blast furnace stoves at Granite City Works.

As discussed in Section 8.2.1.1 of the permit application, this determination is consistent with the PSD rule requirements, which expressly provides for a PSD permit to prescribe work practices to satisfy the BACT requirement where the permitting authority "determines that technological or economic limitations on the application of measurement methodology to a particular emissions unit would make the imposition of an emissions standard infeasible." 40 CFR § 52.21(b)(12).[10]

---

[7] *See, e.g.,* "Statement of Basis for the Planned Issuance of a Revised Clean Air Act Permit Program (CAAPP) Permit for: United States Steel Corporation, Granite City Works," Illinois EPA (Feb. 4, 2013) at 4 ("The charge materials (iron ore, coke, limestone and other flux material) are fed into the furnace at the top through a double-bell lock system. Heated air is blown into the furnace through nozzles or tuyeres near the bottom of the furnaces. In the furnaces, the coke undergoes partial combustion to carbon monoxide providing the heat to melt the charge as well as reducing the iron ore to elemental iron.")

[8] *See, e.g., U.S. v. Midwest Generation, LLC,* 781 F. Supp. 2d 677 (N.D. Ill. 2011)(holding that source owner's obligations with respect to BACT are limited to those imposed in a PSD permit).

[9] *See,* permit application supplement submitted by National Steel Corporation Oct. 30, 1995, at p. 4-11.

[10] *See, also,* the current PSD rule at 35 Ill. Adm. Code Section 204.280.

In 2013, when issuing the CAAPP permit for the Granite City Works, Illinois EPA again determined that work practices suffice for purposes of demonstrating compliance with the applicable requirements of Permit No. 95010001.[11]

In Section 8.2.2.6 of the permit application, in the discussion of step 5 of the proposed BACT analysis for CO emissions from the blast furnace stoves, U. S. Steel stated as follows:

> USS Granite City is proposing work practice requirements rather than numeric limits as BACT. Numeric emission limitations are not proposed because direct measurement of emissions—*i.e.*, use of U.S. EPA reference test methods—is not feasible for any of the fuel emissions units subject to the BACT requirements for CO emissions. In particular, for the stack serving the blast furnace A stoves, there is no sampling port,[45] and for the stack serving the blast furnace B stoves there is no sampling port satisfying the location requirement in U.S. EPA Reference Method 1.[46] Each stack is refractory lined and is believed to be approximately one hundred years old.
>
> For the reasons presented above, numeric CO emission standards are not feasible for the blast furnace stoves.

Footnote 45. For the one-time exhaust gas sampling event discussed in footnote 19 of this permit application, USS Granite City inserted a sampling probe into the stack through a pipe used to inject steam into the stack.

Footnote 46. Appendix A-1 to 40 CFR part 60.

In Attachment 1 to the draft denial letter, Illinois EPA makes the following assertion:

> Further support is needed for the claim that measurement or testing of emissions of the blast furnace stoves is infeasible. While certain information about the stoves is provided, the application does not directly address the technological issues or costs that would be entailed to install suitable ports for testing on one or both sets of blast furnace stoves. For example, the application does not include diagrams for the existing ductwork of the stoves to address whether the configuration of this ductwork would accommodate installation of test ports at a location that would satisfy USEPA Reference Method 1. The application also does not show how the refractory lining on the stacks or their age, approximately one hundred years old, would present significant technical challenges and costs so that the installation of test ports at a suitable location should be considered infeasible. The application also does not show that there are other challenges that would need to be addressed or issues that should be considered, such as requirements of the Occupational Safety and Health Administration (OSHA), that would affect the technical feasibility and cost of installing suitable test ports on the stoves.

With respect to both Illinois EPA's general suggestion that "further support" is needed and its list of specific examples, Illinois EPA does not identify any provision of the Illinois Environmental Protection Act or the Illinois Administrative Code requiring that a permit application include any particular supporting information, nor does the agency point to even an application form or guidance

[11] *See*, CAAPP Permit No. 96030056 at Condition 7.4.12.b, stipulating that compliance with all applicable requirements for the stoves and certain other processes are demonstrated by meeting "the work practices, testing, monitoring, recordkeeping, and reporting requirements in Sections 7.4 and 5 of this permit;" note that the permit does not include any testing, monitoring, recordkeeping, or reporting requirements specific to the blast furnace stoves.

document suggesting that such documentation or additional explanation be provided. Notably, the documentation provided in the permit application supplement submitted in October 2022 regarding infeasibility of emissions testing is more extensive than the documentation provided in the permit application submitted by National Steel Corporation in 1995 and accepted by Illinois EPA when issuing Permit No. 95010001 in 1996. U. S. Steel's permit application includes all information required by the applicable permitting rules—including the PSD rule—relating to BACT for CO emissions from the blast furnace stoves at Granite City Works. Of course, Illinois EPA retains authority to request additional documentation in conjunction with a construction permit application,[12] but that was not done here.

D. Emissions Associated with Combustion of Coke Oven Gas

In Attachment 1 to the draft denial letter, Illinois EPA asserts that the permit application is deficient because it "does not demonstrate that prior to February 2015, when the by-product recovery coke oven batteries at the Granite City Works were shut down and [coke oven gas] ceased to be available, BACT was being utilized for the SO_2 and CO emissions from use of [coke oven gas] in the stoves." U. S. Steel acknowledges that the BACT determination made by Illinois EPA in 1996, in response to the permit application submitted by National Steel Corporation in 1995, may have been deficient in this regard. Nonetheless, Illinois EPA's assertion that any such historical deficiency is relevant to U. S. Steel's pending permit application is entirely without merit.[13]

VIII. PSD AND NNSR APPLICABILITY WITH RESPECT TO NO_X EMISSIONS

A. Illinois EPA's Claims Are Based on Emissions Increases Previously Authorized

Attachment 1 to the draft denial letter suggests that the permit application is deficient because it does not include or otherwise address the substantive requirements of the PSD and NNSR programs with respect to NO_X emissions. However, in its evaluation of whether the Production Increase Project would become a major modification, Illinois EPA improperly considers emissions and emissions increases that were authorized by Illinois EPA at the time Permit No. 95010001 was issued to National Steel Corporation but will not occur in the future. As shown in the following table, the net NO_X emissions increase from the Production Increase Project authorized by Illinois EPA prior to U. S. Steel's ownership, during the period when National Steel Corporation owned and operated the Granite City Works, is greater than that with the revisions proposed by U. S. Steel.

Permit Date	Permitting Authority	Owner/Operator	Net NO_X Emissions Increase (TPY)
Jan. 25, 1996	Illinois EPA	National Steel Corporation	38.3
Jan. 5, 1999	Illinois EPA	National Steel Corporation	70.1
Pending	Illinois EPA	U. S. Steel	- 237.3 (decrease)

In summarizing its review of the updated NO_X net emissions increase ("netting") analysis provided in the permit application, Illinois EPA conspicuously avoids using the controlling language of the source

[12] *See, e.g.*, 35 Ill. Adm. Code Section 201.152 ("The Agency may adopt procedures that require data and information in addition to and in amplification of the matters specified in the first sentence of this Section, that are reasonably designed to determine compliance with this Chapter and ambient air quality standards, or that set forth the format by which all data and information shall be submitted.").

[13] *See, e.g., U.S. v. Midwest Generation, LLC*, 781 F. Supp. 2d 677 (N.D. Ill. 2011)(holding that source owner's obligations with respect to BACT are limited to those imposed in a PSD permit).

obligation provisions, discussed in detail in Section VIII.B below, but rather states that the application "does not show that the Project would still not be a major modification for NO_X." With this ambiguous language, Illinois EPA appears to be attempting improperly to shift to U. S. Steel a burden that is not U. S. Steel's. U. S. Steel has demonstrated in the permit application that the Production Increase Project would not become a major modification solely by virtue of the relaxations and other revisions requested by U. S. Steel. This is the only demonstration required of U. S. Steel as it relates to applicability of the PSD and NNSR programs with respect to NO_X emissions. Illinois EPA complains that the permit application submitted by U. S. Steel in 2020 and supplemented in 2022 "does not show that the actual NO_X emissions of the subject units in the period from 1996 to the present have not exceeded" the emission rates now proposed by U. S. Steel, but U. S. Steel has no obligation under the rules to make such a showing.[14]

Illinois EPA's improper claims regarding U. S. Steel's obligations with respect to PSD and NNSR with respect to NO_X emissions are contrary to law. The claim that Illinois EPA makes here—that the permits for the Granite City Works must obligate U. S. Steel to comply with the substantive requirements of these major NSR programs because of emissions increases that may have occurred many years ago, prior to U. S. Steel's ownership—is the same claim previously made by the State of Illinois made and rejected by both the U.S. District Court for the Northern District of Illinois and the U.S. Court of Appeals for the 7th Circuit. [15,16]

B. Source Obligation

Under the PSD and NNSR programs as in effect at the time of the Production Increase Project, where the project involved changes to existing emissions units that are so significant that the emissions unit was deemed not to have begun normal operation, the post-change actual emissions of that unit are assumed equal to its potential to emit. 40 CFR § 52.21(b)(21).[17] The major modification applicability test was therefore based on a comparison of the pre-project actual emissions and the post-project potential to emit of the emissions unit or group of units. 40 CFR §§ 52.21(b)(2)-(3). An emissions unit's potential to emit is its maximum capacity to emit a pollutant under its physical and operational design. 40 CFR § 52.21(b)(4). Limitations on the capacity to emit a pollutant are treated as part of the design of an emissions unit or group of units if the limitation or the effect it would have on emissions is legally enforceable and enforceable as a practical matter. Where the potential to emit of a unit or

[14] Illinois EPA appears to suggest it has already been determined the Production Increase Project as authorized prior to U. S. Steel's ownership of the Granite City Works was a major modification. Attachment 1 to the draft denial letter at footnote 3 (asserting that an analysis of alternatives would have been required of National Steel Corporation "if it had been recognized in 1996 that the Project was a major modification for NO_X"). U. S. Steel is unaware of any such final determination or adjudication.

[15] *See, U.S. v. Midwest Generation, LLC*, 781 F. Supp. 2d 677 (N.D. Ill. 2011)(holding that, where a facility should have been subjected to BACT and other substantive requirements of the major NSR permitting programs due to modifications implemented by a prior owner, Section 9.1(d) of the Illinois Environmental Protection Act does not obligate a subsequent owner to come into compliance with those requirements).

[16] Illinois EPA is well aware of the case law, as in recent years the agency has repeatedly issued construction permits for the very emissions units that were the subject of that decision. *See, e.g.*, Construction Permit No. 15030051, issued Oct. 16, 2015 (authorizing operation of the modified units and not imposing BACT or other major NSR obligations); Construction Permit No. 15030051, revised July 15, 2016 (same); Construction Permit No. 15030051, revised May 9, 2017 (same); Construction Permit No. 15030051, revised July 9, 2020 (same).

[17] Except as noted, all citations to the applicable PSD rules herein are to the federal PSD rule as codified and in effect at the time of issuance of Permit No. 95010001 in 1996; where the corresponding provision of the then-effective NNSR rule is equivalent, separate citations are not provided.

group of units is governed by enforceable limitations rather than by the unrestricted physical capacity of that unit or those units, and where those limitations were necessary to a determination that a project was not a major modification, the term "synthetic minor" is commonly used to describe the project and the associated limitations.

As explained in detail in Section 2.2.4 of the permit application, the PSD and NNSR rules provide that after-the-fact PSD or NNSR permitting is required when a project becomes a major modification "solely by virtue of a relaxation in" a synthetic minor limitation. 40 CFR § 52.21(r)(4).[18] These "source obligation" provisions effectively require updated PSD and NNSR applicability analyses in situations where the applicant proposes to relax a synthetic minor limitation in a permit.

Applicability analyses performed in order to determine whether the source obligation provisions apply in conjunction with a requested relaxation are prospective, not retrospective. All of the facts as they will exist at the time of the requested relaxation are considered in the updated emissions increase calculations; there is no consideration of facts as they may have existed at some prior point in time and no "mixing" of facts from different points in time.[19]

The updated NO_X emissions increase calculations presented in the permit application fully conform to and satisfy the source obligation provisions of the PSD and NNSR rules. U. S. Steel's prospective calculation of potential NO_X emissions from the certain fuel combustion units affected by the Production Increase Project includes zero emissions from Boilers 1 through 10, which accurately represents the future potential to emit of those boilers because they no longer exist; does not include the greater NO_X emission rates of Boilers 11 and 12 prior to the required retrofit of flue gas recirculation in those boilers; and includes zero emissions from combustion of coke oven gas as fuel, which accurately represents the future emissions of units that previously burned coke oven gas because coke oven gas is no longer an available fuel at the facility. As discussed further in Sections VIII.C and VIII.E below, if Illinois EPA revises Permit No. 95010001 with the requested relaxations and other changes to the limitations in the permit currently in effect, the Production Increase Project will not become a major modification solely due to those relaxations.

C. NO_X Emissions Associated with a Facility Configuration No Longer Authorized or Under a Counterfactual Hypothetical Are Immaterial to the "Source Obligation" Demonstration

Contrary to the plain language of the source obligation provisions, Illinois EPA suggests that the updated NO_X netting analysis provided in the permit application is deficient because it reflects the prospective reality for the fuel combustion units at the Granite City Works, not any counterfactual

[18] *See, also,* the current PSD rule at 35 Ill. Adm. Code Section 204.850.

[19] *See, e.g.*, letter from S.C. Riva, U.S. EPA, to R. Frontanes, Pfizer Pharmaceuticals LLC (Sept. 23, 2015), conveying U.S. EPA's non-applicability determination for proposed relaxation of synthetic minor limitations that had been imposed in 1994 in order to establish synthetic minor status with respect to NO_X emissions from a project that involved installation of five diesel generators and two boilers. The synthetic minor limitations imposed in 1994 established the combined potential to emit NO_X from the seven new units at 56 tons per year; if the combined potential to emit had been 65 tons per year or more, the project would have been a major modification. U.S. EPA's 2015 applicability determination allowed relaxation of the limitations such that the new potential to emit would be 90 tons per year; the agency's source obligation analysis relied on the fact that other facts had changed during the intervening time period and it gave no consideration to the fact that, had the combined potential to emit been 90 tons per year historically, the project would have been a major modification.

hypothetical. Illinois EPA theorizes that "the NO_X emissions of fuel burning units allowed by Permit 95010001 must necessarily be more than the baseline emissions" and that "the future NO_X emissions of the fuel burning units for purposes of any revised netting analysis should be expected to be substantially greater than their baseline emissions."[20] For purposes of the source obligation analysis, this is plainly untrue, as the total baseline NO_X emissions of these units are 956 tons per year and the total maximum future emissions are 706 tons per year. The draft denial letter does not identify any provision of the Illinois Environmental Protection Act or the Illinois Administrative Code requiring an applicant to anticipate, address, or refute the unsupported expectations of Illinois EPA staff as part of the construction permit approval process.

D. Project Emissions Increases and Net Emissions Increases

By definition, the net emissions increase from a project is the sum of two values: The increase in actual emissions from the project and "[a]ny other increases and decreases in actual emissions at the source that are contemporaneous with the particular change and are otherwise creditable." 40 CFR § 52.21(b)(3)(i).

Illinois EPA proposes to deny the permit application, at least in part, because Illinois EPA preliminarily determined that "additional decreases in NO_X emissions that would now be proposed to be relied upon" by U. S. Steel are not contemporaneous and otherwise creditable.[21] This preliminary determination is erroneous for three reasons.

First, to the extent that Illinois EPA's analysis includes separate calculations of increases and decreases based on specific fuels and changes in fuels, those calculations are inconsistent with the PSD and NNSR rule requirements. As described previously, the major modification applicability test requires a comparison of the pre-project actual emissions of the emissions unit or group of units with the post-project actual emissions (or potential to emit) of that emissions unit or group of units; the applicable definition of actual emissions does not provide for a calculation that considers only some portions of the units' emissions. For the certain fuel combustion units affected by the Production Increase Project, the change in actual NO_X emissions is properly calculated as the total post-project actual NO_X emissions, regardless of the fuel or fuels being burned to generate those emissions, minus the total pre-project actual NO_X emissions, regardless of the fuel or fuels that were burned to generate those emissions. This is the basis for the values shown in Table 6-8 of the permit application.

Second, the emissions changes at issue are at certain fuel combustion units affected by the Production Increase Project. Emissions changes at these emissions units must be included in the calculation of the emissions increase that will occur as a result of the project, under the first clause in the definition of

[20] Attachment 1 to the draft denial letter at footnote 11. *See, also,* Attachment 1 at pp. 5 and 11, suggesting that the updated applicability analysis should include "'future' NO_X emissions" greater than zero from Boilers 1 through 10, notwithstanding the fact that those boilers are prohibited from operating currently and in the future; at p. 5, suggesting that the updated applicability analysis should include greater NO_X emission rates from Boilers 11 and 12 based on the configuration of those boilers as they existed at the time the Production Increase Project was implemented by National Steel Corporation, notwithstanding the fact that the Boilers are prohibited from operating at those emission rates currently and in the future; at p. 5, suggesting that the updated applicability analysis should include greater NO_X emission rates from Boilers 11 and 12 and from the blast furnace stoves based on the use of coke oven gas as fuel in those units, notwithstanding the fact that coke oven gas is not an available fuel at the facility currently or in the future. Each of these suggestions is demonstrably inconsistent with the current and future operation of the Granite City Works and is not properly considered in the source obligation analysis.

[21] Attachment 1 at p. 4.

the term "net emissions increase."[22] Therefore, it was proper to include the emissions changes at the certain fuel combustion units affected by the Production Increase Project in the updated calculation of the NO_X emissions increase from the project, -10.7 tons per year, as calculated in Table 6-8 of the permit application and as shown in Table 6-9 of the permit application. These tables are repeated here for the convenience of the reviewer:

Table 6-8. NO_X Project Emissions Increase Analysis

	NO_X Pre-Project Actual Emissions (TPY)	**Proposed Revised NO_X Emissions Caps (TPY)**	**NO_X Change (TPY)**
Blast Furnace Operations	4.6	24.0	19.4
BOF Shop	179.8	400.0	220.2
Continuous Casting Operations	0.0	0.0	0.0
Certain Fuel Burning Units	956.3	706.0	-250.3
Total	1140.7	1130	-10.7

Table 6-9. Updated Net Emissions Increases for NO_X for the 1996 Project

		NO_X
Start of Contemporaneous Period		Jan 1990
End of Contemporaneous Period		Jan 1996
Project Emissions Increases		239.6
Significant Emission Rates		40
Whether Significant?		Yes
Project Emissions Changes (includes decreases at the fuel combustion units)		-10.7
Contemporaneous Emissions Increases	Date	
Installation of #8 Galvanizing Line	Mar-1996	n/a
Contemporaneous Emissions Decreases		
Blooming Mill Shutdown	Apr-1991	-217.8
Batch Annealing Shutdown	Dec-1991	-8.7
Net Emissions Increase		**-237.3**
Whether Significant?		No

Third, even if the contribution of the certain fuel combustion units affected by the Production Increase Project were properly considered as among the other decreases under the second clause of the definition rather than a contribution to the emissions increase from the project under the first clause of the definition, it is not relied upon for the non-applicability determination. The net NO_X emissions increase from the project as presented in Table 6-9 of the permit application is -237.3 tons per year; even if the decrease of 250.3 tons per year as calculated by Illinois EPA is omitted from the calculation, the net emissions increase is 13 tons per year (-237.3+250.3), which is less than the significant level of 40 tons per year and therefore sufficient to demonstrate that the Production

[22] Contrast this with the emissions changes at the blooming mill and galvanizing line shown in Table 6-9. Because these are emissions units not affected by the Production Increase Project, increases and decreases in actual emissions at these units are among the other changes that are considered under the second clause in the definition.

Increase Project would not become a major modification solely by virtue of the relaxations requested by U. S. Steel. The calculations under this hypothetical scenario are illustrated in the following tables.

Table 6-8a. NO_X Project Emissions Increase Analysis

	NO_X Pre-Project Actual Emissions (TPY)	**Proposed Revised NO_X Emissions Caps (TPY)**	**NO_X Change (TPY)**
Blast Furnace Operations	4.6	24.0	19.4
BOF Shop	179.8	400.0	220.2
Continuous Casting Operations	0.0	0.0	0.0
Certain Fuel Burning Units	956.3	706.0	0.0*
Total	1140.7	1130	239.6*

* This Table 6-8a shows a counterfactual hypothetical where the NO_X emissions decrease of 250.3 TPY from the fuel combustion units is not counted because it is determined not to be a creditable or contemporaneous decrease.

Table 6-9a. Updated Net Emissions Increases for NO_X for the 1996 Project

		NO_X
Start of Contemporaneous Period		Jan 1990
End of Contemporaneous Period		Jan 1996
Project Emissions Increases		239.6
Significant Emission Rates		40
Whether Significant?		Yes
Project Emissions Changes (excludes decreases at the fuel combustion units)		239.6*
Contemporaneous Emissions Increases	Date	
Installation of #8 Galvanizing Line	Mar-1996	n/a
Contemporaneous Emissions Decreases		
Blooming Mill Shutdown	Apr-1991	-217.8
Batch Annealing Shutdown	Dec-1991	-8.7
Net Emissions Increase		**13.1**
Whether Significant?		No

* This Table 6-9a shows a counterfactual hypothetical where the NO_X emissions decrease of 250.3 TPY from the fuel combustion units is not counted because it is determined not to be a creditable or contemporaneous decrease.

E. Substantive Requirements of the PSD and NNSR Programs Are Not Applicable with Respect to NO_X Emissions

Because the Production Increase Project would not become a major modification with respect to NO_X emissions solely by virtue of the relaxations requested by U. S. Steel, the substantive requirements of the PSD and NNSR programs[23] are not required elements of the permit application and the fact that these requirements are not addressed in the permit application is not a valid basis for application denial.

[23] 35 Ill. Adm. Code Sections 203.601, 203.602, 204.1100, 204.1110, 204.1120 and 204.1130.

IX. THE PERMIT APPLICATION INCLUDES ALL REQUIRED INFORMATION PERTAINING TO PRE-PROJECT (BASELINE) AND POST-PROJECT (FUTURE) NO_X EMISSIONS CALCULATIONS

In Attachment 1 to the draft denial letter, Illinois EPA asserts that the permit application is deficient in that it omits certain information that is purportedly necessary for Illinois EPA to validate the PSD/NNSR non-applicability determinations. As explained below, these assertions are without merit.

A. Volume of Coke Oven Gas Combusted During the Pre-Project Baseline Period

In Attachment 1 to the draft denial letter, Illinois EPA states that the updated calculations of the NO_X emissions change resulting from the Production Increase Project include the difference between the pre-project and post-project actual emissions from certain combustion units and that the calculation of pre-project actual NO_X emissions rates for some of these combustion units includes consideration of NO_X formed from combustion of coke oven gas, among other fuels. These statements are correct.

Illinois EPA then asserts that the pre-project coke oven gas usage rates used in calculating these emission contributions "are not accompanied by any documentation or explanation," suggesting that it is not enough to identify the quantity of coke oven gas consumed in each type of affected combustion unit. With respect to an "explanation," this assertion is incorrect. The permit application includes extensive discussion of the use of coke oven gas as fuel during the pre-project baseline period.[24]

With respect to additional documentation or further explanation, Illinois EPA does not identify any provision of the Illinois Environmental Protection Act or the Illinois Administrative Code requiring that a permit application include any particular documentation or explanation in conjunction with a historical operational rate or emissions rate, nor do they point to even an application form or guidance document suggesting that such documentation or additional explanation be provided. Notably, the documentation provided for coke oven gas in the permit application supplement submitted in October 2022 is indistinguishable from the documentation provided with respect to other fuels, both in the permit application supplement submitted in October 2022 and in the permit application submitted by National Steel Corporation in 1995 and accepted by Illinois EPA when issuing Permit No. 95010001 in 1996. In all cases, what was provided was a table of usage values, with no primary source documents such as strip charts, because it is neither required nor customary to provide such documents. Of course, Illinois EPA retains authority to request additional documentation in conjunction with a construction permit application,[25] but that was not done here.

B. NO_X Emission Factor for Use of COG in Boilers 11 and 12:

In Attachment 1 to the draft denial letter, Illinois EPA correctly states that Table 6-4 in the permit application indicates the emission factor used in calculating the amount of NO_X formed from combustion of coke oven gas in the boilers during the pre-project baseline period is based on emissions testing performed at a coke oven battery.

[24] *See, e.g.*, pp. 2-4, 4-2, 5-5, and 11-2 of the body of the permit application. Additional information is provided in the appendices to the application.

[25] *See, e.g.*, 35 Ill. Adm. Code Section 201.152 ("The Agency may adopt procedures that require data and information in addition to and in amplification of the matters specified in the first sentence of this Section, that are reasonably designed to determine compliance with this Chapter and ambient air quality standards, or that set forth the format by which all data and information shall be submitted.").

The emission factor basis listed in Table 6-4 of the permit application is a scrivener's error. The error was pointed out to U. S. Steel by Illinois EPA's permit application reviewer by telephone in January 2023. The factor is actually based on emission testing performed at Boiler #12, which is one of the boilers that is the subject of the calculation. This fact was conveyed to Illinois EPA's permit application reviewer by telephone in January 2023.

C. Emission Factor for Use of Natural Gas in Ladle Preheaters

In Attachment 1 to the draft denial letter, Illinois EPA states that, in the calculations presented in the permit application in support of the pre-project actual NO_X emissions from certain fuel combustion units affected by the Production Increase Project, U. S. Steel used a single emission factor for all such units, including ladle preheaters. This statement is correct.

Illinois EPA then asserts that the permit application "does not show that it is appropriate to utilize this emissions factor for ladle preheaters." Illinois EPA does not identify any provision of the Illinois Environmental Protection Act or the Illinois Administrative Code requiring that a permit application include any particular documentation or justification for the emission factors used to estimate historical emissions, nor do they point to even an application form or guidance document suggesting that such documentation or justification be provided. Notably, for a period of nearly thirty years, the emission factor at issue has been used consistently for all purposes pertaining to the permitting of the Production Increase Project and has been both accepted and prescribed by Illinois EPA for that purpose.[26] In light of Illinois EPA's repeated acceptance of and reliance on this emission factor for calculating NO_X emissions from combustion of natural gas in ladle preheaters in numerous permitting actions over a period of nearly thirty years, including several permitting actions occurring prior to U. S. Steel's ownership of the facility, U. S. Steel reasonably concluded that no further justification was needed as part of the permit application submitted in March 2020 and supplemented in October 2022.

D. Emissions from Use of Natural Gas on the Continuous Casting Lines:

In Attachment 1 to the draft denial letter, Illinois EPA states that, in the calculations presented in the permit application in support of the pre-project actual NO_X emissions from emissions units affected by the Production Increase Project, U. S. Steel indicated there is no NO_X formation from the continuous casting operation other than from combustion of natural gas and, because all natural gas consumption in the continuous casting operation is accounted for elsewhere, U. S. Steel did not account for any additional pre-project actual NO_X emissions from the continuous casting operation. Illinois EPA's statements in this regard are correct.

Illinois EPA then asserts that U. S. Steel's failure to double-count the pre-project actual NO_X emissions from the continuous casting operation is "problematic." This assertion is incorrect. U. S. Steel's election not to overstate the pre-project actual NO_X emissions from emissions units affected by the Production Increase Project is the correct and appropriate approach, as it best represents the

[26] *See, e.g.,* "Calculation Sheet" prepared by Jim Ross of Illinois EPA, Dec. 5, 1995 (summarizing Illinois EPA's review of the construction permit application submitted by National Steel Corporation and received by Illinois EPA on Jan. 3, 1995) at p. 12; permit application supplement submitted by National Steel Corporation Jan. 16, 1996, at p. 3-2; Construction Permit No. 95010001 as issued Jan. 25, 1996, at Table 4 (prescribing use of this factor for ladle preheaters and certain other combustion units); Construction Permit No. 95010001 as revised Dec. 17, 2012, at Table 4 (same).

increases in actual emissions resulting from the project, consistent with the requirements of the PSD and NNSR rules. However, the manner in which U. S. Steel presented in the permit application the natural gas usage rates and associated NO_X emissions contributions during the pre-project baseline period gas is unclear, and that lack of clarity appears to have caused confusion on the part of Illinois EPA's reviewer. The lack of clarity and the correctness of the total pre-project actual NO_X emissions from natural gas consumption in certain fuel combustion units affected by the Production Increase Project is explained below.

Following are the natural gas usage rates during the pre-project baseline period as listed in Table 3-2 of the permit application submitted by National Steel Corporation in 1995[27] and accepted by Illinois EPA when issuing Permit No. 95010001 in 1996.

Source Description	Emission Factor	Base Year Throughput	Actual Emission	Projected Throughput	Projected Emission
Boiler House 1 (Blrs 1-10) – NG	306 lb/MMcf	361 MMcf	55.23 TPY	included below	
Boiler #11 – NG	306 lb/MMcf	226 MMcf	34.58 TPY	included below	
Boiler #12 – NG	306 lb/MMcf	218 MMcf	33.35 TPY	included below	
BOF Preheaters/Dryers – NG	306 lb/MMcf	283 MMcf	43.30 TPY	included below	
Continuous Caster #1 & #2 – NG	306 lb/MMcf	57 MMcf	8.72 TPY	included below	
Natural gas usage	306 lb/MMcf	1,145 MMcf	inc. above	1,145 MMcf	175.19 TPY

The total natural gas usage in the affected units during the pre-project baseline period is 1,145 million cubic feet per year, including 805 million cubic feet per year from the boilers and 340 million cubic feet per year from the BOF shop and the continuous casting operations. The total associated NO_X contribution during the pre-project baseline period is 175.19 tons per year, including 123.17 tons per year from the boilers and 52.02 tons per year from the BOF shop and the continuous casting operations. National Steel Corporation's projection of the total post-project natural gas usage in the affected units, including the continuous casting operations, was the same as the pre-project amount: 1,145 million cubic feet per year. The total NO_X emissions increase from the Production Increase Project as shown in Table 3-2 of the permit application submitted by National Steel Corporation in 1995 is 238.8 tons per year.

Illinois EPA included in Permit No. 95010001 a limit on total post-project natural gas usage and a limit on total post-project NO_X emissions contribution from this natural gas usage. The limits are 1,145 million cubic feet per year and 175.19 tons per year, respectively.[28] These limits precisely match the values that were presented in Table 3-2 of the permit application submitted by National Steel Corporation in 1995 and that included natural gas usage in the continuous casting operations. Illinois EPA also included in the permit a list of the fuel combustion units to which these limits apply.[29] Likely inadvertently, Illinois EPA omitted the continuous casting operations from this list of fuel combustion units. It is undisputed that Illinois EPA accepted and relied upon both the pre-project baseline information and the projections presented in Table 3-2 of the permit application submitted by

[27] *See*, permit application supplement submitted by National Steel Corporation Jan. 16, 1996, at Table 3-2.
[28] *See, e.g.*, Construction Permit No. 95010001 as issued Jan. 25, 1996, at Special Condition 21 and Table 4.
[29] *Ibid* at Special Condition 21, Special Condition 35, and Table 4.

National Steel Corporation in 1995: The total NO_X emissions increase authorized in the construction permit issued in 1996 is 238.8 tons per year,[30] which precisely matches the value presented in the 1995 permit application.

In the permit application submitted by U. S. Steel in March 2020 and in the supplement submitted in October 2022, the total natural gas usage in the affected units during the pre-project baseline period is documented as 1,145 million cubic feet per year, including 805 million cubic feet per year from the boilers and 340 million cubic feet per year from the BOF shop. The total associated NO_X contribution during the pre-project baseline period is documented as 175.19 tons per year, including 123.17 tons per year from the boilers and 52.02 tons per year from the BOF shop. Consistent with the approach taken by Illinois EPA in drafting Permit No. 95010001, and perpetuating what was likely an inadvertent error, U. S. Steel omitted the continuous casting operations from the list of fuel combustion units burning natural gas and contributing to the total associated NO_X contribution during the pre-project baseline period but included the contribution of the continuous casting operations. However, emissions associated with natural gas combustion in this operation were properly accounted for both in pre-project baseline and the post project emission for the project affected units.

E. Post-Project NO_X Emissions

In Attachment 1 to the draft denial letter, Illinois EPA asserts that the permit application is deficient because it does not include supporting information related to the maximum future NO_X emissions of 706 tons per year from the certain fuel combustion units affected by the Production Increase Project, such as "the maximum annual amounts of fuels burned in these units" and "the emission factors used to calculate annual emissions." As discussed in detail in Section XII.J herein, U. S. Steel included all of this information in the construction permit application submitted in March 2020 but omitted it from the permit application supplement submitted in October 2022 based on Illinois EPA's informal comments regarding the initial submittal. Notably, the permit application at issue does not request a new construction permit; instead, it requests revision of an existing permit, which existing permit has since 1999 limited the maximum NO_X emissions from the fuel combustion units to 706 tons per year. Because the permit application requests no change in the maximum NO_X emissions from the fuel combustion units, U. S. Steel reasonably assumed that no additional information was needed with respect to this calculation. Of course, Illinois EPA retains authority to request additional information in conjunction with a construction permit application,[31] but that was not done here.

X. THERE ARE NO QUANTIFIABLE FUGITIVE EMISSIONS OF NO_X OR VOM FROM THE BASIC OXYGEN FURNACES

In Attachment 1 to the draft denial letter, Illinois EPA states that the permit application "does not address uncaptured emissions" of NO_X and VOM from the basic oxygen furnaces and that the emissions calculations presented in the permit application reflect an assumption "that all emissions of these pollutants from the basic oxygen furnaces are now captured" and routed to atmosphere through the electrostatic precipitator or baghouse. Illinois EPA also acknowledges that such uncaptured

[30] *Ibid* at Special Condition 42.c and Table 6.
[31] *See, e.g.*, 35 Ill. Adm. Code Section 201.152 ("The Agency may adopt procedures that require data and information in addition to and in amplification of the matters specified in the first sentence of this Section, that are reasonably designed to determine compliance with this Chapter and ambient air quality standards, or that set forth the format by which all data and information shall be submitted.").

emissions, if they exist, are not significant and that, if estimated quantities of such uncaptured emissions were added to the calculations supporting the PSD/NNSR non-applicability demonstrations, would yield smaller (rather than greater) emissions increases.

With one minor exception, Illinois EPA's general statements characterizing the emissions increase calculations presented in the permit application, as summarized above, are correct. The minor exception is this: The permit application does not reflect an assumption that there are zero uncaptured emissions of NO_X and VOM from the basic oxygen furnaces but rather reflects the conclusion that, if there are any such uncaptured emissions, those emissions are fugitive emissions[32] and are not quantifiable. Fugitive emissions are counted for purposes of PSD and NNSR applicability determinations only to the extent that such emissions are quantifiable.[33]

Although Illinois EPA presents speculation regarding possible fugitive emissions of NO_X and VOM from the basic oxygen furnaces, that speculation is not a sufficient basis to determine that such emissions exist and are quantifiable. Neither U. S. Steel nor Illinois EPA has not identified any evidence of such quantifiable emissions in the literature or in the permitting records of other iron and steel mills.

The fact that there are fugitive particulate matter emissions from basic oxygen furnaces is not indicative of the formation of NO_X or VOM emissions. The capture system serving the secondary baghouse at Granite City Works is a large ventilation system that is generally evacuating the space around the basic oxygen furnace vessels during the charging, refining, and tapping operations. The primary mechanism for formation of particulate matter during charging and tapping is the oxidation of molten metal. This formation mechanism cannot be expected to result in the formation of NO_X or VOM.

XI. THE PERMIT APPLICATION INCLUDES ALL REQUIRED INFORMATION PERTAINING TO PRE-PROJECT (BASELINE) PARTICULATE MATTER EMISSIONS CALCULATIONS

In Attachment 1 to the draft denial letter, Illinois EPA asserts that the permit application is deficient for the following reason:

> With regard to baseline particulate emissions, the determination of baseline emissions from handling of coke, iron pellets and limestone provided in the revised netting analysis cannot be independently confirmed. In this regard, the 2022 application does not provide needed supporting information for the "corrected" determinations of baseline particulate emissions of

[32] Fugitive emissions are "those emissions which could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening." 40 CFR § 52.21(b)(20). The emissions capture systems serving the basic oxygen furnaces satisfy the stringent requirements of 40 CFR part 63, subpart FFFFF, which reflects U.S. EPA's determination of the maximum degree of reduction in emissions that is achievable for these operations. 42 U.S.C. § 7412(d)(2). It is indisputable that these capture systems reflect the state of the art and that, to the extent there are any uncaptured emissions of NO_X or VOM, those emissions could not reasonably be captured or controlled and thus are fugitive emissions.

[33] *See, e.g.,* 40 CFR § 52.21(i)(4)(vii)(exempting a project from PSD permitting requirements if it would be major "only if fugitive emissions, to the extent quantifiable, are considered" and it would occur at a source that is not in a listed source category); *see, also,* 45 *Fed. Reg.* 52676 at 52692 (Aug. 7, 1980)(EPA explains that it is declining to extend the exemption the exemption at § 52.21(i)(4)(vii) to the listed source categories, such as iron and steel mills, but stated, "EPA emphasizes, however, that fugitive emissions from a source in one of the listed categories will only be included in threshold calculations 'to the extent quantifiable'").

> these operations as it is not accompanied by detailed calculations for the emissions from handling each material.

The assertion regarding a deficiency in the permit application is, for two reasons, without merit. First, Illinois EPA does not identify any provision of the Illinois Environmental Protection Act or the Illinois Administrative Code requiring that a permit application include any particular supporting information, nor does the agency point to even an application form or guidance document suggesting that such documentation or additional explanation be provided. U. S. Steel's permit application includes all information required by the applicable permitting rules. Second, Illinois EPA's characterization of these pre-project (baseline) emission rates as "corrected" is erroneous: These are the values presented in the permit application submitted by National Steel Corporation in 1995 and accepted by Illinois EPA when issuing Permit No. 95010001 in 1996. U. S. Steel made no change to these values and is not in possession of information that would allow such change. In light of Illinois EPA's acceptance of and reliance on these values during that prior permitting action, which preceded U. S. Steel's ownership of the facility, U. S. Steel reasonably concluded that no further justification was needed as part of the present permit application. Of course, Illinois EPA retains authority to request additional information in conjunction with a construction permit application,[34] but that was not done here.

XII. THE PERMIT APPLICATION INCLUDES ALL REQUIRED INFORMATION RELATING TO POST-PROJECT ACTUAL EMISSIONS OF PM, PM_{10}, NO_X, AND VOM AND TO ENFORCEABLE LIMITATIONS ON POTENTIAL TO EMIT THESE POLLUTANTS

A. It Is Feasible to Establish Enforceable Emission Caps for Groups of Emissions Units and Emission Points as Proposed in the Permit Application

As correctly described by Illinois EPA in Attachment 1 to the draft denial letter, U. S. Steel's permit application proposes that PM, PM_{10}, NO_X, and VOM emissions be subject to annual emission caps covering groups of related emissions units and emission points. For the blast furnace operations and the BOF shop, the proposed groupings include emission points with significant emissions, such as the BOF electrostatic precipitator stack, and minor emission points such as the iron spout baghouse stack. U. S. Steel's permit application also proposes approaches to making these emission caps enforceable as a practical matter, as would be required if these emission caps were to serve as synthetic minor limitations.[35]

In Attachment 1 to the draft denial letter, Illinois EPA asserts that there may be alternative groupings of emissions units and emission points that could be subjected to enforceable emission caps or other limitations:

> It would be reasonable and appropriate for both the annual emissions of the casthouse and the annual emissions of the two basic oxygen furnaces to be directly limited separately from the emissions of any other units.
> *

[34] *See, e.g.*, 35 Ill. Adm. Code Section 201.152 ("The Agency may adopt procedures that require data and information in addition to and in amplification of the matters specified in the first sentence of this Section, that are reasonably designed to determine compliance with this Chapter and ambient air quality standards, or that set forth the format by which all data and information shall be submitted.").

[35] See discussion of synthetic minor limitations in Section VIII.B herein.

> *
> Alternatively, limits specifically for the emissions of the casthouse for the blast furnaces and the basic oxygen furnaces, i.e., the principal units at the facility for iron and steel production, could be accompanied by group limits for the overall emissions of these principal units and the other, "non- principal" units in these areas of the facility. For example, limits could be set for both emissions of the casthouse and for the emissions of the casthouse, charging of the blast furnaces, and the slag pits. Attachment 1 at 18-19.

U. S. Steel agrees with Illinois EPA generally that there are potentially suitable groupings other than those proposed in U. S. Steel's permit application and that the approach suggested by Illinois EPA in Attachment 1 is likely permissible under the applicable permitting rules.

It is unclear whether Illinois EPA's discussion of other potentially suitable groupings of other emissions units and emission points is intended to explain Illinois EPA's proposed denial of the permit application.[36] If it is so intended, U. S. Steel disagrees that this represents a valid basis for such denial. It is the responsibility of Illinois EPA to draft a permit with conditions it judges to be suitable and appropriate; the permit applicant has no obligation to reflect in the permit application a correct guess as to how the permitting authority will exercise its judgment regarding these matters.

B. Particulate Matter Emissions Associated with a Facility Configuration No Longer Authorized Are Immaterial to the "Source Obligation" Demonstration

In Attachment 1 to the draft denial letter, Illinois EPA states that the permit application does not include information associated with emissions from the handling of coal and coke at the by-product coke oven batteries that were permanently shut down in 2015. This statement is correct.

Illinois EPA then asserts that this omission represents a deficiency in the permit application because these emissions should be included in the total post-project actual emissions quantity as used in determining whether PSD and NNSR permitting requirements apply. This assertion is without merit. Although this information may be relevant to an evaluation of whether the Production Increase Project as authorized by Illinois EPA and as implemented by National Steel Corporation prior to U. S. Steel's ownership was a major modification subject to the substantive requirements of the PSD and NNSR programs, it is not relevant to the "source obligation" analysis and demonstration that are required here. As discussed in Section VIII.B above, these analyses are prospective, not retrospective; there is no consideration of facts as they may have existed at some prior point in time and no "mixing" of facts from different points in time.

[36] Notably, Illinois EPA has not claimed that the groupings and approaches proposed by Illinois EPA would result in permit conditions that are not enforceable as a practical matter or that are otherwise impermissible under the applicable rules.

C. The Permit Application Includes All Required Information Relating to Quantifying Emissions of NO_X and VOM from the Blast Furnace Casthouse Roof Monitor

In Attachment 1 to the draft denial letter, Illinois EPA correctly states that, among the procedures proposed by U. S. Steel in the permit application for demonstration of compliance with the proposed NO_X and VOM emission caps, U. S. Steel proposed that emissions of these pollutants from the Blast Furnace Casthouse Roof Monitor be calculated as 5.3% of the measured emission rate from the Blast Furnace Casthouse Baghouse. (This value reflects the assumption that the emissions from the baghouse represent 95.0% of the total emissions from the casthouse and the uncaptured and unmeasured emissions represent 5.0% of the total: 5% ÷ 95% = 5.3%.)

Illinois EPA then asserts that U. S. Steel's permit application does not demonstrate that the proposed methodology would yield calculated emission rates that are representative of actual emissions from the Blast Furnace Casthouse Roof Monitor under all conditions; in particular, Illinois EPA asserts, the proposed methodology might underestimate actual emissions if the capture efficiency is less than the assumed 95%. Finally, Illinois EPA suggests that prescribing specific emission rates for NO_X and VOM in the permit can reasonably be expected to be more representative than the ratio approach proposed by U. S. Steel.

It is unclear whether these assertions in Attachment 1 to the draft denial letter are intended to support Illinois EPA's proposed denial of the application. If these assertions are so intended, U. S. Steel disagrees that this is a valid basis for denial of the application. It is the responsibility of Illinois EPA to draft a permit with conditions it judges to be suitable and appropriate; the permit applicant has no obligation to reflect in the permit application a correct guess as to how the permitting authority will exercise its judgment regarding these matters.

U. S. Steel agrees that the potential problem identified and discussed by Illinois EPA—that an actual capture efficiency of less than 95% would not be reflected in the calculation methodology proposed by U. S. Steel—exists as a theoretical matter. U. S. Steel contends that this scenario is effectively prohibited, as operation of the blast furnace casthouse capture system is subject to stringent requirements under 40 CFR part 63, subpart FFFFF, particularly § 63.7790(b). Thus, if it were left to U. S. Steel to decide on appropriate compliance demonstration methods for inclusion in the revised construction permit, the proposed 5.3% ratio approach would be used. However, U. S. Steel recognizes that this decision is within the judgment and discretion of Illinois EPA.

D. The Permit Application Includes All Required Information Relating to Quantifying Emissions of Particulate Matter from the Blast Furnace Casthouse Roof Monitor

In Attachment 1 to the draft denial letter, Illinois EPA correctly states that, among the procedures proposed by U. S. Steel in the permit application for demonstration of compliance with the proposed PM and PM_{10} emission caps, U. S. Steel proposed that emissions of these pollutants from the Blast Furnace Casthouse Roof Monitor be calculated using prescribed emission factors of 0.030 lb per ton of iron and 0.0153 lb per ton of iron, respectively. Each of these proposed emission factors is derived

from the pre-control PM emission factor of 0.6 lb per ton of iron published by U.S. EPA.[37] Specifically, the PM emission factor is based on an assumed 95% capture efficiency (*i.e.*, 5% of the pre-control emissions are emitted to atmosphere through the roof monitor; 5% × 0.6 = 0.030). The PM_{10} emission factor is based on an assumed particle size distribution where the PM_{10} emission rate is equal to 51% of the PM emission rate (51% × 0.030 = 0.0153), again based on data published by U.S. EPA.[38]

Illinois EPA then asserts that U. S. Steel's permit application is deficient as relating to these emission factors because the application "does not include relevant supporting information," "only references a single memorandum from 2019 by various USEPA staff and a consultant as support for achievement of 95 percent capture efficiency," and therefore does not demonstrate that the proposed emission factors would yield calculated emission rates that are representative of actual emissions from the Blast Furnace Casthouse Roof Monitor.

The assertion regarding a deficiency in the permit application is without merit. Illinois EPA does not identify any provision of the Illinois Environmental Protection Act or the Illinois Administrative Code requiring that a permit application include any particular supporting information, nor does the agency point to even an application form or guidance document suggesting that such documentation or additional explanation be provided. U. S. Steel's permit application includes all information required by the applicable permitting rules. Notably, the supporting information provided in the permit application regarding the emission factors at issue is more extensive than the documentation provided in the permit application submitted by National Steel Corporation in 1995 and accepted by Illinois EPA when issuing Permit No. 95010001 in 1996. The assumption of 95% capture efficiency for the blast furnace casthouse at Granite City Works has been consistently applied by Illinois EPA for many years.[39]

A brief recap of the history of U. S. Steel's approach with respect to this issue is in order. In the construction permit application submitted in March 2020, U. S. Steel proposed PM and PM_{10} emission factors of 0.031 lb per ton of iron and 0.0155 lb per ton of iron, respectively. These emission factors have been prescribed by Illinois EPA for this purpose for decades.[40] Among Illinois EPA's informal comments regarding that permit application submittal, Illinois EPA's permit application reviewer correctly pointed out that these historically assumed emission factors are slightly higher than the values that would result from correctly calculating the emission factors using Illinois EPA's historic assumptions of 0.6 lb per ton pre-control, 95% capture efficiency, and 51% PM_{10}:PM ratio. Illinois EPA's permit application reviewer also stated that the agency's records do not appear to contain an explanation for this discrepancy. Accordingly, the permit application reviewer suggested that U. S. Steel use the revised and corrected emission factors in the permit application supplement submitted in October 2022, which U. S. Steel did.

---

[37] *Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area Sources (AP-42)*, 4th Ed. U.S. EPA, Research Triangle Park, NC. Section 7.5, "Iron and Steel Production," Table 7.5-2, "Particulate Emission Factors for Iron and Steel Mills," May 1983.

[38] *Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area Sources (AP-42)*, 5th Ed. U.S. EPA, Research Triangle Park, NC. Section 7.5, "Iron and Steel Production," Table 7.5-2, "Size Specific Emission Factors," January 1995.

[39] *See, e.g.*, "Statement of Basis for the Planned Issuance of a Revised Clean Air Act Permit Program (CAAPP) Permit for: United States Steel Corporation, Granite City Works," Illinois EPA (Feb. 4, 2013) at 41.

[40] *See, e.g.*, Construction Permit No. 95090167 issued Sept. 15, 1995; Construction Permit No. 95010001 issued Jan. 25, 1996.

In light of Illinois EPA's repeated acceptance of and reliance on the assumption of 95% capture efficiency in numerous permitting actions over a period of nearly thirty years, including several permitting actions occurring prior to U. S. Steel's ownership of the facility, and in light of the informal suggestion by Illinois EPA's permit application reviewer to correct the emission factor calculations in the manner described above, U. S. Steel reasonably concluded that no further justification was needed as part of the permit application supplement submitted in October 2022. Of course, Illinois EPA retains authority to request additional information in conjunction with a construction permit application,[41] but that was not done here.

Alternatively, if Illinois EPA now believes there are insufficient data to quantify the capture efficiency of the state-of-the-art capture system employed at the blast furnace casthouse at Granite City Works, and that the fugitive emissions[42] from the Blast Furnace Casthouse Roof Monitor are therefore not quantifiable, then those emissions should be omitted from the analyses performed by Illinois EPA to determine whether the source obligation provisions apply in conjunction with the permit revisions requested by Illinois EPA. Fugitive emissions are counted for purposes of PSD and NNSR applicability determinations only to the extent that such emissions are quantifiable.[43]

E. The Permit Application Includes All Required Information Relating to Quantifying Emissions of Particulate Matter from the Slag Pits

In Attachment 1 to the draft denial letter, Illinois EPA correctly states that, among the procedures proposed by U. S. Steel in the permit application for demonstration of compliance with the proposed PM and PM_{10} emission caps, U. S. Steel proposed that emissions of these pollutants from the Slag Pits be calculated using a prescribed emission factor of 0.00417 lb per ton of hot metal.

Illinois EPA then asserts that U. S. Steel's permit application is deficient as relating to this emission factor because the application "does not include relevant supporting information" and therefore does not demonstrate that the proposed emission factor would yield calculated emission rates that are representative of actual emissions from the Slag Pits.

The assertion regarding a deficiency in the permit application is without merit. Illinois EPA does not identify any provision of the Illinois Environmental Protection Act or the Illinois Administrative Code

[41] *See, e.g.,* 35 Ill. Adm. Code Section 201.152 ("The Agency may adopt procedures that require data and information in addition to and in amplification of the matters specified in the first sentence of this Section, that are reasonably designed to determine compliance with this Chapter and ambient air quality standards, or that set forth the format by which all data and information shall be submitted.").

[42] Fugitive emissions are "those emissions which could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening." 40 CFR § 52.21(b)(20). The emissions capture systems serving the blast furnace casthouse satisfy the stringent requirements of 40 CFR part 63, subpart FFFFF, which reflects U.S. EPA's determination of the maximum degree of reduction in emissions that is achievable for these operations. 42 U.S.C. § 7412(d)(2). It is indisputable that these capture systems reflect the state of the art and that, to the extent there are any uncaptured emissions of PM_{10} or PM, those emissions could not reasonably be captured or controlled and thus are fugitive emissions.

[43] *See, e.g.,* 40 CFR § 52.21(i)(4)(vii)(exempting a project from PSD permitting requirements if it would be major "only if fugitive emissions, to the extent quantifiable, are considered" and it would occur at a source that is not in a listed source category); *see, also,* 45 *Fed. Reg.* 52676 at 52692 (Aug. 7, 1980)(EPA explains that it is declining to extend the exemption the exemption at § 52.21(i)(4)(vii) to the listed source categories, such as iron and steel mills, but stated, "EPA emphasizes, however, that fugitive emissions from a source in one of the listed categories will only be included in threshold calculations 'to the extent quantifiable'").

requiring that a permit application include any particular supporting information, nor does the agency point to even an application form or guidance document suggesting that such documentation or additional explanation be provided. U. S. Steel's permit application includes all information required by the applicable permitting rules. Notably, the supporting information provided in the permit application regarding the emission factor at issue is more extensive than the documentation provided in the permit application submitted by National Steel Corporation in 1995 and accepted by Illinois EPA when issuing Permit No. 95010001 in 1996. The emission factor of 0.00417 lb per ton for the Slag Pits at Granite City Works has been consistently applied by Illinois EPA for decades.[44] The summary of the derivation of that factor as provided by U. S. Steel in the permit application is simply a paraphrasing of Illinois EPA's description.[45]

In light of Illinois EPA's repeated acceptance of and reliance on this emission factor in numerous permitting actions over a period of nearly thirty years, including several permitting actions occurring prior to U. S. Steel's ownership of the facility, U. S. Steel reasonably concluded that no further justification was needed as part of the permit application supplement submitted in October 2022. Of course, Illinois EPA retains authority to request additional information in conjunction with a construction permit application,[46] but that was not done here.

F. The Permit Application Includes All Required Information Relating to Quantifying Emissions of Particulate Matter from the Continuous Casting Operation

In Attachment 1 to the draft denial letter, Illinois EPA correctly states that, among the procedures proposed by U. S. Steel in the permit application for demonstration of compliance with the proposed PM and PM_{10} emission caps, U. S. Steel proposed that emissions of these pollutants from the Caster Mold, Slab Cutoff, and Slab Ripping operations be calculated using prescribed emission factors.

Illinois EPA then asserts that U. S. Steel's permit application is deficient as relating to these emission factors because the application does not supporting information "sufficient to show that the emission factors that are proposed as prescribed factors are representative."

The assertion regarding a deficiency in the permit application is without merit. Illinois EPA does not identify any provision of the Illinois Environmental Protection Act or the Illinois Administrative Code requiring that a permit application include any particular supporting information, nor does the agency point to even an application form or guidance document suggesting that such documentation or

---

[44] *See, e.g.*, Construction Permit No. 95090167 issued Sept. 15, 1995; Construction Permit No. 95010001 issued Jan. 25, 1996.

[45] *See, e.g.*, "Statement of Basis for the Planned Issuance of a Revised Clean Air Act Permit Program (CAAPP) Permit for: United States Steel Corporation, Granite City Works," Illinois EPA (Feb. 4, 2013) at 42, stating as follows:

> Emission Factor: 0.00417 lbs/ton of iron
> Origin of EF: Calculated from EPA Assessment of Atmospheric Emissions from Quenching of Blast Furnace Slag. Also, AP-42, Table 13.2.4-4, Fugitive Uncontrolled emissions.
> Summation of the following emission factors:
> a. Slag Quenching = 0.0026 lbs/ton iron,
> b. Slag Digging = 0.00157 lbs/ton iron.

[46] *See, e.g.*, 35 Ill. Adm. Code Section 201.152 ("The Agency may adopt procedures that require data and information in addition to and in amplification of the matters specified in the first sentence of this Section, that are reasonably designed to determine compliance with this Chapter and ambient air quality standards, or that set forth the format by which all data and information shall be submitted.").

additional explanation be provided. U. S. Steel's permit application includes all information required by the applicable permitting rules. Notably, the supporting information provided in the permit application regarding the emission factors at issue is more extensive than the documentation provided in the permit application submitted by National Steel Corporation in 1995 and accepted by Illinois EPA when issuing Permit No. 95010001 in 1996. These PM/PM_{10} emission factors for the continuous casting operation at Granite City Works have been consistently prescribed by Illinois EPA for this purpose for many years.[47]

In light of Illinois EPA's repeated acceptance of and reliance on these emission factors in numerous permitting actions over a period of nearly thirty years, including several permitting actions occurring prior to U. S. Steel's ownership of the facility, U. S. Steel reasonably concluded that no further justification was needed as part of the permit application submitted in March 2020 or the permit application supplement submitted in October 2022. Of course, Illinois EPA retains authority to request additional information in conjunction with a construction permit application,[48] but that was not done here.

G. The Permit Application Includes All Required Information Relating to Quantifying Emissions of Particulate Matter from the Iron Pellet Screen

In Attachment 1 to the draft denial letter, Illinois EPA correctly states that, among the procedures proposed by U. S. Steel in the permit application for demonstration of compliance with the proposed PM and PM_{10} emission caps, U. S. Steel proposed that emissions of these pollutants from the Iron Pellet Screen be calculated using a prescribed emission factor of 0.00131 lb per ton of material. As explained in the permit application, the proposed emission factor is derived from the PM_{10} emission factor of 0.0087 lb per ton of material published by U.S. EPA for crushed stone screening,[49] with application of an 85% control efficiency. Specifically, the PM emission factor is based on an assumed 95% capture efficiency (*i.e.*, 5% of the pre-control emissions are emitted to atmosphere through the roof monitor; 5% × 0.6 = 0.030).

Illinois EPA then asserts that U. S. Steel's permit application is deficient as relating to this emission factor because the application "does not include relevant supporting information," particularly with respect to the proposal to use an emission factor for PM derived from an emission factor published by U.S. EPA for PM_{10}, and therefore does not demonstrate that the proposed emission factor would yield calculated emission rates that are representative of actual emissions from the Iron Pellet Screen.

---

[47] *See, e.g.,* "Statement of Basis for the Planned Issuance of a Revised Clean Air Act Permit Program (CAAPP) Permit for: United States Steel Corporation, Granite City Works," Illinois EPA (Feb. 4, 2013) at 47; Construction Permit No. 95090167 issued Sept. 15, 1995; Construction Permit No. 95010001 issued Jan. 25, 1996.

[48] *See, e.g.,* 35 Ill. Adm. Code Section 201.152 ("The Agency may adopt procedures that require data and information in addition to and in amplification of the matters specified in the first sentence of this Section, that are reasonably designed to determine compliance with this Chapter and ambient air quality standards, or that set forth the format by which all data and information shall be submitted.").

[49] *Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area Sources (AP-42),* 5th Ed. U.S. EPA, Research Triangle Park, NC. Section 11.19.2, "Crushed Stone Processing and Pulverized Mineral Processing," Table 11.19.2-2, "Emission Factors for Crushed Stone Processing Operations," updated Aug. 2004. A control efficiency of 85% was applied for this operation 7.5, "Iron and Steel Production," Table 7.5-2, "Particulate Emission Factors for Iron and Steel Mills," May 1983.

The listing of the PM_{10}-derived emission factor as the proposed, prescribed factor for PM emissions was a scrivener's error in the permit application; U. S. Steel's intent was to propose that Illinois EPA prescribe use of the corresponding PM emission factor of 0.00375 lb per ton of material as shown in Table 5-5 of the permit application supplement submitted in October 2022. Nonetheless, the assertion regarding a deficiency in the permit application is without merit. Illinois EPA does not identify any provision of the Illinois Environmental Protection Act or the Illinois Administrative Code requiring that a permit application include any proposed emission quantification methods for fugitive emissions, nor does the agency point to even an application form or guidance document suggesting that such a proposal be provided. U. S. Steel's permit application includes all information required by the applicable permitting rules. It is the responsibility of Illinois EPA to draft a permit with conditions it judges to be suitable and appropriate, including recordkeeping requirements and other compliance demonstration methods; the permit applicant has no obligation to reflect in the permit application a correct guess as to how the permitting authority will exercise its judgment regarding these matters.

H. The Permit Application Includes All Required Information Relating to Quantifying Emissions of Particulate Matter from the Mag Lime Silo

In Attachment 1 to the draft denial letter, Illinois EPA correctly states that U. S. Steel proposed in the permit application that emissions of PM and PM_{10} from the Mag Lime Silo be included in the permit conditions relating to demonstration of compliance with the proposed PM and PM_{10} emission caps, and further proposed that emissions of these pollutants from the Mag Lime Silo be calculated using a prescribed emission rate of 0.009 lb per hour.

Illinois EPA then asserts that U. S. Steel's permit application is deficient as relating to this emission factor because the application does not include supporting information demonstrating that the proposed emission rate of 0.009 lb per hour is representative of actual emissions from the Mag Lime Silo.

The assertion regarding a deficiency in the permit application is without merit. Illinois EPA does not identify any provision of the Illinois Environmental Protection Act or the Illinois Administrative Code requiring that a permit application include any proposed compliance demonstration methods, nor does the agency point to even an application form or guidance document suggesting that such a proposal be provided. U. S. Steel's permit application includes all information required by the applicable permitting rules. It is the responsibility of Illinois EPA to draft a permit with conditions it judges to be suitable and appropriate, including recordkeeping requirements and other compliance demonstration methods; the permit applicant has no obligation to reflect in the permit application a correct guess as to how the permitting authority will exercise its judgment regarding these matters. Here, it is noteworthy that U. S. Steel voluntarily proposed that emissions from the Mag Lime Silo be subject to limits where it had no obligation to do so. Illinois EPA's proposed denial of the permit application will simply ensure the status quo is maintained, *i.e.,* that U. S. Steel is not subject to any limitations on emissions from this emissions unit.

I. The Permit Application Includes All Required Information Relating to Quantifying Emissions of Particulate Matter from the Basic Oxygen Furnace Shop Roof Monitor

In Attachment 1 to the draft denial letter, Illinois EPA correctly states that, among the procedures proposed by U. S. Steel in the permit application for demonstration of compliance with the proposed PM and PM_{10} emission caps, U. S. Steel proposed that emissions of these pollutants from the Basic Oxygen Furnace Shop Roof Monitor be calculated using prescribed emission factors that are lower than the emission factors used by National Steel Corporation in the permit application submitted in 1995 and by Illinois EPA in the permit issued in 1996. Illinois EPA characterizes U. S. Steel's proposal as follows:

> For PM, an emission factor of 0.01986 pounds/ton is proposed as a prescribed factor, compared to the current emission factor limit of 0.0987 pounds/ton; for filterable PM_{10}, an emission factor of 0.0296 pounds/ton is proposed, compared to the current emission factor limit of 0.06614 pounds/ton.

This misstates U. S. Steel's proposal as presented in Section 5.5.2.2 of the permit application:

> For BOF Shop Roof Monitor, use PM emission factor of 0.0296 lb/ton and filterable PM10 emission factor of 0.0198 lb/ton.

Illinois EPA's mischaracterization of U. S. Steel's proposed emission factors for the Basic Oxygen Furnace Shop Roof Monitor is likely a scrivener's error in Attachment 1 to the draft denial letter.

Illinois EPA acknowledges in Attachment 1 to the draft denial letter that the emission factors proposed by U. S. Steel are representative of the current configuration of the Basic Oxygen Furnace Shop, but then asserts that U. S. Steel's permit application is deficient as relating to these emission factors because "those prescribed factors would not be representative of emissions before the new baghouse system was installed" and further asserts that "particulate emissions factors that are representative of particulate emissions circa 1996, before installation of the baghouse system on the furnaces, should be used in the revised netting analyses for PM and PM_{10}."

These assertions are without merit. Although this information may be relevant to an evaluation of whether the Production Increase Project as authorized by Illinois EPA and as implemented by National Steel Corporation prior to U. S. Steel's ownership was a major modification subject to the substantive requirements of the PSD and NNSR programs, it is not relevant to the "source obligation" analysis and demonstration that are required here. As discussed in Section VIII.B above, these analyses are prospective, not retrospective; there is no consideration of facts as they may have existed at some prior point in time and no "mixing" of facts from different points in time.

J. The Permit Application Includes Adequate Explanation of Projected Post-Project Actual Emissions from Fuel Combustion Units and Does Not Diminish Illinois EPA's Authority to Impose Enforceable Limits

In Attachment 1 to the draft denial letter, Illinois EPA states that the permit application represents the maximum total post-project actual NO_X emissions from certain fuel combustion units affected by the

Production Increase Project will be 706 tons per year and that the application also requests elimination of the gaseous fuel usage limits for these units. These statements are correct.

Illinois EPA then asserts that the permit application is deficient because it "does not explain why actual NO_X emissions of the subject units would not exceed this amount going forward if the permit were revised" as proposed. This assertion is without merit. The explanation is provided in Table 6-7 of the permit application supplement submitted in October 2022: The maximum potential emissions of the affected fuel combustion units are less than 706 tons NO_X per year.

Illinois EPA further asserts as follows:

> While the limits for fuel usage and emissions currently in Permit 95010001 may no longer be relevant, as generally addressed above, this does not mean that other limits for fuel usage and emissions are not appropriate. In this regard, the 2022 application does not show that new limits for fuel usage and emissions would not now be needed and those limits should address fuel burning units other than the Project-affected units currently addressed by the permit. In this regard, limits for usage of fuels and emissions should not extend to Boilers 1 through 10, as they are no longer in operation, having been shut down a number of years before the coke oven batteries were shutdown. As the four slab reheat furnaces at the facility were affected by the elimination of COG, new limits may be needed that also extend to these furnaces. It may also be appropriate for the cogeneration boiler to be addressed by the new limits as this boiler began operation several years before the by-product coke oven batteries at the facility were shutdown. (Internal footnote omitted.)

A brief recap of the history of U. S. Steel's approach with respect to this issue is in order. In the construction permit application submitted in March 2020, U. S. Steel expressly requested enforceable emission caps for emissions of NO_X and other pollutants from the fuel combustion units affected by the Production Increase Project and provided emission calculations supporting these proposed emission caps. Among Illinois EPA's informal comments regarding that permit application submittal, Illinois EPA's permit application reviewer correctly pointed out that enforceable emission caps are superfluous and unnecessary where the maximum potential emissions of the affected unit or units is less than or equal to the emission caps under consideration. Accordingly, in the permit application supplement submitted in October 2022, U. S. Steel omitted the express request for enforceable emission caps for the affected fuel combustion units.

Notwithstanding this history, it remains the responsibility of Illinois EPA to draft a permit with conditions it judges to be suitable and appropriate. If Illinois EPA is not persuaded that the future actual emissions from the fuel combustion units affected by the Production Increase Project will be less than or equal to the values represented in the permit application in the absence of enforceable limits on fuel usage in, or an enforceable emission caps for, these units, then the agency undisputedly has the discretion and authority to impose such limits in the permit. The permit applicant has no obligation to reflect in the permit application a correct guess as to how the permitting authority will exercise its judgment regarding these matters. That should be especially true where, as here, the agency conveys its preliminary judgment, the applicant revises its permit application to be consistent with that representation, and then the agency vacillates.

With regard to Illinois EPA's suggestion that the limits the agency is now considering may need to "address fuel burning units other than the Project-affected units currently addressed by the permit,"

such as the slab reheat furnaces and cogeneration boiler at the Granite City Works, U. S. Steel disagrees that such limits would be appropriate. As these emissions units were not among the units affected by the Production Increase Project, the emissions from these units are not relevant to the "source obligation" analysis and demonstration that are required here, as discussed in Section VIII.B above.

XIII. THE PERMIT APPLICATION INCLUDES ALL INFORMATION NECESSARY FOR INTEGRATED PROCESSING UNDER THE CAAPP OR, IN THE ALTERNATIVE, ANY DEFICIENCIES DO NOT FORM A BASIS FOR DENYING THE CONSTRUCTION PERMIT APPLICATION

A. Claimed Deficiencies in the Permit Application As Related to Integrated Processing Under the CAAPP Do Not Form a Basis for Denying the Construction Permit Application

As correctly noted by Illinois EPA in the draft denial letter, U. S. Steel requested that the revised construction permit be subjected to "integrated processing," as provided by subsections 39.5(13)(a) and (c)(v) of the Illinois Environmental Protection Act, which would allow the changes to Permit No. 95010001 to be incorporated into the facility's CAAPP permit using the administrative amendment process.

Numerous purported deficiencies in the permit application listed by Illinois EPA in Attachment 1 to the draft denial letter are claimed to be deficient only because of the request for integrated processing. U. S. Steel generally does not agree with Illinois EPA regarding these claimed deficiencies, as discussed in Sections XIII.B through XIII.I below. In addition, U. S. Steel emphasizes that none of these issues would form a valid basis for denying the construction permit application; even if Illinois EPA were correct that these deficiencies would prevent the use of integrated processing, that would only provide a valid basis for denial of the request for integrated processing of the revised construction permit and associated revisions of the CAAPP permit.

B. The Permit Application Includes All Necessary Information Relating to General Provisions in the CAAPP Permit Governing Selection of Emission Factors

In Attachment 1 to the draft denial letter, Illinois EPA states that Permit No. 95010001 does not specify how emissions are to be quantified for purposes of demonstrating compliance with the permitted emission caps and that, in the absence of such compliance demonstration requirements, Illinois EPA imposed monitoring and recordkeeping requirements in the facility's CAAPP permit sufficient to assure compliance with applicable emission limits as required by subsection 39.5(7)(p) of the Illinois Environmental Protection Act. These statements are correct.

Illinois EPA then asserts that the pending permit application does not request revisions to Permit No. 95010001 "that would enable revisions to the CAAPP permit for the Granite City Works, Permit 96030056, to be made by administrative amendment." This assertion is incorrect. U. S. Steel requested that the construction permit be subjected to "integrated processing," which requires that Illinois EPA process the permit application and draft the permit using a program that "meets procedural and compliance requirements substantially equivalent to those" imposed in the CAAPP program. Although this request was stated generally, and the permit application did not specify with precision the monitoring and recordkeeping requirements to be imposed in the revised construction permit and the amended CAAPP permit, that approach is appropriate: It is the responsibility of Illinois

EPA to draft a permit with conditions it judges to be suitable and appropriate; the permit applicant has no obligation to reflect in the permit application a correct guess as to how the permitting authority will exercise its judgment regarding these matters. Inherently subsumed in a request for integrated processing is an implied request that Illinois EPA satisfy its mandate to draft a permit or permit revision that includes the minimum elements of a CAAPP permit—including monitoring, reporting, and recordkeeping requirements sufficient to assure compliance with applicable emission limits—and to remove or revise conflicting or redundant permit terms.

C. The Permit Application Includes All Required Information In Conjunction with the Request for Changes to Emission Point Naming

In Attachment 1 to the draft denial letter, Illinois EPA states that, in the permit application, U. S. Steel requested that the emission point currently identified as "Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy)" in Permit No. 95010001 be renamed and identified as "Baghouse 2 for Argon Stirring and Ladle Metallurgy Facility." This statement is correct.

Illinois EPA then asserts that, for the following reasons, the pending permit application is deficient.

> However, the application does not actually identify the specific units that would be addressed by the proposed new term. In this regard, the application is not accompanied by an itemized list of the equipment and activities that would be covered by this new term or a diagram that identifies this equipment and activities. US Steel's request also does not explain how the requested revision to Permit 95010001 would do what has generally been requested as the proposed new term would refer to a "Material Handling Tripper." As the 2022 application requests changes to terminology in Permit 95010001, the changes should act to better identify the emissions units that would be addressed, improving the specificity and clarity of the revised permit.[51, 52]
>
> [51] For example, the proposed new term would not make clear that the basic oxygen furnace shop actually has two ladle stirring stations and one ladle metallurgy furnace, all served by Baghouse 2.
>
> [52] The requested change to the terminology for these emissions unit(s) is also problematic as it would refer to a control device, Baghouse 2, rather than to the equipment or activities that generate emissions. Applied literally, the proposed term would only address captured emissions; it would not address the uncaptured emissions, which elude capture for control by the baghouse.

This assertion is without merit. As an initial matter, U. S. Steel has not characterized the listed item as an emissions unit, regardless of naming convention. It is an emission point, and that is how U. S. Steel correctly characterized it in the permit application. The only condition in Permit No. 95010001 that applies to this emission point is a particulate matter emission limit of 12.8 tons per year, which applies solely to the emission point and not separately to "the equipment or activities that generate emissions." Any uncaptured emissions from that equipment or activities are routed to atmosphere through the Basic Oxygen Furnace Shop Roof Monitor. Those emissions are subject to the separate emission limits for the item referenced as "BOF Roof Monitor." This is consistent with the overall structure of Permit No. 95010001, which was issued by Illinois EPA many years prior to U. S. Steel's ownership, in which the emission limits for non-fugitive emissions are applicable to emission points (e.g., "Casthouse Baghouse," "Iron Spout Baghouse," "BOF ESP Stack") rather than emissions units.

A similar change to the item naming was effected by Illinois EPA in 2013 when issuing the CAAPP permit for the Granite City Works, where the agency referred to this emission point (i.e., the item to which the particulate matter emission limit of 12.8 tons per year is applicable) as "Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy Baghouse #2)."[50]

The "list of the equipment and activities that would be covered by this new term" – *i.e.*, Baghouse 2 for Argon Stirring and Ladle Metallurgy Facility – is precisely the same as the list of the equipment and activities that are currently covered by the term "Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy)" as used in Permit No. 95010001 and by the term "Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy Baghouse #2)" in the facility's CAAPP permit. U. S. Steel reasonably concluded that Illinois EPA would understand this fact because the permit application requested and enumerated only discrete changes to Permit No. 95010001, none of which related to reconfiguring the equipment and activities venting to this emission point. Illinois EPA does not identify any provision of the Illinois Environmental Protection Act or the Illinois Administrative Code requiring that a straightforward request for revision of the name of an emission point be accompanied by a list of the equipment and activities venting to that emission point, nor does the agency point to even an application form or guidance document suggesting that such information be provided. Of course, Illinois EPA retains authority to request additional documentation in conjunction with a construction permit application,[51] but that was not done here.

Notwithstanding all of the above, it remains the responsibility of Illinois EPA to draft a permit with conditions it judges to be suitable and appropriate. If Illinois EPA wishes to revise the permit to "improv[e] the specificity and clarity of the revised permit better" or to "identify the emissions units that would be addressed" by a particular emission limit, Illinois EPA has the discretion and authority to make such revisions. The permit applicant has no obligation to reflect in the permit application a correct guess as to how the permitting authority will exercise its judgment regarding these matters.

D. The Permit Application Includes All Required Information Relating to the Steel Slag Removal Station and the Handling Operation for Raw Materials Used in Ladle Metallurgy

In Attachment 1 to the draft denial letter, Illinois EPA states that, in the permit application, U. S. Steel "does not request any revisions to Permit 95010001 with respect to the Deslagging Station and Material HS." Although U. S. Steel did not request any permit revisions with respect to this item that it considers to be substantive, the absolute statement is incorrect, as U. S. Steel indicated in the permit application that this item should be renamed as "Baghouse 1 for Material Handling." This revision was suggested by U. S. Steel for two reasons: First, renaming this item based on the emission point rather than the emitting activity is more consistent with the naming convention generally used in Permit No. 95010001, as discussed in Section XIII.C above. Second, the historical naming of this item is misleading, as this baghouse does not serve to control emissions from any slag removal operation; the steel slag removal station at Granite City Works is not served by any capture system or baghouse.

[50] *See,* CAAPP Permit No. 96030056 at Condition 7.5.6.g.
[51] *See, e.g.*, 35 Ill. Adm. Code Section 201.152 ("The Agency may adopt procedures that require data and information in addition to and in amplification of the matters specified in the first sentence of this Section, that are reasonably designed to determine compliance with this Chapter and ambient air quality standards, or that set forth the format by which all data and information shall be submitted.").

The requested renaming is consistent with the approach taken by Illinois EPA in Attachment 3 of the CAAPP for the facility, which refers to this item as “Baghouse #1.”

Illinois EPA then asserts that the pending permit application is deficient in two respects relating to the steel slag removal station (i.e., the activity identified as “deslagging station” in historical permitting documents). This assertion is without merit as discussed below.

First, Illinois EPA states that the permit application “does not explain why this steel deslagging operation should not appropriately be categorized as slag skimming and addressed with the other slag skimming operations in the basic oxygen furnace shop.” U. S. Steel has claimed neither that the steel slag removal station should not appropriately be categorized as slag skimming nor that it should not be addressed with the other slag skimming operations in the basic oxygen furnace shop. Plainly, U. S. Steel was under no obligation to offer, as part of the permit application or otherwise, a justification for a claim that it was not making.

Second, Illinois EPA states that the permit application “does not request revisions to Permit 95010001 to facilitate amendment of the CAAPP permit to appropriately address the emissions of this deslagging station and the associated material handling system.” Illinois EPA does not identify any provision of the Illinois Environmental Protection Act or the Illinois Administrative Code requiring that any application for a construction permit revision, even one for which integrated processing is requested, include a request for revisions “to facilitate amendment of the CAAPP permit” for the facility. It is the responsibility of Illinois EPA to draft both a construction permit and a CAAPP permit with conditions it judges to be suitable and appropriate. The permit applicant has no obligation to reflect in the permit application a correct guess as to what revisions to one permit would be viewed by the permitting authority as facilitating revisions to another permit.

E. The Permit Application Includes All Required Information Relating to the Ladle Drying Preheaters

In Attachment 1 to the draft denial letter, with respect to the Ladle Drying Preheaters, Illinois EPA states that the permit application is deficient because U. S. Steel “does not request any changes to Permit 95010001 to maintain consistency with the approach to these units in the CAAPP permit.”

This assertion is without merit. Illinois EPA does not identify any provision of the Illinois Environmental Protection Act or the Illinois Administrative Code requiring that any application for a construction permit revision, even one for which integrated processing is requested, include a request for revisions “to maintain consistency with the approach to these units in the CAAPP permit” for the facility. It is the responsibility of Illinois EPA to draft both a construction permit and a CAAPP permit with conditions it judges to be suitable and appropriate. The permit applicant has no obligation to reflect in the permit application a correct guess as to what revisions to one permit would be viewed by the permitting authority as maintaining consistency with another permit.

F. The Permit Application Includes All Required Information Relating to Identification of the CAAPP Permit to be Administratively Amended Following Integrated Processing of the Construction Permit Application

In Attachment 1 to the draft denial letter, Illinois EPA states that the permit application is deficient because it "does not identify the version of the Clean Air Act Permit Program (CAAPP) permit for the Granite City Works, Permit 96030056, that would be eligible for administrative amendment" under the integrated processing provisions. Relatedly, Illinois EPA asserts that U. S. Steel "has not initiated action for the Illinois EPA to actually issue an amended CAAPP permit with changes as authorized by Permit 11050006."

These assertions are without merit. Illinois EPA does not identify any provision of the Illinois Environmental Protection Act or the Illinois Administrative Code requiring that any application for a construction permit revision, even one for which integrated processing is requested, specify the "version" of the CAAPP permit for the facility that should be amended. It is solely the responsibility of Illinois EPA to make revisions and amendments to CAAPP permits in conformance with applicable rules and laws.

Regarding whether U. S. Steel has initiated the process of incorporating the provisions of Permit No. 11050006 into the facility's CAAPP permit, U. S. Steel responds further as follows: In November 2013, U. S. Steel submitted an application to renew the CAAPP permit for Granite City Works. In this permit application, U. S. Steel expressly requested that Illinois EPA incorporate the conditions of Permit No. 11050006 into the CAAPP permit and noted that "the Basic Oxygen Furnace process described in the CAAPP permit condition 7.5 needs to be updated with the new secondary baghouse added as part of the Emission Reduction Project (Construction Permit No. 11050006)."[52] That application was deemed complete by operation of law in January 2014.[53] Illinois EPA retains authority to request additional information in conjunction with a CAAPP permit application,[54] but the agency has not done so.

G. The Permit Application Includes All Required Information Relating to the Relationship Between Fugitive Dust Control Measures Required by Permit No. 95010001 and Requirements of 35 Ill. Adm. Code Part 212

In Attachment 1 to the draft denial letter, Illinois EPA states that the permit application is deficient because it "does not make clear the relationship between these requirements established by permit [relating to emissions of fugitive dust from roadways, parking areas, and open access areas] and state regulatory requirements for fugitive emissions in 35 IAC Part 212 Subpart K."

This assertion is without merit. Illinois EPA does not identify any provision of the Illinois Environmental Protection Act or the Illinois Administrative Code requiring that any application for a construction permit revision, even one for which integrated processing is requested, specify the relationship between existing permit terms and applicable rule requirements. It is the responsibility of

[52] *See*, CAAPP permit renewal application at pp. 2-1 and 4-1.
[53] *See*, subsection 39.5(5)(f) of the Illinois Environmental Protection Act ("Unless the Agency notifies the applicant of incompleteness, within 60 days of receipt of the CAAPP application, the application shall be deemed complete.").
[54] *See*, subsection 39.5(5)(g) of the Illinois Environmental Protection Act ("If after the determination of completeness the Agency finds that additional information is necessary to evaluate or take final action on the CAAPP application, the Agency may request in writing such information from the source with a reasonable deadline for response.").

Illinois EPA to draft a permit with conditions it judges to be suitable and appropriate and in conformance with applicable rules and laws.

H. The Permit Application Includes All Required Information Relating to Applicable Provisions of 40 CFR Part 63 Subpart FFFFF

In Attachment 1 to the draft denial letter, Illinois EPA asserts that the permit application is deficient because it "does not address revisions to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Integrated Iron and Steel Manufacturing Facilities, 40 CFR 63 Subpart FFFFF, made by USEPA in July 2020." Relatedly, in Attachment 1, Illinois EPA makes the observation:

> These revisions to 40 CFR 63 Subpart FFFFF are relevant for Permit 95010001 and the revisions to this permit requested by the 2022 application. This is because Permit 95010001 relies on the applicable compliance procedures of 40 CFR 63 Subpart FFFFF (i.e., requirements for emission testing, opacity observations operational monitoring and recordkeeping), to verify consistent operation of the casthouse, the basic oxygen furnaces and other NESHAP-subject units and their emission controls, for the purposes of assuring compliance with the emission limits set by this permit for their emissions of particulate.

The assertion regarding a deficiency in the permit application is without merit. Illinois EPA does not identify any provision of the Illinois Environmental Protection Act or the Illinois Administrative Code requiring that any application for a construction permit revision, even one for which integrated processing is requested, include suggested bases upon which Illinois EPA might reopen the facility's CAAPP permit. It is solely the responsibility of Illinois EPA to reopen the CAAPP permit where the agency determines that the permit must be revised or revoked to assure compliance with all applicable requirements.[55]

U. S. Steel generally agrees with Illinois EPA's observation regarding the relevance of the NESHAP requirements and responds further as follows: The applicable requirements of the NESHAP as currently codified are legally enforceable, and the monitoring, testing, recordkeeping, and work practice requirements of that rule provide a sound technical basis for demonstration of compliance with particulate matter emission limits, regardless of whether Illinois EPA satisfies the mandate to reopen the CAAPP permit where such reopening is required to assure compliance with all regulatory requirements.

I. The Permit Application Includes All Required Information Relating to Equipment that is Listed in the CAAPP Permit and Has Been Permanently Shut Down

In Attachment 1 to the draft denial letter, Illinois EPA asserts that the permit application is deficient because it "does not identify changes to the CAAPP permit for the Granite City Works, Permit 96030056, that are a consequence of permanent shut down of emissions units" and further asserts that "[t]he responsibility to identify provisions in the CAAPP permit that should not be carried forward initially falls on US Steel as it is the CAAPP Permittee for the Granite City Works."

[55] *See*, subsection 39.5(15)(a)(iv) of the Illinois Environmental Protection Act.

These assertions are without merit. Illinois EPA does not identify any provision of the Illinois Environmental Protection Act or the Illinois Administrative Code requiring that any application for a construction permit revision, even one for which integrated processing is requested, request changes to the facility's CAAPP permit other than those directly resulting from the requested revisions of the underlying construction permit. It is the responsibility of Illinois EPA to draft a permit with conditions it judges to be suitable and appropriate and in conformance with applicable rules and laws.

The pending permit application was submitted for the narrow and specific purpose of addressing the outstanding appeal items and the underlying PSD and NNSR applicability evaluations relating to the Production Increase Project implemented by National Steel Corporation. This application was not intended to address changes that are not directly relevant to that purpose.

In November 2013, U. S. Steel submitted an application to renew the CAAPP permit for Granite City Works. That application was deemed complete by operation of law in January 2014.[56] Illinois EPA retains authority to request additional information in conjunction with the CAAPP permit application,[57] but the agency has not done so.

[56] *See*, subsection 39.5(5)(f) of the Illinois Environmental Protection Act ("Unless the Agency notifies the applicant of incompleteness, within 60 days of receipt of the CAAPP application, the application shall be deemed complete.").
[57] *See*, subsection 39.5(5)(g) of the Illinois Environmental Protection Act ("If after the determination of completeness the Agency finds that additional information is necessary to evaluate or take final action on the CAAPP application, the Agency may request in writing such information from the source with a reasonable deadline for response.").

7018 3090 0000 8995 4975

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at *www.usps.com®*.

Springfield IL 62794

OFFICIAL USE

Certified Mail Fee $4.35	0172
$ $0.00	
Extra Services & Fees (check box, add fee as appropriate) $0.00	
☐ Return Receipt (hardcopy) $ $0.00	
☐ Return Receipt (electronic) $ $0.00	Postmark Here
☐ Certified Mail Restricted Delivery $ $0.00	
☐ Adult Signature Required $ $0.00	
☐ Adult Signature Restricted Delivery $	
Postage $2.79	
$	01/08/2024
Total Postage and Fees $7.14	
$	

Sent To Brad Frost, IL EPA
Street and Apt. No., or PO Box No. P.O. Box 19506
City, State, ZIP+4® Springfield, IL 62794

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 · (217) 782-3397
JB PRITZKER, GOVERNOR JOHN J. KIM, DIRECTOR

217/785-1705 CERTIFIED MAIL

DENIAL OF AN APPLICATION FOR REVISIONS TO A CONSTRUCTION PERMIT/PSD APPROVAL[1] (REVISED DRAFT[2])

(Draft December 2023)

U.S. Steel Granite City
Attn: Krista Armentrout – Environmental Manager
1951 State Street
Granite City, Illinois 62040

Permit/Application No.: 95010001 I. D. No.: 119813AAI
Date Permit Originally Issued: January 25, 1996
Date Application for Revisions Received: October 7, 2022
Subject of Permit: Production Increase
Location: Granite City Works, Southeastern Granite City

The Illinois EPA has reviewed your above referenced application for revisions to the above-referenced construction permit/Prevention of Significant Deterioration (PSD) approval (Permit 95010001) issued for the above referenced project. The permit application is DENIED because, if a revision to Permit 95010001 were issued as requested by this application, it might violate various Sections of the Illinois Environmental Protection Act (Act) and various p*rovisions* in Illinois' regulation pursuant to the Act. The Sections of the Act that might be violated include Sections 9(a), 9(b)(2), 9.1(d), 39(a), 39.5(5)(e), 39.5(7)(a), 39.5(5)(i), 39.5(10)(a)(iv) and 39.5(13)(c)(v). The provisions of the relevant Illinois regulations, i.e., Subtitle B of Title 35 of the Illinois Administrative Code (IAC), that might be violated include 35 IAC 201.152, 201.159, 201.160(a), 203.123, 203.128, 203.201,. 203.203(b), 203.208, 203.301, 203.302, 204.280, 204.330, 204.400, 204.550, 204.560. 204.810, 204.1100(c), 204,1110, 204.1130 and 270.401(f).

The specific Sections of the Act and the specific provisions of the Illinois Administrative Code that may not be met if Permit 95010001 were to be revised as requested by this application are detailed in the Listing of Denial Points, Attachment 1 of this permit denial. For each Denial Point, Attachment 1 also describes the information that this application did not provide and the specific reasons why the Act and might be violated if a revised permit were issued as requested, with accompanying explanation and discussion.

[1.] In this application, US Steel requests that the revision of Permit 95010001 be processed with "Integrated Processing," as is provided for by Sections 39.5(13)(a) and (c)(v) of the Act. Integrated Processing would allow changes to the Clean Air Act Permit Program (CAAPP) permit for the Granite City Works, as would be set forth in the revised permit, to subsequently be made by means of an Administrative Amendment of the CAAPP permit.

[2.] This revised draft denial letter takes the place of the initial draft denial letter, which was made available for public review and comment beginning in July 2023. This revised denial letter more clearly sets forth the specific laws, rules and reasons that would be the basis for the Illinois EPA's proposed denial of this application.

(This footnote would not be included later in any denial that would be issued by the Illinois EPA.)

This permit denial has two appendices. Appendix A lists the various sections of the Act that are cited in Attachment 1 as the statutory basis for this denial letter, with description and, in some cases, general explanation why the section might be violated if Permit 95010001 were to be revised as requested by this application. Appendix B lists the various provisions in Subtitle B of Title 35 of the Illinois Administrative Code that are cited in Attachment 1 as the regulatory basis for this denial letter, with description and, in some cases, general explanation why the provision might be violated if Permit 95010001 were to be revised as requested by this application.

Before taking action to deny the above-referenced application, the Illinois EPA held a public comment permit on a draft of a proposed permit denial letter in accordance with 35 IAC Part 252, as provided for by 35 IAC 252.105(b).

If you have any questions on the denial of this application, please call Jason Schnepp or Minesh Patel at 217/785-1705.

William D. Marr
Manager, Permit Section
Bureau of Air

WDM:mvp:tan

U.S. Steel Granite City (I. D. No. 119813AAI)
Permit/Application No. 95010001
Application for Revisions to the Permit Received on October 7, 2022
Draft of Permit Denial Letter December 2023

ATTACHMENT 1: LISTING OF DENIAL POINTS

1. THE REVISED NETTING ANALYSIS FOR THE PROJECT FOR NITROGEN OXIDES (NOx) DOES NOT FULFILL RELEVANT REQUIREMENTS OF NEW SOURCE REVIEW (NSR) FOR SUCH ANALYSES

Overview of This Denial Point, with Information As Required or Specified by Section 39(a) of the Act for Denial of a Permit

1. *The Sections of the Act which may be violated if a revised permit were granted as requested:* Sections 9(a), 9.1(d) and 39(a)*. (Note: The significance of asterisks that accompany certain Sections of the Act is explained in Appendix A.)

2. *The provision of the regulations under the Act which may be violated if the revised permit were granted as requested:* 35 Illinois Administrative Code (IAC) 201.160(a), 203.201, 203.203(b), 203.208**, 203.301, 203.302, 204.550**, 204.810, 204.1100(c), 204.1110 and 204.1130. (Note: The significance of asterisks that accompany certain provisions of the Illinois Administrative Code is explained in Appendix B.)

3. *The specific type of information, if any, which the Agency deems the applicant did not provide the Agency:* The 2022 application does not show that the Production Increase Project (Project) would still not be a major modification for emissions of nitrogen oxides (NOx) for purposes of New Source Review (NSR) with the increases in NOx emissions that are requested to address errors in the initial permitting of the Project. In particular, the application requests an increase in the permitted NOX emissions of the basic oxygen furnaces (BOFs) of more than 200 tons/year. The netting analysis for NOx in the application, which addresses the Project with the requested increases in NOx emissions, is flawed so cannot be relied upon to show that the increases in permitted NOx emissions would not result in the Project being a major modification. The revised NSR applicability analysis is flawed as, contrary to applicable rules, it relies upon decreases in NOx emissions from actions that were neither contemporaneous with the Project nor creditable as they were not required by Permit 95010001. These decreases resulted from the later shutdowns of ten older boilers at the facility and the much later shutdown of the two by-product recovery coke oven batteries at the facility, as coke oven gas (COG) ceased to be available for use in Project-affected fuel burning units. The incongruous conclusion of the revised NSR applicability analysis is that the Project was accompanied by an overall decrease in the NOx emissions of Project-affected fuel burning units rather than an increase in NOx emissions as would be expected from an increase in production of iron by the blast furnaces.

As the Project would become a major modification for NOx with the requested increase in permitted NOx emissions, the Project would become subject to Nonattainment New Source Review (NaNSR) (35 IAC Part 203, Major Stationary Sources Construction and Modification (MSSCAM)) for NOx. NOx is regulated as a precursor to the formation of ozone in the atmosphere and, in 1996, the Granite City Works was in an area designated nonattainment for ozone air quality. (This area is still nonattainment for ozone.) As the Project would become a major modification for NOx with the requested increase in permitted NOx emissions, the Project would also become subject to Prevention of Significant Deterioration or PSD (35 IAC Part 204) for NOx. NOx is also regulated as a precursor to the formation of nitrogen dioxide (NO_2) in the atmosphere and, in 1996, the facility was in an area designated attainment or unclassified for NO_2 air quality. (This area is still attainment or unclassified for NO_2.) However, as related to the NOx emissions of the Project as now requested by the 2022 application, the application does not address the substantive requirements of MSSCAM or PSD for a major modification, much less show that these requirements are fulfilled. The application does not show that for the Project-affected emissions units for which the Lowest Achievable Emission Rate (LAER) and Best Available Control Technology (BACT) should have originally been required for NOx, LAER and BACT are present as required, respectively. by MSSCAM and PSD. For NOx, the application also does not address the requirement of MSSCAM that a major project be accompanied by emission offsets to counterbalance the increase in emissions of the nonattainment pollutant from the project. The application also does not include an analysis for the impact of the project on NO_2 air quality, as required by PSD.

4. *A statement of specific reasons why the Act and the regulations might not be met if a revised permit were granted as requested:* Section 9.1(d) of the Act and the substantive requirements of 35 IAC Part 203 and Part 204 for a major modification (the requirements for LAER, BACT and emission offsets for NOx and an air quality impact analysis for NO_2) would be violated if a revision to Permit 95010001 were issued that increased the permitted NOx emissions of the Project as requested by the 2022 application. This is because the revised NSR applicability analysis for the Project for NOx improperly relies upon decreases in NOx emissions that are neither contemporaneous nor creditable to claim that the Project would continue to not be a major modification for NOx with the increases in permitted NOx emissions that are being requested.

Discussion

Overview

For NOx emissions, the 2022 application for revisions to the Construction Permit 95010001 for the Production Increase Project (Project)[1] does not address or show fulfillment of the substantive requirements of the Prevention of Significant Deterioration (PSD) and Nonattainment New

[1] Permit 95010001 was initially issued in January 1996 for a "Production Increase" at the Granites City Works. It provides for increases in the allowable production rates of iron from 2,372,500 to 3,165,000 tons per year and of steel from 2,774,000 to 3,580,000 tons per year. This permit was preceded by Construction Permit 9209014, a permit for increases in production issued in September 1992. That permit provided for increases in the permitted production rate on a monthly average basis for iron from 5,600 to 6,500 tons per day (equivalent to production of 2,372,500 tons per year) and for steel from 6,900 to 7,600 tons per day (equivalent to production of 2,774,000 tons per year).

Source Review (NaNSR) programs related to impacts on air quality, i.e., air quality analysis for impacts on NO_2 air quality per 35 IAC 204.1130 and emission offsets for NOx per 35 IAC 203.302. For the blast furnaces and blast furnace stoves, i.e., the emission units that underwent physical modifications with the Project, the 2022 application also does not show fulfillment of the BACT and LAER requirements, respectively of PSD (35 IAC 204.1100) and NaNSR (35 IAC 203.301) for NOx emissions.[2, 3] This showing is necessary because Permit 95010001 is currently based on the net increase in NOx emissions from the Project not being significant so that the Project is not a major modification for NOx.[4] The 2022 application requests that the Project be permitted for additional NOx emissions but does not show that the Project would still not be a major modification for NOx if the permit were revised as requested. As the Project would become a major modification for NOx with the requested revisions to Permit 95010001, the 2022 application must show for NOx that the relevant substantive requirements of PSD and NaNSR are fulfilled for the Project. It would not be appropriate for a revised permit to be issued with increases in permitted NOx emissions as requested by the current application if this application does not also show that the applicable substantive requirements of PSD and NaNSR would be met for the Project for NOx.

In this regard, the 2022 application requests that the permitted NOx emissions of the casthouse on the blast furnaces and the basic oxygen furnaces be increased by 19.4 and 220.2 tons/year, respectively, for an overall increase of 239.6 tons/year. (2022 application, Appendix B - Emission Calculations, USS Granite City – 1996 Production Increase Project: Revised NOx PSD Net Emissions Increase Analysis.)[5] The revised netting analysis for the Project for NOx in the 2022 application suggests that this increase would be accompanied by decreases in the NOx emissions of certain other units. With these accompanying decreases, the net increase in NOx emissions from the Project with the requested revised permit would continue to not be significant.[6] The requested increase in the permitted NOx emissions of the blast furnaces and

[2] The basic oxygen furnaces, at which the largest increase in permitted NOx emissions is requested, were not physically modified and would not become subject to requirements for BACT or LAER for NOx even if the Project were a major modification.

[3] The 2022 application also does not include an analysis of alternatives. This analysis would have been required to be included in the original application for the Project if it had been recognized in 1996 that the Project was a major modification for NOx. It is beyond the scope of the revisions of Permit 95010001 that are now requested to address the fact that such an analysis was not originally part of the construction permit application for the Project.

[4] Under the PSD program, the significant emission rate for NOx is 40 tons/year; under NaNSR, since Granite City is not in an area that is classified as serious, severe or extreme nonattainment for ozone air quality, the significant emissions rate for NOx is also 40 tons/year. An increase in NOx emissions or, if the source elects to evaluate the net increase in emissions, a net increase in NOx emissions from a project that is equal to or greater than this rate is considered significant. (35 IAC 204.660 and 35 IAC 203.209.)

[5] In the 2022 application, the increases in the NOx emissions of the blast and basic oxygen furnaces reflect proposed corrections to baseline emissions, as well as increases in the permitted emissions with the project. For the blast furnaces, the application indicates that baseline NOx emissions should be lowered from 15.6 to 4.6 tons/year. For the basic oxygen furnaces, baseline NOx emissions should be raised from 46.94 to 179.8 tons/year. (2022 application, Table 6-5, “Pre-project Actual Emissions and Summary of Proposed Changes to Pre-project NOx Emission Factors for Affected Emissions Units.”)

[6] When a netting analysis that showed a project would not be a major modification is found to have understated emissions of certain new or modified emission units, the next step is usually to examine

basic oxygen furnaces, 239.6 ton/year combined, would not result in the Project becoming a major modification for NOx. For this purpose, the 2022 application indicates that the overall decrease in NOx emissions from Project-affected fuel burning units would now be 250.3 tons/year, comparing their revised baseline NOx emissions of 956.3 tons/year and future NOx emissions of 706 tons/year. (2022 application, Appendix B - Emission Calculations, USS Granite City – 1996 Production Increase Project: Revised NOx PSD Net Emissions Increase Analysis.) However, the 2022 application does not identify the specific decreases in NOx emissions that occurred at different groups of Project-affected fuel burning units. Instead, the 2022 application simply indicates that the future NOx emissions of the Project-affected fuel burning units, overall, would not exceed 706.0 tons/year.

This netting analysis for NOx in the 2022 application cannot be relied upon for issuance of a revised permit for the Project as requested by US Steel. The application does not include relevant information showing that additional decreases in NOx emissions that would now be proposed to be relied upon would be contemporaneous and creditable for permitting of the Project. For emission decreases to be relied on for the purpose of a netting analysis, 35 IAC 204.550 and 203.208 provide that the decreases must be contemporaneous and creditable. This necessitates information for how the additional decreases in NOx emissions addressed in the revised netting analysis for NOx were created and how the amounts of the decrease were quantified. Most significantly, the 2022 application does not show that certain decreases in NOx emissions that it would rely upon should be considered contemporaneous with the Project. A revised permit cannot be issued for the Project that relies upon “post-project” emissions decreases, which occurred after the Project, to show that the Project with the requested increases in NOx emissions of the furnaces, should still not be considered a major modification. This is critical because changes that are unrelated to the Project have occurred at certain fuel burning units after the initial issuance of Permit 95010001. The 2022 application proposes to rely upon the decreases in NOx emissions due to these changes, which decreases were not and could not have been relied upon by the original permit for the Project. These decreases in emissions would be relied upon by the revised netting analysis as the analysis does not account for and exclude the emissions decreases from these changes from the analysis. (In addition, as will be addressed separately below, the 2022 application does not include appropriate support for certain units for the quantification of NOx emissions in the revised netting analysis.)

Application Relies on Emission Decreases That Are Not Contemporaneous

As related to the requirement of the NSR rules that decreases in emissions relied upon for netting be contemporaneous, the 2022 application indicates baseline NOx emissions of 131.8 and 123.2 tons/year from the use of blast furnace gas (BFG) and natural gas, respectively, in Boilers 1

whether the project should still not be considered a major modification. The revised netting analysis for this purpose may consider adjustments such as reductions in the permitted emissions of other new or modified units involved in the project. It may also consider additional emission decreases that were not relied upon by the original netting analysis but could have been as they are contemporaneous and creditable. As this reexamination of a project shows that it still would not be considered a major modification with appropriate adjustments to the netting analysis, an appropriately revised construction permit may be issued that is based on the project continuing to not be a major modification.

through 12. (2022 application, Appendix B - Emission Calculations, USS Granite City – 1996 Production Increase Project: Revised NOx PSD Net Emissions Increase Analysis.) Boilers 1 through 12 are the twelve boilers at the source in 1996 that were addressed by Permit 95010001. Ten of these boilers, Boilers 1 through 10, were shut down in 2009.[7] The 2022 application does not show that NOx emissions of these ten boilers, as existed in the period prior to 2009, were considered in the "future" NOx emissions with the Project of at most 706 tons/year from the Project-affected fuel burning units. In addition, with regard to Boilers 11 and 12, the two remaining old boilers at the source that continue in operation, flue gas recirculation systems have been installed on these boilers pursuant to Construction Permit 10080022, issued in January 2011. These systems were installed to control NOx emissions to facilitate compliance with 35 IAC 217.164. The 2022 application does not show that the revised netting analysis for NOx does not rely on the lower NOx emissions from Boilers 11 and 12 that are now being achieved with the new control systems, rather than their NOx emissions as previously existed with the Project in the period before these control systems were installed.

The application also indicates baseline NOx emissions of 461 tons/year from use of coke oven gas (COG) in the blast furnace stoves and Boilers 11 and 12.[8] In 2015, US Steel shut down the two by-product recovery coke oven batteries at the Granite City Works. COG ceased to be available for use in the stoves or Boilers 11 and 12. However, COG was available for use in the stoves and these boilers in 1996. As related to the Project, the 2022 application does not show that the revised netting analysis for NOx would not rely upon decreases in the NOx emissions of the stoves and boilers due to the elimination of COG, which did not occur until 2015.[9]

[7] The shutdown of Boilers 1 through 10 was required by Condition 2.6(a) of Construction Permit 06070023, which was originally issued in July 2006. This permit addresses construction of a cogeneration boiler at the facility that would be designed to produce both high-pressure steam to generate electricity and lower pressure process steam. This boiler has been constructed and is in operation. The permitting of this new boiler relied upon contemporaneous decreases in NOx emissions from several actions, most notably, a decrease of 558.9 tons/year from addition of low NOx burners to four reheat furnaces. The permitting of the new cogeneration boiler also relied on a 33.41 tons/year decrease in NOx emissions from the shutdown of Boilers 1 through 10 as this eliminated use of natural gas by these boilers. The related application for emissions decreases that were contemporaneous with the new boiler did not rely on any decreases in the NOx emissions of these boilers from use of COG and BFG. This is because "…the boilers shutdowns will not result in any change in the amount of BFG and COG combusted at the Facility." (Application 06070022, Section 3.3.1. "Boilers 1 through 10 Shutdown Emission Calculations," p. 3-7.) The reliance of Permit 06070023 on emission decreases from the shutdown of these boilers is a further impediment to reliance on these decreases in a revised netting analysis for the Project.

[8] For Project-affected boilers, the 2022 application indicates that baseline NOx emissions from usage of COG are addressed only for Boilers 11 and 12. (2022 application, Table 6-5, "Pre-project Actual Emissions and Summary of Proposed Changes to Pre-project NOx Emission Factors for Affected Emissions Units.") This is likely erroneous since the application for Permit 06070022 indicates that Boilers 1 through 10 also had the ability to use COG.

[9] The 2022 application does reflect increased use of natural gas by Project-affected fuel burning units. The application explains that with the shutdown of the by-product coke oven batteries, COG is no longer available and more natural gas may need to be used (e.g., 2022 application, Section 6.3, Post-Project NOx Emissions Limitations"). Permit 95010001 currently limits annual use of natural gas by the Project-affected fuel burning units to 1,346 million cubic feet. The revised netting analyses in the 2022

In summary, for purposes of applicability of NSR, the NOx emissions allowed from the Project in 1996 that would be permitted with the requested revisions to the permit could be substantially higher than indicated in the 2022 application.[10] This application does not show that this would not be the case such that the Project would not become a major modification for NOx with the requested increases in the permitted emissions of the blast furnaces and the basic oxygen furnaces. The timing of actions that have resulted in decreases in NOx emissions of fuel burning units after 1996 is critical when considering applicability of NSR to the Project with the requested revisions to Permit 95010001. As the decreases in NOx emissions from certain actions cannot be considered or would be smaller, the net increase in NOx emissions of the Project would be greater. In this regard, it must be assumed that the "future NOx emissions" indicated in the 2022 application reflect maximum actual NOx emissions beginning in 2023, with the requested revisions to Permit 95010001. The application does not suggest that these future NOx emissions are the emissions that should have been allowed by the permit back in 1996 when the permit was issued and the Project commenced.[11]

---

application are based on a post-project annual natural gas usage of up to 1,980 million cubic feet (e.g., Tables 5-7, 6-6 and 7-3).

The decreases in NOx emissions that resulted from the shutdown of the coke oven batteries and elimination of COG in 2015 are contemporaneous with any increases in NOx emissions due to the accompanying use of more natural gas. However, these emissions decreases are not contemporaneous relative to the Project, which was undertaken in 1996. In addition, an application for revisions to Permit 95010001 is not an appropriate venue to address the use of more natural gas due to the shutdown of the coke oven batteries. The Project involved increases in production of iron and steel. The Project-affected fuel burning units do not include four slab furnaces that also used COG and now must use more natural gas. Lastly, the consequences of the shutdown of the coke oven batteries on the facility's NOx emissions, including the consequences for the slab reheat furnaces, are the subject of a separate construction permit application, Application 15030001, received March 5, 2015, which application is still pending.

[10] It should be noted that for purposes of applicability of NSR, for the same reasons that the 2022 application understates the net increase in emissions of NOx from Project-affected fuel burning units, the application also understates the increases or net increases in emissions of the Project for purposes of NSR for particulate matter (PM), particulate matter$_{10}$ (PM_{10}) and volatile organic material (VOM), i.e., pollutants other than NOx for which the requested revised permit for the Project would rely upon the increase or net increase in emissions not being significant.

[11] With the requested revisions of Permit 95010001, it is unclear how the "future NOx emissions" of fuel burning units indicated in the 2022 application are NOx emissions that could have been allowed by this permit in 1996. The future NOx emissions of affected fuel burning units indicated in the 2022 application are less than the baseline NOx emissions, i.e., proposed future emissions of 706 tons/year compared to the claimed baseline of 956 tons/year. However, the Project did not include any elements that would lower the NOx emissions of fuel burning units. Rather, the production of more iron and steel would be accompanied by increased utilization of the blast furnace stoves and boilers as more blast air and steam are generally needed for blast furnaces to produce more iron. Accordingly, in 1996, the NOx emissions of fuel burning units allowed by Permit 95010001 must necessarily be more than the baseline emissions, as this permit addresses a project that involves use of more BFG and natural gas by Project-affected fuel burning units. (Use of COG was not expected to be affected by the Project because production of COG was constrained by the design and operation of the existing coke oven batteries, which were not being modified as part of the Project.)

Indeed, the future NOx emissions of the fuel burning units for purposes of any revised netting analysis should be expected to be substantially greater than their baseline emissions. If one assumes that the increases in emissions would be proportional to the permitted increase in iron production, future NOx emissions of the fuel burning units would be expected to increase by roughly 40 percent. If the baseline

2. THE DETERMINATION OF BASELINE NOx EMISSIONS IN THE REVISED NETTING ANALYSIS CANNOT BE INDEPENDENTLY CONFIRMED

Overview of This Denial Point, with Information As Required or Specified by Section 39(a) of the Act for Denial of a Permit

1. *The Sections of the Act which may be violated if a revised permit were granted as requested:* Sections 9(a), 9.1(d) and 39(a)*.

2. *The provision of the regulations under the Act which may be violated if the revised permit were granted as requested:* 35 IAC 201.152**, 201.152*** and 201.160(a).

3. *The specific type of information, if any, which the Agency deems the applicant did not provide the Agency:* The 2022 application does not include data and information supporting the determinations of baseline NOx emissions for certain emissions units in the revised NSR applicability analysis for NOx. In this regard, it is noteworthy that the revised NSR applicability analysis does more than seek increases in permitted NOx emissions of the blast furnace casthouse and BOFs to correct errors in the original application for the Production Increase Project. As explained in the discussion below, the revised NSR applicability analysis now also addresses NOx emissions from burning coke oven gas (COG) in Project-affected units, which the Illinois EPA did not require be addressed in 1996. For the continuous casting operations, the analysis also takes a different approach to use of natural gas and associated NOx emissions. Lastly, the analysis does not reflect a reevaluation of the NOx emission factor used for ladle preheaters. For these units, an emissions factor for use of natural gas in boilers, which likely is not appropriate for the simpler burner systems in preheaters, continues to be used.

4. *A statement of specific reasons why the Act and the regulations might not be met if a revised permit were granted as requested:* As there are deficiencies in the data and information that is provided in the 2022 application for the baseline NOx emissions of fuel burning units, the revised NSR applicability analysis cannot be relied upon. Separate from Denial Point 1 concerning reliance on NOx emission decreases that are not contemporaneous and creditable, deficiencies in the emission data presented in this analysis are also a reason why this analysis cannot serve as proof that the Production Increase Project would not become a major modification for NOx under NSR with the increases in permitted NOx emissions that are now being requested. Likely or possible deficiencies in the emission data in the revised NSR applicability analysis for NOx in the application need to be resolved or corrected before any revised version of Permit 95010001 is issued that would be based upon a revised NSR applicability analysis for the Project.

---

emissions of these units should have been 956 tons/year, as indicated in the 2022 application, this suggests future emissions of these units with the Project should be about 1,340 tons/year (956 tons/year x 1.4 = 1.338 ~ 1,340 tons/year). Alternatively, absent any decreases in NOx emissions from the twelve boilers and the discontinuation of COG, and disregarding increased use of natural gas in place of COG, the NOx emissions from the Project-affected fuel burning units for purposes of NSR applicability, as of 1996, would be on the order of 1,420 tons/year (Proposed future emissions of 706 tons/year + 131.8 tons/year attributable to use of BFG by the boilers + 123.2 tons/year attributable to use of natural gas by the boilers + 461 tons/year from the discontinuation of the use of COG in the stoves and Boilers 11 and 12 ~ 1,420 tons/year). If so, the calculated change in NOx emissions from Project-affected fuel burning units for purposes of NSR applicability would be a net increase on the order of 460 tons/year (1,420 – 956 = 464), rather than a net decrease of about 250 tons/year.

Discussion

The new determination of baseline NOx emissions of Project-affected fuel burning units provided in the revised netting analysis cannot be independently confirmed. In this regard, the 2022 application does not show that all Project-affected fuel burning units have been addressed. For units that are addressed, the application does not show that appropriate emission factors and operating data have been used to estimate emissions. As specific concerns exist with the determination of baseline NOx emissions for certain emission units, as discussed below, concerns exist with the determination of the overall baseline NOx emissions for the Project.

Baseline Usage of Coke Oven Gas (COG)

As already discussed, the use of coke oven gas (COG) in Project-affected fuel burning units is introduced in the 2022 application for revisions to Permit 95010001.[12] This application does not include supporting documentation or explanation for the baseline usage of COG utilized in the revised netting analysis. The annual usage of COG in the blast furnace stoves (374 million cubic feet/year) and in boilers (2,211 million cubic feet/year) is simply presented in the revised netting analysis for NOx. (2022 application, Appendix B - Emission Calculations, USS Granite City - 1996 Production Increase Project: Revised NOx PSD Net Emissions Increase Analysis). The indicated usages of COG are not accompanied by any documentation or explanation.

Emission Factor for Use of COG in Boilers 11 and 12:

For COG, the 2022 application utilizes a NOx emission factor for Boilers 11 and 12[13] of 404 pounds/million cubic feet of COG.[14] The application states that this factor is based on emission testing conducted on the stack of A Coke Battery (2022 application, Table 6-4. "NOx Emission Factors for Fuel Burning"). The application does not show that it is appropriate to utilize an

[12] It should be noted that the introduction in the revised netting analysis for the Project of NOx emissions from use of COG in Project-affected fuel burning units is not acknowledged in the section of the 2022 application in which historical production and operating rates are discussed. Section 6.2.1 of the application, "Historical Throughput Rates," states that "The pre-project actual emissions were calculated using the same production and operating rates as the 1995 Application shown in Table 6-3 [Pre-Project Production and Operating Rates for NOx]." This statement is clearly not accurate as the usage of and NOx emissions from COG were not quantified in the 1995 application. Moreover, Table 6-3 does not include information for the historical or baseline usage of COG.

[13] In the 2022 application, there is an inconsistency in the information for the baseline NOx emissions of boilers. In Table 6-5, "Pre-project Actual Emissions and Summary of Changes to Pre-Project NOx Emissions Factors for Affected Emissions Units," baseline NOx emissions of Boilers 1 through 10 do not appear to be addressed since this table shows that baseline emissions are provided for B11 and B12 (Boilers 11 and 12). In Appendix B, USS Granite City – 1996 Production Increase Project: Revised NOx PSD Net Emissions Increase Analysis, baseline NOx emissions appear to be provided for all boilers, as information is shown as being for "boilers."

[14] For the stoves, the revised netting analysis utilizes a lower NOx emission factor of 80 pounds/million cubic feet of COG. The application states that this factor is based on an emission test for which the date is unknown (2022 application, Table 6-4, p. 6-3). As this factor is identical to the NOx emission factor in USEPA's WebFIRE database for burning COG in industrial boilers, this factor can be considered appropriate. (USEPA, Clearinghouse for Inventories & Emission Factors, Emission Factors & AP42, WebFIRE, with search conducted using the term "coke oven gas" in the field under Select options under Source Classification Code. .

emission factor developed from the results of emission testing on the combustion stack of a coke oven battery to calculate emissions of a boiler. There are significant differences between combustion of COG as occurs at coke ovens and combustion of fuel in a boiler. At a fundamental level, a combustion stack emits the products of combustion from the heating of coke ovens to the high temperature needed to convert coal into coke. Regenerative heat exchangers are utilized to efficiently achieve this temperature. Boilers 11 and 12 emit the products of combustion from burning fuel to achieve the temperature needed convert water into process steam.[15]

Emission Factor for Use of Natural Gas in Ladle Preheaters:

For use of natural gas, the 2022 application utilizes a single emission factor for NOx emissions from all Project-affected fuel burning units. This factor, 306 pounds/million cubic feet of natural gas reflects the results of emission testing conducted on Boiler 12 when using natural gas. The application does not show that it is appropriate to utilize this emissions factor for ladle preheaters, which are different types of emissions units than boilers. Moreover, the revised netting analysis for NOx in the application erroneously indicates that the estimated baseline NOx emissions of ladle preheaters were "Revised to use current AP-42 emission factor." (2022 application, Appendix B, Emission Calculations, USS Granite City – 1996 Production Increase Project: Revised NOx PSD Net Emissions Increase Analysis.) The current AP-42 NOx emission factor for small boilers (<100 million Btu/hour heat input) without low NOx burners or flue gas recirculation is only 100 pounds/million cubic feet of natural gas. (USEPA, *Compilation of Air Pollutant Emission Factors*, AP-42, Table 1.4-1.)

Emissions from Use of Natural Gas on the Continuous Casting Lines:

Unlike the original application, the 2022 application does not directly address NOx emissions associated with use of natural gas in continuous casting operations.[16] In this regard, this application states:

> The pre-project actual emissions for the Continuous Caster Mold – Caster #1 and Caster 2 process, as presented by National Steel Corporation in the 1995 Application listed NOx emissions from this operation. USS Granite City evaluated this analysis and determined that there is no NOx formation from this operation. Any NOx emissions from this operation are due to combustion of natural gas and are already accounted for under the gaseous fuel burning activities listed above [Section 6.2.2.1, Fuel Burning Emissions Units

[15] Application 15030001, the pending application for a construction permit for use of more natural gas with the shutdown of the by-product coke oven batteries, utilizes an emission factor for use of COG of 80 pounds/million cubic feet for baseline NOx emissions of Boiler 12. This is the NOx emission factor in FIRE for use of COG in boilers. This factor is much lower than 404 pounds/million cubic feet, the factor for COG used in the 2022 application for the baseline emissions of Boilers 11 and 12.

It should be noted that Application 15030001 does not include a NOx emission factor for Boiler 11 for COG. This is likely because Boiler 11 did not use COG in the baseline period used for Boilers 11 and 12 (January 2013 through December 2014) for the net increase analysis in this application.

[16] As reflected in Permit 95010001, the original permitting of the Project accounted for NOx emissions of 89.5 tons/year from Caster Molds – Casting but did not account for any NOx emissions from Slab Cut-Off and Slab Ripping, for which only particulate emissions were addressed.

Emissions (Revised)]. Therefore, in the revised analysis, NOx emissions are not included from this operation.

2022 application, Section 6.2.2.7, "Continuous Caster Mold Process Emissions (Revised)."

This is problematic for several reasons. First, the 2022 application does not address the NOx emissions of the natural gas-oxygen torches used in the slab cutting and slab ripping processes, which are part of the continuous casting lines.[17] Second, as the application indicates that NOx emissions are present from the mold processes on the casting lines, the application does not show that the same NOx emission factor is appropriate for this use of natural gas as utilized for ladle preheaters or, alternatively, separately account for the NOx emissions from use of natural gas in the casting process. Lastly, the 2022 application does not identify either the caster processes or the torches as units whose use of natural gas and resulting NOx emissions would be addressed with the emissions of other Project-affected fuel burning units (e.g., 2022 application, Table 6-5, "Pre-project Actual Emissions and Summary of Proposed Changes to Pre-project NOx Emission Factors for Affected Emissions Units").

[17] Alternatively, if NOx is not formed by the torches given they are supplied with oxygen, the application does not confirm that usage of natural gas by the torches was not considered when the baseline NOx emissions from use of natural gas in Project-affected fuel burning units were determined.

3. THE APPLICATION LACKS INFORMATION FOR THE ACTUAL NOx EMISSIONS OF PROJECT-AFFECTED FUEL BURNING UNITS (LACK OF INFORMATION RELEVANT TO NETTING)

Overview of This Denial Point, with Information As Required or Specified by Section 39(a) of the Act for Denial of a Permit

1. *The Sections of the Act which may be violated if a revised permit were granted as requested:* Sections 9(a), 9.1(d), 39(a)*, 39(a)** and 39(a)***.

2. *The provision of the regulations under the Act which may be violated if the revised permit were granted as requested:* 35 IAC 201.152***, 201.160(a), 203.123, 203.128, 203.208*, 204.400, 204.550* and 204.560.

3. *The specific type of information, if any, which the Agency deems the applicant did not provide the Agency:* The revised Netting Analysis for NOx in the 2022 application does not show that the value for the maximum future NOx emissions from certain fuel burning units, 706 tons/year, in aggregate, is appropriate for purposes of NSR. That is, the 2022 application does not show that 706 tons/year represents the post-project NOx emissions of these units as could have been addressed when Permit 95010001 was originally issued in 1996 if emissions from burning of COG in these units when operating at the levels of iron and steel production that were permitted had been considered. The 2022 application also does not show that the actual NOx emissions of the subject units in the period from 1996 to the present have not exceeded 706 tons/year. In other words, the application does not show that a value for future NOx emissions of the subject units of 706 tons/year does not really represent "future" emissions beginning at the present time. Otherwise, the value for future NOx emissions in the application improperly takes credit for reductions in the NOx emissions of the Production Increase Project (Project) that were not originally part of the Project. When the Project was initially issued in 1996, the NOx emissions from use of blast furnace gas (BFG) and natural gas in 12 boilers at the Granite City Works was addressed. When revaluating applicability of NSR for the Project for NOx with the increases in permitted emissions requested by the application, it is not appropriate to only address the potential NOx emissions of the two boilers that now remain. Although the other ten boilers are now shutdown, they were operating and emitted NOx in 1996. Similarly, in 1996, coke oven gas (COG) was used as a fuel and burned at the facility. With the shutdown of the two by-product recovery coke oven batteries at the facility, COG is no longer being produced. The NOx emissions of the fuel-burning units that formerly burned COG are now lower than they were in 1996 since natural gas is used to make up for the heat input to the units previously provided by COG. (Compared in terms of pounds of NOx per million Btu of fuel heat input, the NOx emissions from use of natural gas as a fuel are generally lower than those from use of COG.) However, when revaluating applicability of NSR for the Project for NOx with the increases in permitted emissions now requested, it is not appropriate to evaluate the NOx emissions of the units that formerly used COG as they now exist and to ignore the fact that in 1996 these units did use COG and their potential NOx emissions were higher. Again, as touched on in Denial Point 1, the difficulty is not that the future NOx emissions of the subject units may be lower compared to

what may have been possible for their permitted NOx emissions in 1996. The difficulty is that the revised NSR applicability analysis for NOx in the 2022 application attempts to rely on this "post-project" reduction in the NOx emissions of these units to make up for the increases in permitted NOx emissions of the blast furnace casthouse and BOFs that are requested.

4. *A statement of specific reasons why the Act and the regulations might not be met if a revised permit were granted as requested:* It would be improper for the Illinois EPA to issue a revision to Permit 95010001 that is based on the NSR applicability analysis for NOx in the 2022 application that is not consistent with the provisions of the NSR rules governing such analyses. This would be the case if the value/proposed limitation for maximum future NOx emissions of the subject units in the application was relied upon for issuance of a revision to Permit 95010001 and this value/proposed limitation does not reflect the potential emissions from the subject units with the Project, as required by 35 IAC 203.208 and 204.550 In other words, it would be improper for a revised permit to be issued that reflects current circumstances for the subject units if this reflects NOx emissions that are lower than could have properly been allowed in 1996.

Discussion

The 2022 application does not include a demonstration that the actual NOx emissions of Project-affected fuel burning units would not have exceeded the "future amount" or post-project emissions indicated in the revised netting analysis for the Project for NOx since Construction Permit 95010001 was issued if the production of iron and steel by the source was at the levels allowed by this permit.

3A. THE APPLICATION LACKS INFORMATION FOR THE ACTUAL NOx EMISSIONS OF PROJECT-AFFECTED FUEL BURNING UNITS (LACK OF SUPPORTING INFORMATION)

Overview of This Denial Point, with Information As Required or Specified by Section 39(a) of the Act for Denial of a Permit

!. *The Sections of the Act which may be violated if a revised permit were granted as requested:* Sections 9(a), 9.1(d), 39(a)* and 39(a)**.

2. *The provision of the regulations under the Act which may be violated if the revised permit were granted as requested:* 35 IAC 201.152*, *201.152****,35 IAC 201.160(a), 203.123, 203.128, 204.400 and 204.560.

3. *The specific type of information, if any, which the Agency deems the applicant did not provide the Agency:* The amount in the 2022 application for the maximum future NOx emissions from certain fuel burning units, 706 tons/year, in aggregate, is not accompanied by supporting information but is simply presented. The application does not explicitly list the various units whose NOx emissions are being addressed and describe the nature of the various units relative to the emissions of NOx from burning fuel in the units. Data is not provided for the maximum annual amounts of fuels burned in these units. Data is also not provided for the emission factors used to calculate annual emissions, the sources or basis of those factors, and why those factors should be considered representative of the NOx emissions of the various types of units that are being addressed.

4. *A statement of specific reasons why the Act and the regulations might not be met if a revised permit were granted as requested:* Absent information as described above, the 2022 application does not include information that is necessary to allow the Illinois EPA to rely upon the future maximum NOx emissions of the subject units, presumably the fuel burning units affected by the Production Increase Project, being no more than the stated amount, or issue a revised permit that limits NOx emissions to the stated amount. The missing information is needed so that the Illinois EPA and other interested parties can independently review the methods, data and calculations by which the representation in the 2022 application for maximum future NOx emissions of the subject units was determined. This information is also necessary if the Illinois EPA is to place appropriate conditions in a revised permit requiring US Steel to track the NOx emissions of the subject units, so as to verify that that the future NOx emissions do not exceed the amount stated in the application or other appropriate amount. In this regard, it is significant that the emissions of many of the Project-affected fuel burning units at the facility, i.e., the blast furnace stoves, the BFG gas flares, and various process heaters, cannot be directly determined because these units are not amenable to emission testing.
Note that this denial point addresses the lack of supporting information for the maximum future NOx emissions of the subject units that is stated in the 2022 application. Denial Point 3, above,

addresses the time period that should be reflected in the determination of maximum future emissions for purposes of evaluating applicability of NSR.

(A further discussion is not provided for this denial point, as it was not present in the Initial Draft Denial Letter. Following the close of the public comment period on the Initial Draft Denial Letter, the Illinois EPA realized that the 2022 application is also deficient as the value it provides for future NOx emissions of Project-affected fuel burning units is not accompanied by supporting information.)

4. FOR THE BASIC OXYGEN FURNACES, THE 2022 APPLICATION DOES NOT ADDRESS THE POTENTIAL FOR UNCAPTURED EMISSIONS OF NOx, VOLATILE ORGANIC MATERIAL (VOM) AND CARBON MONOXIDE (CO) THROUGH THE ROOF MONITOR FOR THESE FURNACES

Overview of This Denial Point, with Information As Required or Specified by Section 39(a) of the Act for Denial of a Permit

1. *The Sections of the Act which may be violated if a revised permit were granted as requested:* Sections 9(a), 9.1(d), 39(a)* 39(a)**.

2. *The provision of the regulations under the Act which may be violated if the revised permit were granted as requested:* 35 IAC 201.152*** and 201.160(a).

3. *The specific type of information, if any, which the Agency deems the applicant did not provide the Agency:* The 2022 application does not include information for the uncaptured emissions of NOx, volatile organic material (VOM)_ and carbon monoxide (CO) for the BOFs that occur through the roof monitor on the BOF shop, i.e., the building in which the BOFs are located. The existences of emissions of NOx, VOM and CO from the BOFs is well-established from testing of the stacks of the control systems for the particulate emissions of the BOFs. This testing shows emissions now occur through both the older ESP control system for the BOFs and the baghouse that was installed within the last ten years to improve control of particulate emissions from charging and tapping of the BOFs. These control systems may capture most of the emissions of the BOFs, achieving overall capture efficiencies that engineering design suggests may approach 100 percent. However, the 2022 application does not contain technical or engineering information showing that all emissions of the BOFs are now being captured and no emissions occur through the roof monitor or other openings in the BOF shop. Complete capture of the emissions of the BOF is also not required by applicable regulations. For example, under the National Emission Standards for Hazardous Air Pollutants for Integrated Iron and Steel Manufacturing Facilities ("Iron and Steel NESHAP" or "NESHAP"), 40 CFR 63 Subpart FFFFF, Table 1, the opacity of emissions from the roof monitor and other openings in the BOF shop at the facility is only limited to no more than 20 percent, on a 3-minute average.

4. *A statement of specific reasons why the Act and the regulations might not be met if a revised permit were granted as requested:* Absent information addressing uncaptured emissions of NOx, VOM and CO from the BOFs, the 2022 application would not provide complete information about the emissions of the BOFs. For NOx, absent information for these uncaptured emissions, if US Steel were to submit a corrected, revised NSR applicability analysis to show that the Project would not be a major modification for NOx with increases in permitted emissions as requested, that analysis would not be complete. For VOM, for which the 2022 application also requests an increase in permitted emissions, the revised NSR applicability analysis to support such a revision is not complete. For CO, for which revisions to the PSD approval provided by Permit 95010001 are requested for emission units other than the BOFs, the updated air quality impact analysis for

CO required under the PSD rules would not reflect a complete emissions inventory for the existing sources of CO emissions at the Granite City Works.

Discussion

For the basic oxygen furnaces, consistent with the original permitting of the Project, the 2022 application only quantifies stack emissions of NOx, VOM and CO. For these furnaces, the application does not address uncaptured emissions of these pollutants. (For these furnaces, the 2022 application does address uncaptured emissions of particulate and lead[18] for which Permit 95010001 limits emissions of these pollutants from the "BOF [Basic Oxygen Furnace] Roof Monitor," (Permit 95010001, Condition 18 and Table 2, Item 2)).

The revised netting analyses for NOx and VOM in the 2022 application assume that all emissions of these pollutants from the basic oxygen furnaces are now captured. That is, with the installation of the new baghouse control system on the furnaces to improve control of particulate emissions from the charging and tapping processes, all NOx and VOM emissions of these furnaces that originally were not captured and were emitted through the roof monitor now are captured and are emitted through the stack on the baghouse system. For example, as related to emissions of NOx, the application explains,[19, 20]

> At the time of the 1995 Application, the BOF Shop did not include a baghouse to capture secondary emissions. Secondary emissions were released to the atmosphere through the BOF Shop roof monitor. No information was available at the time about the NOx emissions from the BOF Shop roof monitor. Since then, the BOF Shop includes a capture system for secondary emissions that are routed to a baghouse. NOx emissions testing for the BOF Shop

[18] The uncaptured lead emissions of the basic oxygen furnaces are summarily addressed by the 2022 application. In Section 2.2, this application states that changes to the current limits for lead emissions set by Permit 95010001 are not requested. As such, this application acknowledges the current limits for lead emissions in Permit 95010001, including the limits for uncaptured emissions from these furnaces that are emitted through the roof monitor (Permit 95010001 Condition 18 and Table 2, Item 2). Revisions to these limits are not requested.

[19] The 2022 application addresses uncaptured emission of VOM of the basic oxygen furnaces in a similar manner in Part 7 of the application. Refer to the second Section 7.2.2.1 in the application on p. 6-4, "BOF Baghouse – Secondary Emissions (New)."

[20] As reflected in this excerpt, the 2022 application refers to the NOx and VOM emissions of the baghouse system as "secondary emissions." This is inconsistent with the meaning of this term under the NESHAP for Integrated Iron and Steel Manufacturing Facilities, 40 CFR 63 Subpart FFFFF, which only restricts this term to emissions of particulate matter. It is also misleading as it does not distinguish between captured and uncaptured emissions and suggests that capture of these emissions with a baghouse is sufficient to eliminate concerns for the existence of uncaptured emissions.

In this regard, as defined at 40 CFR 63.7852, "*Secondary emissions* mean **particulate matter** emissions (emphasis added) that are not controlled by a primary emissions control system, including emissions that escape from open and closed hoods, lance hole openings, and gaps or tears in the primary emission control system." For secondary emissions, 40 CFR 63 Subpart FFFFF recognizes the existence of both captured or stack emissions and uncaptured emissions, as would occur through a roof monitor. For basic oxygen furnaces, as well as setting emission limits for particulate emissions from primary control systems, this NESHAP also sets separate emission limits for 1) the particulate matter emissions from a control device used for the collection of secondary emissions, and 2) the opacity of secondary emissions that exit any opening in the furnace shop or other building housing a basic oxygen furnace.

> baghouse completed in the 2019-2020 time frame shows an average NOx rate of 0.0075 lb/ton for the BOF Shop Baghouse Stack. USS Granite City added the BOF Shop secondary NOx emission baseline based on the result of the stack test for the BOF Shop Baghouse stack.
>
> 2022 application, Section 6.2.2.6. "BOF Baghouse – Secondary Emissions (New)."

This assumption made by the 2022 application for uncaptured emissions of NOx and VOM of the basic oxygen furnaces, i.e., that all emissions that were formerly uncaptured are now emitted through the baghouse system, is not appropriate. At a fundamental level, the application does not include any support for this assumption. A rigorous analysis for and quantification of the uncaptured emissions of NOx and VOM from these furnaces is warranted as these emissions were overlooked in the original permitting for the Project.[21]

Then, the data for NOx and VOM emissions from the baghouse stack, which is now available from testing of the baghouse, does not support this assumption and, if anything, shows that this assumption is unsound. This is because this testing does not address the level of capture being achieved by the baghouse system. Rather it shows that there are emissions of these pollutants from charging and tapping and, as such, data for the uncaptured emissions of these pollutants is also appropriate. In this regard, the results of emission testing for the NOx and VOM emissions from the new baghouse system on these furnaces, as cited by the application, indicate more than negligible levels of emissions. (2022 application, Appendix B – Emission Calculations, USS Granite City – 1996 Production Increase Project: Revised NOx PSD Net Emissions Increase

[21] In the original permitting of the Project, the uncaptured emissions of NOx and VOM from the basic oxygen furnaces appear to have been considered negligible. This was likely because the emissions of NOx and VOM of the furnaces were all attributed to the refining process, rather than to charging and tapping. During the refining step in a basic oxygen furnace, oxygen is injected into the molten iron charged to a furnace, which removes carbon from the iron by oxidation, converting the iron into steel. The oxidation of the carbon also provides heat to facilitate the melting of the scrap metal that is also charged to the furnace, so molten metal in the appropriate temperature range can be tapped from the furnace.

In 1996, the basic oxygen furnaces were only controlled by the electrostatic precipitator (ESP) system. While the ESP system only reduces or controls emissions of particulate and not emissions of NOx or VOM, the ESP system does capture NOx and VOM from these furnaces. As the capture efficiency for particulate emissions from refining is assumed to be at least 99.9 percent, it was also reasonable to assume that the ESP system also would achieve at least 99 percent capture for NOx and VOM. With these assumptions, i.e., that NOx and VOM are only generated during the refining step and at least 99.9 percent capture of these emissions is achieved by the ESP system, given the limits on emissions of NOx and VOM from the stack of the ESP set by Permit 95010001, i.e., 69.63 and 10.74 tons/year, respectively, the uncaptured emissions of NOx and VOM from these furnaces would have been projected to be no more than 0.07 and 0.01 tons/year, respectively,. (For example, for NOx, 69.63 tons/year ÷ (99.9 ÷ 100.0) x (100.0 – 99.9) ÷ 100.0 = 0.07 tons/year.) For purposes of determining applicability of NSR to the Project. the increases in NOx and VOM emissions of the furnaces with the Project would be less because these calculations for uncaptured emissions address all emissions of the furnaces, both baseline emissions and the increases in emissions from the Project.

Even with the correction to the emission data for the basic oxygen furnaces indicated in the 2022 application, <u>if</u> all NOx and VOM emissions of these furnaces were actually attributable to the refining step, uncaptured NOx and VOM emissions would still be very small. For example, the potential NOx emissions from the stack of the ESP are now shown to be 380.0 tons/year. With capture of at least 99.9 percent of the NOx by the ESP system, the potential uncaptured NOx emissions from these furnaces would still only be an additional 0.38 tons/year.

Analysis and Revised VOM PSD Net Emissions Increase Analysis.) For NOx, the application indicates baseline captured emissions of 179.8 tons/year, of which, based on the measured emissions from the new baghouse system, as much as 5.1 percent, i.e., 9.1 tons/year, would have been uncaptured in 1996; captured VOM emissions are 26.6 tons/year, of which as much as 15.8 percent, i.e., 4.2 tons/year, would have been uncaptured emissions in 1996. However, instead of assuming that all NOx and VOM emissions are now captured, it would not be unreasonable to assume that the new baghouse system improved capture of the emissions from charging and tapping such that the levels of captured emissions from the baghouse stack and the uncaptured emissions through the roof monitor are now identical.[22, 23]

Finally, the assumption that all NOx and VOM emissions of these furnaces is now captured is inconsistent with the approach taken in the 2022 application to the particulate and lead emissions of these furnaces, for which it is assumed that there are uncaptured emissions that still occur through the roof monitor. In particular, the 2022 application requests that the revised permit establish prescribed emission factors for the particulate emissions of the basic oxygen furnaces

[22] It is reasonable to assume that the new baghouse that was installed to improve control of particulate emissions from charging and tapping of the basic oxygen furnaces reduced these emissions to less than half of their previous amounts. For example, the nominal control efficiency for charging and tapping went from 95 percent with only the ESP control system to 97.5 percent with the addition of the baghouse system. With this assumption, the potential NOx and VOM emissions from the baghouse stack from charging and tapping would be estimated to be about the same as the potential uncaptured emissions from charging and tapping that still occur through the roof monitor, with both being about 2.5 percent of the total emissions from the furnaces. The remainder of the NOx and VOM emissions from charging and tapping continue to occur through the ESP stack (95 percent of the total emissions of the furnaces).

[23] With this assumption, the potential NOx emissions of the basic oxygen furnaces with the Project would become 420.4 tons/year, rather than 400.0 tons/year (400.0 tons/year x (100% + 5.1%) ÷ 100% = 420.4 tons/year. The potential VOM emissions of these furnaces with the Project would become 52.1 tons/year, rather than 45.0 tons/year (45.0 tons/year x (100% + 15.8%) ÷ 100% = 52.1 tons/year.

that occur through the roof monitor.[24] For example, for pre-project actual emissions of the roof monitor, Section 5.2.2.7 of the application explains the following, [25]

> Prescribed emissions factors consistent with the approach described in Section 3 [Discussion of Permit Conditions Used to Restrict PTE] are provided herein. USS Granite City is proposing prescribed emission factors for the BOF Shop Roof Monitor for which emissions testing is not feasible.[Footnote 33] For BOF Roof Shop Monitor, use PM emissions factor of 0.0296 lb/ton and filterable PM_{10} emission factor of 0.0198 lb/ton.
>
> Footnote 33: PM and PM_{10} emissions factors are appropriately determined from the results of emission testing per 40 CFR 63 Subpart FFFFF to determine PM and PM_{10} emission rates for the BOF ESP and baghouse, Desulf/Soda Ash and Hot Metal Charging Baghouse, Slag Skimming Baghouse, and Baghouse 2 for Argon Stirring and Ladle Metallurgy.
>
> 2022 application, Section 5.5.2.2. "Prescribed Emission Factors for Certain BOF Shop Operations."

[24] The 2022 application requests that Permit 95010001 be revised to set "prescribed emission factors" for the emissions of certain emissions units or their uncaptured emissions (e.g., the uncaptured particulate emissions of the basic oxygen furnaces, which are also referred to as the emissions through the roof monitor of the basic oxygen furnace shop). For those units or emission points, the prescribed emission factors would effectively replace the provisions currently in Permit 95010001 that address emissions in pounds/ton of input or production or in pounds/hour. For convenience, these provisions in the permit are generally referred to as "emission factor limits." The usage of this term extends to the provisions of the permit that address emission of lead that are in pounds per hour. In this regard, in Permit 95010001, Table 2, these limits for lead emissions are listed under the heading of "Emission Factor," along with the limits in pounds per ton of production for emissions of other pollutants.

Unlike the emission factor limits currently in Permit 95010001, which the Illinois EPA considers to be directly enforceable against US Steel, prescribed emissions factors that would be established in a revision to Permit 95010001 would not be enforceable. Instead, prescribed emission factors would be specific values for emission rates that US Steel would have to use for normal operation when determining compliance with the limits on annual emissions set by the revised permit. The appropriateness of the various prescribed emissions factors that are selected would be a matter that would be considered during the processing of the revisions to Permit 95010001. Given the role of prescribed emission factors in determining compliance with annual emission limits set by the permit, it is expected that prescribed emission factors would only be set for units for which emissions testing is not feasible or is not warranted given the low levels of annual emissions predicted by engineering analysis and calculations. It is also expected that, as it is practical to do so, prescribed emission factors would be conservative, reflecting the maximum rates of emissions that could occur during the routine, compliant operation of emissions units.

[25] For pre-project actual emissions of particulate matter of the basic oxygen furnace through the roof monitor, Section 5.2.2.7 of the 2022 application explains the following,

> The BOF roof monitor actual emissions were calculated using the information from AP-42 Chapter 12.5 and AIRS (Aerometric Information Retrieval System) database. For pre-change actual PM and PM_{10} emissions, National Steel used 90% capture efficiency during the charging and tapping steps and 99% capture efficiency during the refining step for BOP operations. A detailed description of the baseline roof monitor PM and PM_{10} emission factors is provided in Appendix C of the 1995 Application. For the BOF operations, per particle size distribution in AP-42 Table 12.5-2, 67% of PM is PM_{10}. No changes are necessary for this emission factor.
>
> 2022 application, Section 5.2.7.7, BOF Roof Monitor Emissions (No Change)

The fact that there are emissions of NOx and VOM from the basic oxygen furnaces that now occur from the stack of the new baghouse system but were previously not captured and were not originally quantified raises concern that similar circumstances are present for emissions of CO. [26] In this regard, the 2022 application requests various revisions to Permit 95010001 to correct issues that are posed for the original permitting of the Project with respect to CO emissions, but the application does not propose any such revisions for the basic oxygen furnaces or explain why such revisions are not needed.[27]

[26] For the basic oxygen furnaces, uncaptured emissions of CO should generally be expected to be much greater than the uncaptured emissions of NOx or VOM because the permitted stack emissions of CO of these furnaces are much greater. In this regard, Permit 95010001 limits the CO emissions from the stack of the ESP system for these furnaces to 16,097 tons/year. (The 2022 application does not request an increase in this limit.) If only 99.9 percent capture of CO is assumed by the ESP system, the potential uncaptured CO emissions of these furnaces would be 16.1 tons/year. (16,097 tons/year ÷ {99.9 ÷ 100.0} x {100.0 – 99.9} ÷ 100.0 = 16.1 tons/year CO.) Of course, the capture efficiency of the ESP system for CO could be higher than the efficiency for NOx or VOM if CO is only formed during the refining step when oxygen is actually being injected into the furnace and not during the entire refining step. However, one approach to the revision of Permit 95010001 would be to conservatively assume that the capture efficiency of the ESP system for CO is the same as its capture efficiency for particulate.

[27] The application also does not suggest that it would be inappropriate for any revised permit to simply limit the stack emissions of CO from the basic oxygen furnaces, addressing the combined stack emissions of the ESP and the new baghouse, to the current limits for the CO emissions of the furnaces in Permit 95010001, which limits currently apply only to emissions from the stack of the ESP.

5. THE EMISSION INVENTORY FOR THE SOURCE USED IN THE AIR QUALITY ANALYSIS FOR CARBON MONOXIDE (CO) OMITS CERTAIN CO EMISSIONS

Overview of This Denial Point, with Information As Required or Specified by Section 39(a) of the Act for Denial of a Permit

1. *The Sections of the Act which may be violated if a revised permit were granted as requested:* Sections 9(a), 9.1(d), 39(a)* and 39(a)**.

2. *The provision of the regulations under the Act which may be violated if the revised permit were granted as requested:* 35 IAC 201.152***, 201.160(a), 204.330, 204.1110 and 204.1130.

3. *The specific type of information, if any, which the Agency deems the applicant did not provide the Agency:* The "Air Quality Modeling Report," Appendix C of the 2022 application, which provides the "Source Impact Analysis" required under PSD, is deficient because it does not address certain CO emissions of units that are at or were at the Granite City Works. In particular, the uncaptured CO emissions of the blast furnace cast house and the BOFs (i.e., the emissions that occur from the roof monitors and other openings in structures) are not addressed. The CO emissions of the two by-product recovery coke oven batteries formerly at the Granite City Works, which were in operation in 1996, are also not addressed.

4. *A statement of specific reasons why the Act and the regulations might not be met if a revised permit were granted as requested:* As the source impact analysis in the 2022 application does not address certain CO emissions, it does not fully address the impact of the Production Increase Project, with increases in permitted CO emissions as now requested, on ambient air quality for CO. This analysis also does not address the impact of the Project on CO air quality as would have been determined in 1996 if the Project had been permitted for more CO emissions, as is now being requested by the 2022 application.

Discussion

The results of the analysis of the impacts of the Project on ambient air quality for carbon monoxide (CO) cannot be relied upon because the inventory for the CO emissions of the source with the Project does not address all CO emissions or otherwise explain why the CO emissions of certain units need not be considered. The 2022 application includes an air quality analysis because the Project was originally permitted as a major modification for CO under the Prevention of Significant Deterioration (PSD) program and the application requests revisions to Permit 95010001 to increase the CO emissions for which the Project is permitted.[28] To support

[28] The 2022 application requests that Permit 95010001 be revised to address an additional 25,334 tons/year of CO. This would include emissions of 320 tons/year of CO from the casthouse on the blast furnaces, for which CO was not addressed in the original permitting for the project (2022 application, Section 4.4, p. 4-4) . This would also include an additional 25,014 ton/year from Project-affected fuel burning units, other than Boilers 1 through 10, which are now retired (2022 application, Sections 4.2 and 4.3, pp. 4-2 and 4-3). For the fuel burning units, US Steel has determined that the emission factors for CO

this request, an air quality analysis for CO must be part of the application pursuant to Illinois' PSD rules, 35 IAC 204.1130, Air Quality Analysis, since the request involves revisions to the provisions in Permit 95010001 that involve the Project as it is a major modification for CO under the PSD program.

Uncaptured Emissions from the Casthouse on the Blast Furnaces

The air quality analysis in the 2022 application does not address the uncaptured emissions of the casthouse (2022 application, Appendix C – Air Quality Modeling Report, Table for "US Steel Granite City Volume Source Inputs"). The application indicates potential CO emissions of 13.6 tons/year from the roof monitor on the casthouse on the blast furnaces (2022 application, Section 4.4). These "uncaptured" CO emissions, which are not captured by the baghouse systems on the casthouse, must be addressed in the air quality analysis submitted to support revisions of Permit 95010001 to provide for more CO emissions from the Project.

Uncaptured Emissions from the Basic Oxygen Furnaces

The air quality analysis in the 2022 application does not address uncaptured emissions of the basic oxygen furnaces. (2022 application, Appendix C – Air Quality Modeling Report, Table for "US Steel Granite City Volume Source Inputs.") As discussed earlier, the 2022 application does not address uncaptured emissions from these furnaces. The application also does not explain why uncaptured emissions would not be present as the application does not show 100 percent capture of the emissions of these furnaces by the control systems for emissions of particulate. As there are uncaptured CO emissions from these furnaces, these emissions must also be addressed in the air quality analysis submitted to support revisions of Permit 95010001 to accommodate additional CO emissions from the Project.

By-product Coke Oven Batteries

The 2022 application does not explain why the air quality analysis in the application should not consider the CO emissions of the former by-product coke oven batteries at the source. These batteries were in operation when the Project was originally permitted in 1996 and did not cease operation until 2015. Accordingly, the analysis does not address CO ambient air quality with the Project as would have been predicted by the original air quality analysis for the Project if it had addressed the additional CO emissions now being requested for the Project. On the other hand, the analysis addresses CO emissions of emission units that did not exist in 1996, as this analysis addresses the emissions of the heat recovery coke ovens adjacent to the Granite City Works, which were built and are now operated by Gateway Energy & Coke. [29]

utilized in the original permitting of the Project, particularly the emission factor for blast furnace gas used in the blast furnaces stoves, understated CO emissions.

[29] The modelling in the air quality analysis did address certain newer units, which came into operation after the Project in 1996. In particular, the analysis addressed the CO emissions of the new coke oven batteries adjacent to the Granite City Works that are owned and operated by Gateway Energy & Coke. However, modeling of the CO emissions of new units would only compensate for the CO emissions of existing units if the new batteries were direct, in-kind replacements of the shutdown units, which is not the case. This is not the case. The batteries that were shut down by US Steel were by-product recovery batteries. They recovered chemicals from the off-gas from the coking process (e.g., benzene, toluene and naphthalene, with the gas then used as fuel for heating the coke ovens and in certain other units at the source. Gateway's batteries are heat recovery batteries, in which the off-gas from coking is combusted in

the ovens and the heat is used to make steam and generate electricity. Moreover, the new batteries and the old batteries both operated for a period of several years before US Steel shut down its batteries.

5A. ISSUES WITH THE BACKGROUND AIR QUALITY USED IN THE AIR QUALITY ANALYSIS THE EMISSION INVENTORY FOR THE SOURCE USED IN

(Note: In the Initial Draft Denial, this denial point, Denial Point 5A, was not addressed separately but was instead addressed as part of Denial Point 5. This deficiency is now being addressed separately for ease of understanding. This deficiency relates to the value for background ambient air quality used in the CO air quality analysis rather than deficiencies in the inventory of sources (i.e., the compilation of emissions units and emission data) used in the dispersion modeling in the air quality impact analysis for CO.)

Overview of This Denial Point, with Information As Required or Specified by Section 39(a) of the Act for Denial of a Permit

1. *The Sections of the Act which may be violated if a revised permit were granted as requested:* Sections 9(a), 9.1(d) and 39(a)* and 39(a)**.

2. *The provision of the regulations under the Act which may be violated if the revised permit were granted as requested:* 35 IAC 201.160(a), 204.330, 204.1110 and 204.1130.

3. *The specific type of information, if any, which the Agency deems the applicant did not provide the Agency:* The "Air Quality Modeling Report," Appendix C of the 2022 application, which also provides the "Air Quality Analysis" required under PSD, is deficient. As related to baseline ambient air quality for CO, this report does not address baseline ambient air quality as existed at the time that the Production Increase Project was initially permitted. It also does not address ambient air quality as it presently exists. Rather, a value for background air quality from ambient monitoring conducted in 2016 through 2018 is used. This does not represent either air quality in the period before the Project was initially permitted or air quality at the present time. While the monitoring station in East St. Louis that was the source for the value selected for background air quality ceased operation in 2019, the Missouri Department of Natural Resources continues to conduct ambient monitoring for CO at a site in St. Louis. (In this regard, the 2022 application, p. 4-5, indicates that "There are many existing ambient CO monitors within the 100 miles of the facility (Figure 4).") The 2022 application does not justify use of a value for background ambient air quality that is not representative of the period when the Project was initially permitted. Then, if this can be justified, the 2022 application does not explain why it is appropriate to use a value for background air quality taken from ambient monitoring conducted over five years ago.

4. *A statement of specific reasons why the Act and the regulations might not be met if a revised permit were granted as requested*: Because of the issues with the value for baseline air quality used in the "Air Quality Modeling Report" in the 2022 application, as discussed above, it would not be proper to rely on the results of this report to issue a revised permit what would provide for increases in permitted CO emissions as requested by the 2022 application.

Discussion

In addition [to the deficiency addressed in Denial Point 5], the air quality analysis in the application uses a value for CO background air quality on an 8-hour average that is based on ambient air quality data collected for a three year period consisting of 2016, 2017 and 2018. As such the value used for background air quality is not necessarily appropriate as a representation of either current ambient air quality or the historic air quality at the time that the Project was originally permitted.[30]

[30] Under the PSD program, the air quality analysis for a project whose modelled maximum impact(s) by itself on air quality for a pollutant are above certain specified concentration(s) or "significant impacts levels" under the PSD program must also consider "background air quality." This accounts for the contribution to ambient air quality of mobile sources (e.g., cars, trucks and buses) and of other sources (e.g., residential and commercial heating), which contribution cannot be determined as part of the computerized dispersion modelling for discrete emission units performed as part of the analysis. The air quality analysis in the 2022 application shows that the maximum air quality impact of the Project with the requested increases in CO emissions would continue to be above the significant impact level for CO on an 8-hour average. (In the original air quality analysis, the Project's impacts were significant for CO on both a 1-hour and an 8-hours average.) The value for background in the current air quality analysis is based on data collected at an ambient air monitoring station in East St. Louis operated by the Illinois EPA. If US Steel shows that the air quality analysis for the revision to Permit 95010001 should address current ambient air quality for CO, the value for background air quality in the analysis should be updated. Since the Illinois EPA discontinued ambient monitoring for CO at its East St. Louis monitoring station in 2020, the new value for background would likely need to be based on data collected at an appropriate monitoring station in Missouri operated by the Missouri Department of Natural Resources.

It should be noted that the values for background used in the original air quality analysis were likely conservative, as they were based on data from a now retired monitoring station in Granite City that was less than a third of a mile from the Granite City Works. Given the location of that station, the ambient air quality data collected at that station may have included the contribution to air quality of units for which modelling was also conducted, so that the original analysis effectively counted the impacts of those units twice. Thus, it is reasonable for the current air quality analysis to use value(s) for background air quality based on data collected at a monitoring station other than the one that was originally used.

6. SCOPE OF PROPOSED GROUP EMISSION LIMITS

Overview of This Denial Point, with Information As Required or Specified by Section 39(a) of the Act for Denial of a Permit

1. *The Sections of the Act which may be violated if a revised permit were granted as requested:* Sections 9(a), 9.1(d), 39(a)* and 39(a)**.

2. *The provision of the regulations under the Act which may be violated if the revised permit were granted as requested:* 35 IAC 201.160(a), 203.123, 203.128, 204.400 and 204.560.

3. *The specific type of information, if any, which the Agency deems the applicant did not provide the Agency:* The 2022 application does not show that certain proposed collections of emission units for the "group limits" for annual emissions of particulate, NOx and VOM that are generally requested are appropriate. In this regard, the 2022 application does not propose limitations that would only apply to the annual emissions of particulate of the casthouse for the two blast furnaces. The application also does not propose limitations that would apply only to the annual particulate emissions of the two BOFs. These are principal emission units at the Granite City Works. For the casthouse, the 2022 application does not show that that it would be unreasonable or inappropriate for Permit 95010001 to continue to have limitations for annual emissions of particulate that are directly enforceable independent of emissions of the other, lesser units involved in production of iron (i.e., the charging of the blast furnaces and slag pit operations). (As the application does not indicate any NOx or VOM emissions from these lesser operations, it is unclear whether group limits are actually being requested for blast furnace operations for NOx and VOM.) Similarly, for the BOFs, the 2022 application does not show that it would be unreasonable or inappropriate for Permit 95010001 to continue to have limitations for annual particulate emissions that are directly enforceable independent of the emissions of other, lesser units involved in making steel (i.e., the removal of sulfur from the molten iron, the skimming of the resulting slag from the surface of the iron in the ladle, and the ladle metallurgy operations after the BOFs). (The application does not actually indicate any NOx emissions from these lesser operations; for VOM, the only lesser unit identified with emissions is the skimming of slag.) While the 2022 application points to three construction permits for facilities issued by other permitting authorities as support for the proposition that limitations on annual emissions that apply to both principal units and lesser units are appropriate, the 2022 application does not show that the circumstances of the Granite City Works are such that those other permits should serve as precedents for the requested revisions of Permit 95010001. Variability in utilization or activity was an inherent aspect in the basic design or purpose of those three facilities and led to the approach to the emissions limitations that were set for those facilities. In this regard, one facility involved a fleet of sea-going vessels engaged in exploration for petroleum. The second facility, "the first of its kind," would be developed to make fuel ethanol from processed municipal waste and sewage sludge. (It may also be relevant that the construction permit for this facility, and as well as the permit for a fleet of vessels that would conduct offshore exploration for petroleum, both limited emissions so that the facilities would not be major sources for purposes of NSR.) The third facility was being developed as a peaking power plant, to operate mainly when other

sources of electricity, including wind and solar power, could not fully satisfy the demand for electricity. Moreover, this last permit sets limitations for the annual emissions of a group of identical generating units. As such, this permit does not provide support for setting limitations for a collection of disparate emission units. In summary, the 2022 application does not request revisions to Permit 95010001, that would continue to separately limit the annual particulate emissions of the blast furnace casthouse and the annual emissions of the two BOFs by themselves.

4. *A statement of specific reasons why the Act and the regulations might not be met if a revised permit were granted as requested:* If a revision to Permit 95010001 were issued without limits that independently apply to the emissions of the blast furnaces casthouse and to the emissions of the two BOFs, the 2022 application would not show the limits on annual emissions established in such revised permit would serve to restrict the emissions of the casthouse and the two BOFs as a practical matter. In this regard, as US Steel is applying for revisions to emission limits that are currently in Permit 95010001, it is obliged in its application to adequately explain and justify the revisions to the current emission limits that it is requesting. The three permits cited by US Steel in the 2022 application do suggest that permit limitations for the annual emissions of emission units that are accompanied by appropriate operational and/or emissions monitoring may now be considered acceptable as being enforceable as a practical matter without associated emission factor limits, i.e., limits on emission of pollutant(s) in pounds per ton of production or throughput, pounds per million Btu fuel heat input or pounds per hour. However, these permits do not show that the stringency of the current limits for the annual emissions of principal emissions units at the Granite City Works, a facility with substantial emissions in an urban area, should generally be relaxed by setting revised limits that would now apply to emissions of both principal unit(s) and other lesser units, as is proposed by the 2022 application.

Discussion

The application does not show that the proposed collections of emission units for the requested group limits for annual emissions of particulate, NOx and VOM are appropriate.[31, 32] In particular, the application does not propose limits that would only apply to the annual emissions of the casthouse on the blast furnaces and to the annual emissions of the two basic oxygen furnaces. These are principal emission units at this facility. It would be reasonable and appropriate for both the annual emissions of the casthouse and the annual emissions of the two basic oxygen furnaces to be directly limited separately from the emissions of any other units. The construction permits issued by permitting authorities in other jurisdictions cited in the application as support for

[31] For PM, PM_{10}, NOx and VOM (i.e., pollutants other than sulfur dioxide (SO_2), carbon monoxide (CO) and lead), the 2022 application requests that the revised permit not include the provisions in Permit 95010001 that the Illinois EPA considers would limit emissions of individual "processes" in pounds/ton of production or throughput and in tons/year. These provisions were set to ensure that the Project would not be a major modification for purposes of New Source Review (NSR). The removal from Permit 95010001 of the "emission factor limits" which limit emissions of various process operations relative to their production or throughput, would facilitate resolution of two permit appeals filed by US Steel with the Illinois Pollution Control Board (PCB), PCB 2013-53 and PCB 2013-62. Both appeals indirectly address the emission factor limits in Permit 95010001. PCB 2013-53 concerns the revised Clean Air Act Permit Program (CAAPP) permit for the facility (Permit 96030056) issued in 2013. US Steel appealed this permit as it repeats the emission factor limits as originally set by Permit 95010001. PCB 2013-62 concerns the construction permit for the addition of the baghouse system to improve control of particulate emissions from charging and tapping of the BOFs, Permit 11050006, as reissued in 2013. For the BOFs, this permit also repeats the emission factors limits for the BOFs set by Permit 95010001. US Steel appealed the subject emission factor limits in these permits because, prior to issuing the revised CAAPP permit for the facility in 2013, the Illinois EPA had explicitly explained that the provisions in the permit containing emission factors were considered to constitute enforceable limits on emissions. This was done in the Illinois EPA's "Statement of Basis for a Planned Revision of the Clean Air Act Permit Program (CAAPP) Permit for: U. S. Steel Corporation, Granite City Works, 20th and State Streets, Granite City, Illinois," of March 2011, pages 20 through 26. That these provisions set enforceable limits was then recognized by the USEPA in the Administrator's subsequent order of December 3, 2012, "In the Matter of United States Steel Corporation – Granite City Works, CAAPP Permit No. 96030056," Petition Number V-2011-2, pages 7 through 9).

[32] With regard to the current limits for the annual emissions of PM, PM_{10}, NOx and VOM of individual processes, the 2022 application requests "group limits" for the annual emissions of groups of related emission units. For example, the application requests that the revised permit limit the overall emissions of a group of units that includes the casthouse for the blast furnaces and other, ancillary units involved in production of iron. The permit currently sets separate limits for the emissions of the casthouse, the emissions from charging the blast furnaces, and the emissions from slag pit activities. Unlike the current limits for annual emissions, which apply on a calendar year basis, the proposed new limits for annual emissions would be rolled monthly, restricting emissions over each consecutive 12 month period. The requested limits would theoretically be less stringent than the current limits as US Steel could potentially compensate for any "overage" of emissions by unit(s) in a group of units with lower levels of emissions from other units in the group.

Incidentally, in these appeals, US Steel only challenges the emission factor limits for "processes," such as the casthouse, the basic oxygen furnaces, continuous casting operations, and discrete material handling operations. These appeals do not challenge the emission factor limits for fuel burning units affected by the Project. Those limits do not restrict the emissions of individual units or groups of similar units. Instead, they separately restrict the emissions from use of different fuels, i.e., blast furnace gas, natural gas and oil.

emission limits that apply to groups of emission units do not show that the annual emissions of the casthouse and the basic oxygen furnaces should not both continue to be limited individually.[33]

In this regard, the 2022 application points to USEPA policy and practice concerning how the potential emissions of a source may be restricted (2022 application, Section 3, "Discussion of Permit Conditions used to Restrict PTE [Potential to Emit]). The application shows that USEPA has found that construction permits may be issued that restrict potential emissions by means of limits on annual emissions that are practically enforceable. Accordingly, the current provisions in Permit 95010001 that limit emissions of process units in pounds/ton of production of throughput, which apply on a short-term rather than annual or long-term basis, are not essential to restrict potential emissions. In addition, the application points to several construction permits issued outside of Illinois since 2000 for which the permitting authority determined that annual emission limits that apply to groups of emission units that are practically enforceable were determined to be sufficient to restrict potential emissions without need for accompanying limits that address emissions on a short-term basis.[34, 35] However, the 2022 application does not show that the

[33] In light of the construction permits issued by other permit authorities cited by the application as support for group limits, it would seem acceptable for a revised permit to set group limits for the emissions units or operations that do not qualify as principal units. For example, for the production of iron, a revised permit could set limits for the overall emissions from charging the blast furnaces and the slag pits. Alternatively, limits specifically for the emissions of the casthouse for the blast furnaces and the basic oxygen furnaces, i.e., the principal units at the facility for iron and steel production, could be accompanied by group limits for the overall emissions of these principal units and the other, "non-principal" units in these areas of the facility. For example, limits could be set for both emissions of the casthouse and for the emissions of the casthouse, charging of the blast furnaces, and the slag pits.

[34] The 2022 application, Appendix E - "Copies of EPA Determinations," contains two decisions by the USEPA's Environmental Appeals Board (EAB):

- The 2012 decision of the EAB for an Outer Continental Shelf (OCS) Permit to Construct and Title V Air Quality Operating Permit issued by Region 10 of USEPA to Shell Offshore, Inc. (USEPA, EAB, *In Re Shell Offshore, Inc.*, OCS Appeals Nos. 11-05, 11-06 & 11-07, Order Denying Petitions for Review, Decided March 30, 2012).
- The 2018 decision of the EAB for a PSD permit issued by the Department of Environmental Quality for Pima County, Arizona, to Tucson Electric Power (USEPA, EAB, *In Re Tucson Electric Power*, PSD Appeal No. 18-02, Order Denying Review, Decided December 3, 2018).

[35] In a footnote, the 2022 application also refers to the USEPA's order responding to a petition to object to a Title V permit issued for a facility in Middletown, New York proposed by Masada (USEPA, Order, May 2, 2001, *In the Matter of Orange Recycling and Ethanol Production Facility, Pencor-Masada Oxynol, LLC*, Permit ID: 3-3309-00101/00001, Issued by the New York State Department of Environmental Conservation, Petition No.: II-2000-07.) As explained by US Steel in the application, in this order, the USEPA upheld the,

> …use of annual emission caps with a rolling cumulative total methodology and rejected petitioners' "concerns that the permit appears to rely on after-the-fact monitoring, rather than engineering practices, test data or vendor guarantees" to establish restrictions on PTE. U. S. EPA based its findings on the fact that "[i]f the source has no room to operate under the PTE emission limiting cap, it must cease operation or face a violation" and that "all PTE limits rely on after the fact monitoring of some kind."
>
> 2022 application, Footnote 11.

specific circumstances of the Project are such that the current limits for annual emission of the principal emission units should be replaced with group limits that apply to the combined emissions of principal emission units and other lesser emission units.[36] The circumstances of the Granite City Works are not the same as those presented by the cited permits. US Steel's Granite City Works is a manufacturing facility at which iron is produced from iron ore in blast furnaces and steel is produced from molten iron and scrap metal in basic oxygen furnaces. The processes that generate emissions at the Granite City Works are different than the oil-fired engines that are generally addressed by the permit for Shell Offshore and the natural gas-fired engines addressed by the permit for Tucson Electric. The permit for Shell Offshore, Inc., addresses a marine drilling unit, the "Kulluk," and an associated fleet of support vessels that may be used during July through November of each year to conduct exploratory drilling operations in areas of the Beaufort Sea north of Alaska. The permit for Tucson Electric Power addressed a new peaking electrical generating facility with ten engine-generating units at Tucson Electric's Irvington Station. The utilization of the individual generating units in the new facility would vary from day to day and season to season as the use of the units would be tied to the inability of other electrical generating facilities to meet the demand for electricity.[37]

---

[36] For the casthouse on the blast furnaces, Permit 95010001 currently sets separate limits for the emissions of various pollutants from the casthouse baghouse (i.e., the main baghouse for the casthouse), the iron spout baghouse, and the roof monitor (uncaptured emissions). If Permit 95010001 were to be revised, it would be reasonable for each pollutant for which emissions are limited, other than CO, for the permit to restrict the overall emissions of the pollutant from the casthouse, rather than to individually limit the stack emissions of each control system and uncaptured emissions. The application also does not suggest that it would be inappropriate for any revised permit to simply limit the stack emissions of CO from the BOFs.

For the basic oxygen furnaces, the current permit separately addresses emissions of particulate and lead from the stack of the ESP and the roof monitor (uncaptured emissions.) For these furnaces, it would also be reasonable in a revised permit to set limits for different pollutants for the overall emissions of the pollutant from these furnaces. In particular, the revised permit would not set limits specifically for the emissions of the new baghouse system that was installed to improve control of particulate emissions from charging and tapping of these furnaces. Instead, the revised permit would address emissions that occur from this baghouse with limits for different pollutants for the overall emissions of these furnaces.

[37] At the Shell Off-Shore and Masada facilities, variability of utilization or operation of different emission units was a consideration in the permitting of these facilities. In its response to comments on the draft permit for Shell Offshore, USEPA Region 10 explains,

> The commenters are correct that EPA guidance does express a general preference for shorter time periods rather than 12-month rolling limits. See 1989 PTE Guidance at 9. As the commenter acknowledges, however, EPA has also recognized that longer rolling limits are appropriate for sources with substantial and unpredictable variations in emissions, as well as for those sources that curtail operation during part of a year on a regular seasonal cycle. Id. at 9 – 10. Such is the case here. Shell's planned exploratory operations are atypical as compared to other sources because emission units consist of multiple engines and generators with variable emission on the Kulluk and a fleet of numerous support vessels. Operations will vary from hour-to-hour, day-to-day month-to-month, and season-to-season based on factors such as the number of wells drilled, the activity being undertaken (drilling mud cellar lines, other drilling activity, or activity that does not involve drilling), the depth of wells drilled, whether emergency engines are being run for testing, and ice conditions. Given the variability in operations, and thus emissions expected from the source, and after considering a full

7. INADEQUATE JUSTIFICATION FOR ELIMINATION OR REVISION OF CURRENT LIMITS FOR PROJECT-AFFECTED FUEL BURNING UNITS

Overview of This Denial Point, with Information As Required or Specified by Section 39(a) of the Act for Denial of a Permit

1. *The Sections of the Act which may be violated if a revised permit were granted as requested:* Sections 9(a), 9.1(d), 39(a)* and 39(a)**.

2. *The provision of the regulations under the Act which may be violated if the revised permit were granted as requested:* 35 IAC 201.160(a), 203.123, 203.128, 204.400 and 204.560.

---

range of options for limiting the source's potential to emit, Region 10 determined that it was appropriate to establish longer-term rolling limits.

USEPA, Region 10, "Response for Comments for Outer Continental Shelf Permit to Construct and Title V Air Quality Operating Permit: Conical Drilling Unit Kulluk," October 2011, p. 26.

In the USEPA's order for Masada of April 8, 2002, USEPA observes that,

Masada's operations will have significant fluctuations due [sic] the variability of the processed waste, making an operating parameter-based PTE limit less appropriate. The emissions-based PTE limit discussed below recognizes this fact and provides Masada with operational flexibility accordingly. Moreover, Masada will be measuring its emissions on a real-time basis using CEMS [continuous emissions monitoring systems], obviating the need to limit and monitor operating parameters as a surrogate for emissions.[Footnote 6] Thus the petitioners have not demonstrated that it was inappropriate for the NYSDEC [New York State Department of Environmental Conservation] to restrict Masada's emissions directly, rather than its operation or production.

Although it is generally preferable that PTE limitations be as short-term as possible (e.g., not to exceed one month), EPA guidance [USEPA, "Guidance on Limiting Potential to Emit in New Source Permitting," June 13, 1989] also allows permits to be written with longer term limits if they are rolled (meaning recalculated periodically with updated data) on a frequent basis (e.g., daily or monthly). The 1989 guidance recognizes that such longer rolling limits may be appropriate for sources with 'substantial and unpredictable annual variation in production." 1989 Guidance at 9.

Footnote 6. This is consistent with prior EPA practice in appropriate circumstances. See e.g., Memorandum entitled "3M Tape Manufacturing Division Plant, St. Paul, Minnesota," from John Rasnic to David Kee, dated July 14, 1992 ("a federally enforceable emission limit may be used …to limit the potential to emit as long as a continuous emissions monitor (CEM) or an acceptable alternative is used."); and Memorandum entitled "Policy Determination on Limiting Potential to Emit for Koch Refining Company Clean Fuels Project," from John Rasnic to David Kee, dated March 13, 1992 ("Use of an emission limit to restrict potential to emit …is acceptable provided that emissions can be and are required to be readily determined or calculated.")

USEPA, Order, April 8, 2002, "*In the Matter of Orange Recycling and Ethanol Production Facility, Pencor-Masada Oxynol, LLC*, Permit ID: 3-3309-00101/00003, Issued by the New York State Department of Environmental Conservation," Petition No.: II-2001-05, p. 6)

3. *The specific type of information, if any, which the Agency deems the applicant did not provide the Agency*: The 2022 application does not include information that would support revisions to Permit 95010001 to revise or eliminate current limitations for usage of fuels by the Project-affected fuel burning units, as is requested by the application. With regard to the elimination of the current limitations, the 2022 application does not quantitatively demonstrate that this would not result in an increase in the potential emissions of the subject units. This is of particular concern as Permit 9501001 does not limit the usage of COG, which was not quantitatively addressed in 1996 during the initial permitting of the Production Increase Project. Moreover, with the shutdown in 2015 of the two by-product recovery coke oven batteries at the facility, more natural gas must now be used as fuel in certain subject units (e.g., the blast furnace stoves), to replace the COG that was previously used. With regard to the revisions of the current limitations, the 2022 application does not include information that would be necessary for the Illinois EPA to set values for revised limitations that would be appropriate. As discussed above in Denial Point 3A, the 2022 application does not include the data and calculations underlying the representations in the 2022 application for future maximum emission of the Project-affected fuel burning units. This data would include the maximum usages of fuels as would be needed for the Illinois EPA to appropriately set revised limitations for future usages of fuel.

4. *A statement of specific reasons why the Act and the regulations might not be met if a revised permit were granted as requested:* Absent information as described above, the 2022 application does not include the necessary information to allow a revised permit to be proposed for the Project, much less issued, that would eliminate or revise the current limitations in Permit 95010001 for the usage of fuel by Project-affected fuel burning units.

Discussion

The justification provided in the 2022 application for revisions to Permit 95010001 to eliminate or revise limits on usage of fuel and, presumably, emissions by Project-affected fuel burning units is not adequate. Although this application indicates that the revised permit should not contain the limits for usage of natural gas and BFG currently set by Permit 95010001, it does not propose any new limits in their place.

> USS Granite City is also requesting revision/elimination of gaseous fuel usage limits for project-affected combustion units. In 2015, USS Granite City shutdown its by-product coke oven batteries. This eliminated the ability to use coke oven gas (“COG”) as a fuel at the mill. In addition, ten of the twelve boilers at the time of the Project in 1996 have been retired. These actions have greatly reduced the emissions from fuel combustion in project-affected emissions units and obviate the need to preserve limits to restrict PTE of the remaining units.
>
> 2022 application, Section 2.2.3, p. 2-4.

This rationale is deficient because it does not consider that the 2022 application also requests that the revised permit address an increase in the usage of natural gas at the facility as a consequence of the shutdown of the by-product coke oven batteries. While the limits for fuel usage and emissions currently in Permit 95010001 may no longer be relevant, as generally addressed

above,[38] this does not mean that other limits for fuel usage and emissions are not appropriate. In this regard, the 2022 application does not show that new limits for fuel usage and emissions would not now be needed and those limits should address fuel burning units other than the Project-affected units currently addressed by the permit. In this regard, limits for usage of fuels and emissions should not extend to Boilers 1 through 10, as they are no longer in operation, having been shut down a number of years before the coke oven batteries were shutdown. As the four slab reheat furnaces at the facility were affected by the elimination of COG, new limits may be needed that also extend to these furnaces. It may also be appropriate for the cogeneration boiler to be addressed by the new limits as this boiler began operation several years before the by-product coke oven batteries at the facility were shutdown.

[38] It is noteworthy that the 2022 application does not address what an appropriate limit for usage of COG would have been in Permit 95010001 if the permit had originally addressed use of COG by Project-affected fuel burning units. In the absence of such information, it is unclear how the shutdown of the two by-product coke ovens at the facility and elimination of COG led to decreases in NOx emissions relative to the limits for NOx emissions of fuel-burning units set by Permit 95010001.

8. THE APPLICATION DOES NOT SHOW THAT EMISSION FACTORS THAT ARE PROPOSED AS PRESCRIBED FACTORS FOR CERTAIN UNITS WOULD BE REPRESENTATIVE

Overview of This Denial Point, with Information As Required or Specified by Section 39(a) of the Act for Denial of a Permit

1. *The Sections of the Act which may be violated if a revised permit were granted as requested:* Sections 9(a), 9.1(d), 39(a)*, 39(a)**, 39.5(5)(i), 39.5(7)(a), 39.5(10)(a)(iv) and 39.5(13)(c)(v).

2. *The provision of the regulations under the Act which may be violated if the revised permit were granted as requested:* 35 IAC 201.160(a), 203.123, 203.128, 204.400 and 204.560.

3. *The specific type of information, if any, which the Agency deems the applicant did not provide the Agency:* Relative to the revisions to Permit 95010001 that are requested to establish certain "prescribed emission factors," the 2022 application does not include information justifying the future use of such proposed factors for the purpose of determining compliance with the revised limitations for the emissions of the project that are requested. In particular, the 2022 application does not include information showing that the proposed factors should be considered representative, accurate and appropriate. For example, for the uncaptured emissions of particulate of the BOFs, which occur through the roof monitor and, possibly, other openings in the BOF shop building, the application does not include any explanation for the emission factors that are proposed as prescribed emission factors. These factors are lower than the factors that were used for the calculations in the application for the baseline emissions of uncaptured particulate from the BOFs. This is generally reasonable as improvements have been made that have improved capture and control of the particulate emissions of the BOFs and should lower uncaptured emissions. Notably, a baghouse control system has been installed to improve control of emissions from charging and tapping the BOFs. However, the 2022 application does not explain how the proposed prescribed factors were developed. It also does not lay out the practices for control of particulate emissions of the BOFs that would accompany the proposed factors.

4. *A statement of specific reasons why the Act and the regulations might not be met if a revised permit were granted as requested:* Absent information as described above, the 2022 application does not include the necessary information to allow a revised permit to be proposed for the Project, much less issued, that would determine future emissions of the subject emission units and emission points based on the factors proposed in the 2022 application. The 2022 application does not show that the proposed prescribed factors would appropriately be relied upon for the purpose of enforceably limiting the future emissions of the emission units and emission points for which they are proposed.

Discussion

To calculate baseline emissions of certain emission units for which emission testing is not feasible or practical, the 2022 application necessarily relies on use of emission factors that are

not based on source-specific emissions testing. Likewise, for the ongoing determination of the emissions of these units, the application requests that revised Permit 95010001 "prescribe" or specify the emission factors that are to be used. As explained in the 2022 application, where a permit relies on a limit on annual emissions or an "annual emission cap" to restrict potential emissions, USEPA policy and precedent provide that:

> Where the permit prescribes an emission factor to be used in conjunction with operational data in demonstrating compliance [with an annual emission cap], the permitting authority should describe the basis for its determination that the emission factor is representative.
>
> 2022 application, Section 3, p. 3

This summary of relevant USEPA policy in the 2022 application is consistent with the statements made by the EAB and the Administrator of USEPA in various orders responding to petitions that request it object to Title V permits or, in Illinois, CAAPP permits), issued by a permitting authority. In its decision in *Shell Offshore, Inc.*, the EAB also considered the use of prescribed emission factors in the permit that was appealed. The EAB did not object to this practice. It found that the use of prescribed emission factors may be appropriate for a permit to prescribe use of specific emission factors published by USEPA in its *Compilation of Air Pollutant Emission Factors* (AP-42) for certain emission units for the purpose of determining emissions for purposes of compliance with annual emission limits set by the permit.[39]

> The Region explained in the record its rationale, based on the Region's technical expertise and applied in certain limited circumstances, for supplementing source-specific emission factors derived for most of the emission units or groups of emission units with either AP-42 emission factors, or factors derived from source test data Shell submitted to the Region in support of two separate, previously OCS [Outer Continental Shelf] PSD permits authorizing Shell to conduct exploratory activities in the Chukchi and Beaufort Seas using the *Discover* drillship.
>
> USEPA, Environmental Appeals Board, *In Re Shell Offshore, Inc.*, OCS Appeals Nos. 11-05, 11-06 & 11-07, Order Denying Petitions for Review, Decided March 30, 2013.

For US Steel, Granite City Works, the USEPA specifically addressed the use of emission factors for determining compliance with emission limits in an order of December 3, 2012. Note that relative to prescribed emission factors, the USEPA's finding, as is provided below, should be considered *dicta*. This is because the permit that was the subject of the appeal did not provide for use of prescribed emission factors. In addition, as the order addresses the possibility of using of

[39] The EAB did observe that it is preferable that compliance with emission limits set by a permit be determined using source-specific emission factors, as would be developed by emissions testing required by the permit. The EAB did not address prescribed emission factors from sources other than AP-42 since the permit that was appealed only prescribed use of emission factor from AP-42. Given the general nature and limited scope of AP-42, the EAB's decision should not be interpreted to preclude use of emissions factors from source other than AP-42. There are emission units and pollutants for which use of prescribed emissions is appropriate for which emission factors are not present in AP-42 or better emission factors are available from other sources.

prescribed emission factors in terms of the actions that the Illinois EPA would need to take when issuing a permit that prescribed emission factors, the order serves to identify the underlying information that a source must provide in an application if it seeks a permit that would provide for use of prescribed emission factors is sought. The Illinois EPA would then be responsible for assuring that the emission factors that are prescribed would be appropriate and sufficient for compliance or noncompliance with the associated emission limits to be reasonably determined.[40,]

> …IEPA [Illinois EPA] must include in the permit itself the monitoring methodology for determining compliance with these limits [emission factor limits and annual emission limits]. If using emission factors, IEPA must propose the actual emission factors in the permit or supporting permit record, and provide supporting documentation for the accuracy and appropriateness of these emission factors, such as historical source test data or other available information. If source test data are not readily available for a specific emission unit, as IEPA asserts, other sources of emission factors (including published literature and material and energy balances) must be reviewed and cited for acceptable emission factors before issuing the permit.
>
> USEPA, Order Responding to Petitioner's Request that the Administrator Object to Issuance of State Operating Permit, Petition Number V-2011-2, *In the Matter of United States Steel Corporation – Granite City Works, CAAPP Permit No. 96030056*, Petition Number V-2011-2, dated December 3, 2012, p. 12.

<u>Roof Monitor on the Basic Oxygen Furnace Shop – Particulate Emissions:</u>
The 2022 application does not include support for the particulate emission factors that are proposed as prescribed factors for the roof monitor on the basic oxygen furnace shop (i.e., the uncaptured emissions from these furnaces). The application does include support for the <u>baseline</u>

[40] In an order concerning a Title V permit issued by the Texas Commission on Environmental Quality (TCEQ), the Administrator of USEPA stated the following when addressing the use of emission factors in the permit:

> …Moreover, the justification provided by a permittee in a permit application should not substitute for the judgment of the permitting authority (TCEQ) with responsibility for ensuring that a Title V permit contains sufficient monitoring to ensure compliance. If TCEQ wishes to adopt and incorporate an applicant's technical justification for specific monitoring into the current Title V permit record, it must, at minimum, identify specifically where such a justification is to be found (just as it would be required to do it if [sic]wished to incorporate by reference a requirement located elsewhere.)
>
> USEPA, Administrator, Order Responding to Petition Requesting Objection to the Issuance of Title V Operating Permit, Petition No. VI-2017-6, *In the Matter of BP Amoco Chemical Company, Texas City Chemical Plant, Galveston County, Texas, Permit No. 01513*, dated July 20, 2021, p. 18.

particulate emission rates for the roof monitor on the basic oxygen furnace shop.[41, 42] However, the permitting of the Project in 1996 relied upon various changes that were made to improve capture and control of emissions of particulate from the basic oxygen furnaces and decrease the uncaptured emissions of particulate. For example, a fourth section was added to the ESP in 1995, increasing the volume of air that it could handle. As such, the baseline particulate emission rates of the Project are not representative of future emissions with the Project. Moreover, the emission factors actually proposed in Section 5.5.2.2 in the 2022 application are lower than emission factor limits now contained in Table 2 of Permit 95010001 for the roof monitor on the basic oxygen furnace shop. For PM, an emission factor of 0.0296 ~~0.01986~~ pounds/ton is proposed as a prescribed factor, compared to the current emission factor limit of 0.0987 pounds/ton; for filterable PM_{10}, an emission factor of 0.0198 0~~.0296~~ pounds/ton is proposed, compared to the current emission factor limit of 0.06614 pounds/ton. The 2022 application does not show that the emission factors for the roof monitor on the basic oxygen furnace shop that are proposed as prescribed emission factors in Section 5.5.2.2 of the application are representative.[43]

Caster Mold, Slab Cutoff/Ripping Processes in Continuous Casting:
For the caster mold, slab ripping and slab ripping processes on the continuous casting lines, prescribed emission factors are proposed in Section 5.5.3 of the 2022 application that are identical to the baseline particulate emission rates for these emission units as generally discussed in Section

[41] The baseline emission rates for the roof monitor are based on emissions factors from AP-42 for uncontrolled emission with application of 90 and 99 percent capture efficiencies for the refining process and the charging and tapping processes, respectively, being provided by the ESP control system on the furnaces in the baseline period before 1996 (2022 application, Section 5.5.2.2). While the application cites to Appendix C in the original application for the Project as support for these values for capture efficiency, this appendix only uses these assumed values of capture efficiency when calculating baseline emission rates for the Project. This appendix does not actually provide technical support for these values for capture efficiency being representative of the levels of capture efficiency that were achieved for particulate emissions of the basic oxygen furnaces in the baseline period for the Project. Appendix C also does not provide support for the higher levels of capture efficiency (95% and 99.9%) that it uses for operation and emissions for the basic oxygen furnaces with the Project.

[42] It should generally be noted that the sections of the 2022 application that provide the explanation or basis for the emission factors used in the application are not the sections in which prescribed emission factors are proposed for certain units. The basis for the different emission factors is typically provided earlier in the application in the sections of the application where baseline emission rates are addressed. For example, the particulate emission rates or factors for the roof monitor on the blast furnace casthouse are discussed in Section 5.2.3.3 (2022 application, p. 5-3); the proposed prescribed emission factors for this emission point, which are the same numerically, are provided later in Section 5.5.1.2 without further discussion (2022 application, p. 5-14 and 5-15).

[43] The emission factors that the 2022 application proposes to be prescribed for particulate emissions from the roof monitor on the basic oxygen furnaces may be appropriate at the present time given the installation of a baghouse control system on these furnaces. Nonetheless, for a revised permit to be issued that prescribes emission factors for emission from the roof monitor, the application must show that those factors are representative with the emission control measures that are required by the permit. It must also be recognized that those prescribed factors would not be representative of emissions before the new baghouse system was installed and operation of this system was required. As such, particulate emissions factors that are representative of particulate emissions circa 1996, before installation of the baghouse system on the furnaces, should be used in the revised netting analyses for PM and PM_{10}.

5.2.2.11, 5.2.2.13 and 5.2.2.14 of the application. In these sections, the application explained that these emission factors reflect emission factors from a report prepared by the Illinois EPA in 1991, i.e., "Illinois EPA 1991 EIS PM/PM_{10}." This is not sufficient to show that the emission factors that are proposed as prescribed factors are representative. In this regard, the statement that these factors were taken from a historic report prepared by the Illinois EPA does not show that this report included information showing why these factors should be considered representative and can be prescribed by a revised permit.

Mag-Lime Silo:

For the Mag-Lime Silo, a prescribed emission rate of 0.009 pounds/hour is proposed (2022 application, Section 5.5.4.2). As explained in the application, this unit, which stores the reagent used in desulfurization of iron in the basic oxygen furnace shop, was overlooked in the original permitting of the Project (2022 application, Section 5.4.4 and Footnote 34, p. 5-16 and 5-17). US Steel elected not to address its baseline emissions in the revised netting analyses for PM and PM_{10} because emissions are low, i.e., potential annual emissions less than 0.1 tons. However, the application does not include calculations explaining how US Steel determined that potential particulate emissions of this unit are less than 0.1 tons/year, much less information showing that a prescribed emission rate of 0.009 pounds/hour should be considered representative of the emissions of this unit.[44]

[44] The application also does not explain how US Steel determined that the potential annual particulate emissions of the Mag-Lime Silo are less than 0.1 tons. In this regard, the application does not include calculations that identify any assumptions about operation of this unit or the control of its emissions made by US Steel when calculating the potential emissions of this unit. For example, for particulate matter, was the outlet emission rate of the filter that is part of this unit assumed to be less than the regulatory limit of 0.03 grains per dry standard cubic foot pursuant to 35 IAC 212.308 and 212.313?

9. FOR THE ROOF MONITOR OF THE CASTHOUSE, THE APPLICATION DOES NOT SHOW THAT THE METHODOLOGY THAT IS PROPOSED TO BE PRESCRIBED FOR THE DETERMINATION OF NOx AND VOM EMISSIONS WOULD BE REPRESENTATIVE

Overview of This Denial Point, with Information As Required or Specified by Section 39(a) of the Act for Denial of a Permit

1. *The Sections of the Act which may be violated if a revised permit were granted as requested:* Sections 9(a), 9.1(d), 39(a)*, 39(a)**, 39(a)***, 39.5(5)(i), 39.5(7)(a). 39.5(10)(a)(iv) and 39.5(13)(c)(v).

2. *The provision of the regulations under the Act which may be violated if the revised permit were granted as requested:* 35 IAC 201.160(a), 203.123, 203.128, 204.400 and 204.560.

3. *The specific type of information, if any, which the Agency deems the applicant did not provide the Agency:* Relative to the revision to Permit 95010001 that is requested to establish a certain "prescribed emission determination methodology" for the uncaptured NOx and VOM emissions of the blast furnace casthouse, the 2022 application does not include information justifying the future use of such proposed methodology for the purpose of determining compliance with the revised limitations for the NOx and VOM emissions of the blast furnace casthouse that are requested. In particular, the 2022 application does not include information showing that the proposed methodology should be considered representative, accurate and appropriate. In this regard, the 2022 application does not show that changes in the levels of captured NOx and VOM emissions, as measured by emission testing, would be due to actual changes in the overall level of NOx emissions from the casthouse rather than other causes. For example, changes in the levels of measured NOx or VOM emissions could be due to changes in the manner of operation of either the iron making/tapping processes or the baghouse control systems as they function to capture NOx and VOM emissions. Changes in the levels of measured emissions could also be due to the variation in the results of emission testing that may be present with the applicable reference test methods.

4. *A statement of specific reasons why the Act and the regulations might not be met if a revised permit were granted as requested:* Absent information as described above, the 2022 application does not include the necessary information to allow a revised permit to be proposed for the Project, much less issued, that would determine future uncaptured NOx and VOM emissions of the blast furnace casthouse based on the methodology proposed in the 2022 application. The 2022 application does not show that the proposed prescribed methodology would appropriately be relied upon for the purpose of addressing the future uncaptured NOx and VOM emissions of the blast furnace casthouse.

Discussion

For the NOx and VOM emissions of the roof monitor on the casthouse on the blast furnaces (i.e., uncaptured emissions, which do not pass through a control device), the 2022 application proposes a prescribed emission calculation methodology that involves the results of emission testing for the main baghouse for the casthouse and an assumed capture efficiency of 95 percent.[45] For example, for NOx emissions from the roof monitor, the application requests that,

> Prescribed emissions factors consistent with the approach described in Section 3 [Discussion of Permit Conditions Used to Restrict PTE] are provided herein. USS Granite City is proposing a prescribed emissions calculation methodology for NOx emissions from the blast furnace casthouse roof monitor based on application of 95% capture emissions to the NOx stack test result for the blast furnace casthouse baghouse.
>
> 2022 application, Section 6.5.1.2, Prescribed Emission Factors for Blast Furnaces Operations, p 6-9.

The application does not show that the "proposed methodology" would result in NOx and VOM emissions rates for the roof monitor that would be representative. In this regard, the proposed methodology would yield emission rates for the roof monitor that would be related directly to the measured emissions of the main baghouse on the casthouse. However, it would not address the effect of variation in capture efficiency on emissions. That is, with the proposed methodology, if emissions from the baghouse measured by a particular test were "lower," the calculated emission rate of the roof monitor would also be lower. The methodology would not address a situation in which the emissions measured by testing are lower because the capture efficiency of the baghouse system during testing was also lower. In this situation, there would actually be more emissions through the roof monitor. As such, unlike specific emission rates for NOx and VOM that would be prescribed in a revised permit, the "proposed methodology" would not address the NOx and VOM emissions from the roof monitor in a way that can reasonably be considered to be representative on an ongoing basis.[46, 47]

---

[45] With the proposed methodology, the NOx or VOM emission rate for the uncaptured emissions of the casthouse would be derived from the emission rate of the main baghouse measured by periodic testing using the following formula:

[{Measured rate of the baghouse (lbs/ton) ÷ 0.95} x 0.05] = Calculated rate for the monitor (lbs/ton)

[46] This issue would not be present with an appropriate prescribed emission factor. As such, a factor would not change based on the results of periodic testing, the factor could be reviewed when processing the application to confirm that it was conservatively developed so as to be representative on an ongoing basis.

[47] Section 7.5.1.2 of the 2022 application, which addresses the proposed calculation methodology for the VOM emissions from the roof monitor on the casthouse, erroneously refers to the results of emissions testing of the main baghouse system on the casthouse for NOx rather than testing for VOM.

10. THE APPLICATION DOES NOT INCLUDE NECESSARY SUPPORT FOR THE EMISSION FACTORS THAT ARE PROPOSED AS PRESCRIBED FACTORS FOR CERTAIN UNITS.

Overview of This Denial Point, with Information As Required or Specified by Section 39(a) of the Act for Denial of a Permit

1. *The Sections of the Act which may be violated if a revised permit were granted as requested:* Sections 9(a), 9.1(d), 39(a)*, 39(a)**, 39.5(5)(i), 39.5(7)(a), 39.5(10(a)(iv) and 39.5(13)(c)(v).

2. *The provision of the regulations under the Act which may be violated if the revised permit were granted as requested:* 35 IAC 201.160(a), 203.123, 203.128, 204.400 and 204.560.

3. *The specific type of information, if any, which the Agency deems the applicant did not provide the Agency:* Relative to the revisions to Permit 95010001 that are requested to establish certain "prescribed emission factors" as specifically proposed by the 2022 application, the application does not include information justifying the future use of such proposed factors for the purpose of determining compliance with the revised limitations for the emissions of the Project-affected units that are requested. In particular, as the proposed factors are derived from emissions factors developed by USEPA, the 2022 application does not include information showing that the factors that were derived and are now proposed should be considered representative, accurate and appropriate. For example, for the blast furnace casthouse, the application proposes a prescribed emission factors for uncaptured emissions of particulate that are based on factors in USEPA's *Compilation of Air Pollutant Emission Factors*, AP-42, and achievement of at least 95 percent capture efficiency by the particulate control systems on the casthouse (i.e., 5 percent of the particulate emission being uncaptured). However, as support for reliance on these systems achieving at least 95 percent capture efficiency, the application only refers to a single memorandum by USEPA staff and a consultant.

4. *A statement of specific reasons why the Act and the regulations might not be met if a revised permit were granted as requested:* Absent information as described above, the 2022 application does not include necessary information to allow a revised permit to be proposed for the Project, much less issued, that would determine future emissions of the subject emission units and emission points based on the factors proposed in the application. The application does not show that the proposed prescribed factors would appropriately be relied upon for the purpose of enforceably limiting the future emissions of the emission units and emission points for which they are proposed.

Discussion

The 2022 application does not include relevant supporting information for certain emission factors used in the application, as follows. Absent this information the Illinois EPA cannot assess whether the prescribed emission factors proposed for these units should be considered representative.

Blast Furnace Casthouse Roof Monitor:
The prescribed particulate emission factors proposed for the roof monitor on the blast furnace casthouse (i.e., the uncaptured emissions from the casthouse) are identical to the baseline emission rates. These rates are based on emission factors from AP-42 for uncontrolled emissions with application of a 95 percent capture efficiency for the baghouse control systems on the casthouse. The application only references a single memorandum from 2019 by various USEPA staff and a consultant as support for achievement of 95 percent capture efficiency (2022 application, Section 5.2.3). Further support is needed for a prescribed emission factor based on achievement of 95 percent capture.

Slag Pits:
For particulate emissions from quenching of slag, the 2022 application does not include a copy of the "EPA assessment" that is the basis of the emission factors and material showing how the selected emission factors were derived from this assessment. For emissions from transfer of slag, the application does not include a copy of the calculations by which the emission factors were developed from the formulas provided in AP-42, Section 13.2.4. The application also does not address whether the emission factors rely on control by the application of water or the presence of residual moisture and, if so, the basis for the assumed levels of control efficiency. (2022 application, Section 5.2.2.5, p 5-4).

Iron Pellet Screen:
For the Iron Pellet Screen, the proposed prescribed emission factor for PM and PM_{10} emissions is identical to the baseline emission rates (2022 application, Section 5.2.2.16). While the emission factor for uncontrolled emissions for screening of crushed stone in Table 11-19.2-2 in AP-42 is identified as the basis of this emission rate, a control efficiency of 85 percent is applied, reducing the factor that is actually used to 15 percent of the cited AP-42 factor. The application does not describe the means by which the particulate emissions of this screen are controlled or reduced to show that 85 percent control of particulate emissions is achieved for the Iron Pellet Screen.[48]
In addition, AP-42 lists two emission factors for screening of crushed stone, one for PM and one for PM_{10}. The emission factor for PM is about three times the factor for PM_{10} (0.025 pounds/ton ÷ 0.0087 pounds/ton = 2.87, ~ 3). The 2022 application does not show that for screening of iron ore pellets, an emission factor that was developed for PM_{10} is directly transferable to PM emissions.

[48] The CAAPP permit, Condition 7.4.2 indicates that the Iron Pellet Screen is not served by emission control equipment.

11. THE DETERMINATIONS OF PARTICULATE EMISSIONS FROM HANDLING OF COKE, IRON PELLETS AND LIMESTONE ARE NOT SUPPORTED AND CANNOT BE CONFIRMED

Overview of This Denial Point, with Information As Required or Specified by Section 39(a) of the Act for Denial of a Permit

1. *The Sections of the Act which may be violated if a revised permit were granted as requested:* Sections 9(a), 9.1(d), 39(a)*, 39(a)** and 39(a)***.

2. *The provision of the regulations under the Act which may be violated if the revised permit were granted as requested:* 35 IAC 201.152*,35 IAC 201.160(a).

3. *The specific type of information, if any, which the Agency deems the applicant did not provide the Agency:* For handling of coke, iron pellets and limestone, the baseline emissions of particulate matter (PM) and particulate matter-10 (PM-10) provided in the 2022 application are both 17.2 tons/year. The information for baseline emissions from handling these materials is not accompanied by supporting information. The application does not explicitly list the various units whose emissions are being addressed and describe the nature of the various units relative to their emissions of PM and PM-10. Data is not provided for the annual amounts of various materials that were handled by these units. Data is also not provided for the emission factors used to calculate annual emissions, the sources or basis of those factors, and why those factors should be considered representative of the emissions of the various types of units being addressed.

4. *A statement of specific reasons why the Act and the regulations might not be met if a revised permit were granted as requested:* Absent information as described above, the 2022 application does not include the necessary information to allow a revised permit to be proposed for the Project, much less issued, that would restrict future PM and PM-10 emissions of the subject units. The issuance of a revised permit with limitations for the future emissions of these units that are practically enforceable necessarily requires that the application include supporting information as discussed above. For example, the Illinois EPA needs information on how baseline emissions were determined to confirm that the baseline emissions were reasonably determined. This information is also needed to determine what limitations on emissions should be set in the revised permit and if the permit should require any specific practices to assure emissions are controlled to levels relied upon in the calculations of baseline emissions. Finally, this information is needed so appropriate permit conditions can be developed setting forth how compliance with the limitations is to be demonstrated.

Discussion

With regard to baseline particulate emissions, the determination of baseline emissions from handling of coke, iron pellets and limestone provided in the revised netting analysis cannot be independently confirmed. In this regard, the 2022 application does not provide needed supporting information for the “corrected” determinations of baseline particulate emissions of

these operations as it is not accompanied by detailed calculations for the emissions from handling each material. (2022 application, Table 5-5. "Pre-project Actual Emissions and Summary of Proposed Changes to Pre-Project PM Emissions Factors for Affected Emission Units" and Table 5-6, "Pre-project Actual Emissions and Summary of Proposed Changes to Pre-Project PM_{10} Emissions Factors for Affected Emission Units.")[49]

With regard to emissions with the Project, the 2022 application does not include information for particulate emissions from handling of coke, iron pellets and limestone. Since the by-product coke oven batteries were not shut down until 2015, emission information is needed for handling of coal for the period of operation with the Project before the batteries were shut down. Likewise for coke, emission information is needed to address handling of coke before US Steel constructed the conveyor system to receive coke directly from the heat recovery coke production facility built by Gateway.[50]

[49] Tables 5-5 and 5-6 do refer to "Table F-3 of the 1995 application" for these material handling operations. A copy of this table is provided in Appendix B of the 2022 application. However, this table only appears to address PM_{10} emissions, for which it provides annual emissions in tons/year. This table does not include calculations and background information showing how the annual emissions of PM_{10} were determined. Finally, the data for annual emissions of material handling operations appears to rely on the "PM10 SIP" requiring a 90 percent reduction from uncontrolled emissions without providing any support for this assumption.

[50] As this new system was constructed as part of a different project, i.e., the construction of the Gateway facility, rather than the Production Increase Project, US Steel should not address emissions that are specifically associated with this new system.

12. THE REQUESTED CHANGES TO THE GROUPING OF UNITS IN THE PERMIT FOR CONSISTENCY WITH THE GROUPINGS OF UNITS IN THE CAAPP PERMIT WOULD NOT ADDRESS ALL DIFFERENCES IN THE GROUPINGS OF UNITS

Overview of This Denial Point, with Information As Required or Specified by Section 39(a) of the Act for Denial of a Permit

1. *The Sections of the Act which may be violated if a revised permit were granted as requested:* Sections 9(a), 39(a)*, 39(a)**, 39(a)***, 39.5(5)(i), 39.5(7)(a), 39.5(10)(a)(iv) and 39.5(13)(c)(v).

2. *The provision of the regulations under the Act which may be violated if the revised permit were granted as requested:* 35 IAC 201.152* and 201.160(a).

3. *The specific type of information, if any, which the Agency deems the applicant did not provide the Agency:* The 2022 application requests certain changes to Permit 95010001 because the areas or sections of the CAAPP permit for the Granite City Works, Permit 96030056, in which certain emission units are addressed are not the same as those in Permit 95010001. Most notably, in Permit 95010001, discrete material handling and processing operations are addressed with the units with which they are associated. For example, handling of fluxes and alloy materials for the BOFs is addressed with the provisions of the permit for the BOF Shop. In the CAAPP Permit, handling of fluxes and alloy materials for the BOFs and other discrete material handling and processing operations are addressed in a separate section of the permit (Section 7.1) rather than with Blast Furnace Operations (Section 7.4), the BOF Shop (Section 7.5), or Continuous Casting Operations (Section 7.6). While it is reasonable for Permit 95010001 to be revised so that the placement of units in this permit is the same as their placement in the CAAPP permit, several concerns are posed by the specific changes to Permit 95010001 that are requested to accomplish this. In particular, the 2022 application requests that Permit 95010001 be revised to address the "Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy)" with other ancillary operations in the BOF Shop, rather than with the Continuous Casting Operations. This change would be appropriate as these units would be placed with other units that are subject to the Iron and Steel NESHAP, 40 CFR 63 Subpart FFFF, as they are BOF Shop ancillary operations. However, the application also requests that the permit be revised to refer to these units as "Baghouse 2 for Argon Stirring and Ladle Metallurgy Facility." This change would not be appropriate as it would refer to the baghouse serving these units and its emissions rather than to the units themselves and their emissions. The application also does not request any changes to Permit 95010001 for the "Deslagging Station and Material HS [Handling System]." In the CAAPP permit, these units are currently addressed twice, both with the discrete material handling operations (Section 7.1) and with continuous casting operations (Section 7.6). More importantly, the placement of these units in Permit 95010001 should be directed by the emission standards that apply to these units. These units would be appropriately addressed with BOF Shop Operations (Section 7.5) as they entail either a "skimming station" or "ladle metallurgy" for purposes of the Iron and Steel NESHAP. Finally, for "Ladle Drying/Preheating," the application does not request revisions to Permit 95010001 although the CAAPP permit addresses these emission units both with BOF Shop Operations (Section 7.5) and with other Project-affected fuel burning units (Condition 5.6.2(a)(ii)). In Permit 95010001, these units are currently only addressed as Project-affected fuel burning units.

4. *A statement of specific reasons why the Act and the regulations might not be met if a revised permit were granted as requested:* As related to the location in permits where certain emission units are addressed, the 2022 application does not request all revisions that are known to be appropriate to Permit 95010001, and, by means of Integrated Processing of the revisions to Permit 95010001, are appropriate to the CAAPP permit for the facility. For certain units, the application would not address differences in where the units are addressed by the two permits and the related emission standards and requirements that may apply to those units. As related to the naming of units, the Applicant requests a change that is improper as well as unnecessary. As such, if Permit 95010001 were revised with the placement of units in the permit shifted as requested by the 2022 application, it would preclude Integrated Processing of the revised permit. This is because the revision of Permit 95010001 would otherwise allow discrepancies or errors in the provisions for certain units in the current CAAPP permit, which have now been identified and are within the potential scope of the revisions to Permit 95010001, to be perpetuated by the amendments to the CAAPP permit that would be authorized.

Discussion

As addressed in Section 2.2.2 of the 2022 application, US Steel generally requests changes to the organization of Permit 95010001 because the areas or sections of the CAAPP permit in which certain units are addressed are different than those in Permit 95010001. Most notably, in Permit 95010001, discrete material handling and processing operations are addressed with either the blast furnace operations, operations in the basic oxygen furnace shop or the continuous casting operations, based upon the area with which they were considered to be associated. In the CAAPP permit, these discrete material handling and processing operations are generally addressed in a separate section of the permit, Section 7.1, "Material Handling and Processing Operations." In addition, in the CAAPP permit, the "Argon Stirring Station and Material Handling Tripper" was addressed with units in the basic oxygen furnace shop in Section 7.5 of the CAAPP permit rather than with the continuous casting operations as in Permit 95010001.

While it is reasonable for there to be consistency in the groupings or categorization of emission units in Permit 95010001 and the CAAPP permit, as generally requested by US Steel, several concerns are posed, as discussed below, by the specific changes to Permit 95010001 that have been requested.

Requested Changes for the "Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy)"**:**

As explained in Section 11.1.2 of the 2022 application, US Steel requests that the "Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy)" now be addressed in Permit 950100001 with operations in the Basic Oxygen Furnace Shop. The application also requests that this unit be identified as "Baghouse 2 for Argon Stirring and Ladle Metallurgy Facility." However, the application does not actually identify the specific units that would be addressed by the proposed new term. In this regard, the application is not accompanied by an itemized list of the equipment and activities that would be covered by this new term or a diagram that identifies this equipment and activities. US Steel's request also does not explain how the requested revision to Permit 95010001 would do what has generally been requested as the proposed new

term would refer to a "Material Handling Tripper." As the 2022 application requests changes to terminology in Permit 95010001, the changes should act to better identify the emission units that would be addressed, improving the specificity and clarity of the revised permit.[51, 52]

Absence of A Request for Revisions for the "Deslagging Station and Material HS"**:**
The 2022 application does not request any revisions to Permit 95010001 with respect to the Deslagging Station and Material HS (Handling System).[53] These emission units are currently addressed in Permit 95010001 with continuous casting operations (Permit 95010001, Condition 20 and Table 3). In the CAAPP permit, a "Steel Deslagging Station" is identified as one of the continuous casting operations (CAAPP permit, Condition 7.6.2(a)).[54] The 2022 application does not explain why this steel deslagging operation should not appropriately be categorized as slag skimming and addressed with the other slag skimming operations in the basic oxygen furnace shop. In this regard, for the argon stirring station, US Steel does explain in Section 11.1.2 of the 2022 application that this station should be addressed with operations in the basic oxygen furnace shop rather than with continuous casting operations. This is because this station is a "BOPF shop ancillary operation" for purpose of the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Integrated Iron and Steel Manufacturing Facilities, 40 CFR 63 Subpart FFFFF (2022 application, Section 11.1.2). US Steel does not explain why the current placement in Permit 95010001 of the steel deslagging station with continuous casting is appropriate and this station should not also be addressed with other BOPF shop ancillary operations. Alternatively, US Steel does not request that this station be addressed with other

[51] For example, the proposed new term would not make clear that the basic oxygen furnace shop actually has two ladle stirring stations and one ladle metallurgy furnace, all served by Baghouse 2.
[52] The requested change to the terminology for these emission unit(s) is also problematic as it would refer to a control device, Baghouse 2, rather than to the equipment or activities that generate emissions. Applied literally, the proposed term would only address captured emissions; it would not address the uncaptured emissions, which elude capture for control by the baghouse.
[53] For example, in Section 5.2, the 2022 application does not identify any updates or revisions to the pre-project actual emissions of the steel deslagging station and associated material handling system. Likewise, Appendix B – Emission Calculations does not identify any changes from the 1996 netting analyses that involve these units (Appendix B – Emission Calculations, USS Granite City – 1996 Production Increase Project: Revised PM PSD Net Emissions Increase Analysis and Revised PM10 PSD Net Emissions Increase Analysis).
[54] The presence of a deslagging station that is physically located in the continuous casting building is indicated in the pending application for renewal of the CAAPP permit. This application indicates that the particulate emissions of this station are controlled.

> Deslagging Station:
> Molten steel from the BOF is transferred directly from the BOFs to the continuous casting building. The first operation carried out in this building is the skimming of slag from the surface of the molten steel. Slag removed by this operation is skimmed into slag pots for disposal. Baghouse #1 is used to control emissions from this process.
>
> CAAPP Renewal Application, Appendix D: Process Descriptions, Section 7.6 Continuous Casting, Deslagging Station, p. D-56.

BOPF shop ancillary operations.[55] Slag skimming is one of the operations that 40 CFR 63.7852 defines as being "Basic oxygen process furnace shop ancillary operations."[56, 57]

For the "Deslagging Station and Material HS," the 2022 application also does not request revisions to Permit 95010001 as the CAAPP permit currently limits particulate emissions of this operation twice, once as a continuous casting operation and again as a material handling operation. In this regard, the CAAPP permit limits the particulate emissions of a "Deslagging Station and associated Material Handling System (Condition 7.6.6(a). As indicated by a reference in this condition, the CAAPP permit also limits emissions of a "Material HS and Deslagging Station" (Condition 7.1.6(b)(i)) in Section 7.1 of the CAAPP permit, where discrete material handling and processing operations are addressed. The 2022 application does not request revisions to Permit 95010001 to facilitate amendment of the CAAPP permit to appropriately address the emissions of this deslagging station and the associated material handling system. In the absence of such revisions, the current CAAPP permit would suggest that the revised netting analyses for particulate should address the emissions of these units twice, once as deslagging and once as material handling. On the other hand, if Permit 95010001 would address emissions of these units in this way, the consolidated emission limits for continuous casting and discrete material handling operations would be inappropriate as emissions of the deslagging station and the associated material handling system would be accounted for twice.[58]

---

[55] The proper categorization of this steel deslagging station is important when considering US Steel's request for consolidation of the emission limits currently set by Permit 95010001. As a general matter, any new, "consolidated" limits set by a revised permit must be developed to apply to sensible groupings of units. The groupings of units should facilitate identification in the revised permit of the regulatory requirements that apply to various units. This is especially true as the consolidated limits would rely on certain applicable regulatory requirements, e.g., the work practices and operational monitoring requirements under 40 CFR 63 CFR Subpart FFFFF, to assure consistent operation of emission units so as to keep short-term emissions at or below the established emission rates for the units.

[56] For this steel deslagging station, there is a potential compliance issue relative to the NESHAP, 40 CFR 63 Subpart FFFFF. The CAAPP permit indicates that the emissions of this station are not controlled (CAAPP permit, Condition 7.6.2). On the other hand, if its emissions are controlled by Baghouse 2, the direct applicability of the NESHAP to this station becomes a minor matter. This is because Baghouse 2 is directly subject to requirements of 40 CFR 63 Subpart FFFFF as it controls emissions from "ladle metallurgy." Ladle metallurgy is defined by 40 CFR 63.7852 as "… a secondary steelmaking process that is performed typically in a ladle after initial refining in a basic oxygen furnace to adjust or amend the chemical and/or mechanical properties of steel. This definition does not include vacuum degassing."

[57] It is also noteworthy that as the steel deslagging station is identified as a continuous casting operation by Permit 95010001, the permit applies 35 IAC 212.458(b)(8), which sets a limit of 5 percent, 6-minute average, for the opacity of emissions from the various continuous casting operations (Permit 95010001, Condition 19). However, Permit 95010001 omits the introductory language for this standard that provides that it does not apply to fugitive emissions. The introductory language is present in the CAAPP permit, which addresses the standards that apply to both fugitive and non-fugitive emissions of continuous casting operations (Permit 96030056, Conditions 7.6.3((b), (b)(ii) and (c)).

[58] If there was not actually a material handling system associated with the steel deslagging station, this could be readily addressed in the application for revisions of Permit 95010001. The application could acknowledge the error in the original application, as reflected in the permit that was issued, accompanied by an accurate diagram for the deslagging station as it existed in 1995 and as it now exists. In this regard,

For “Ladle Drying/Preheating,” Absence of Any Request for Changes**:**
For “Ladle Drying/Preheating,” the 2022 application does not request any changes to Permit 95010001 to maintain consistency with the approach to these units in the CAAPP permit. In Permit 95010001, these emission units are addressed with other Project-affected fuel burning units (Permit 95010001, Table 4, Certain Fuel Combustion Units). In the CAAPP permit, these units are addressed in Section 7.5 as “Basic Oxygen Processes” with other units in the Basic Oxygen Furnace Shop, as well as elsewhere in the permit with other Project-affected fuel burning units (e.g., Conditions 5.6.2((ii) and (iii)). In addition, the CAAPP permit sets a limit for the total NOx emissions of the BOF Shop (Condition 7.5.6(b)). In the absence of appropriate changes to the CAAPP permit, since the ladle drying/preheating takes place in the basic oxygen furnace shop, the limit for the NOx emissions of the basic oxygen furnace shop would apply to the sum of the NOx emissions of the basic oxygen furnaces and the ladle dryers/preheaters.

it is perhaps noteworthy that Permit 95010001 does not identify the material(s) that are handled by the material handling operations associated with the steel deslagging station.

13. THE 2022 APPLICATION DOES NOT REQUEST REVISIONS TO PERMIT 95010001 AND, INDIRECTLY, TO THE CAAPP PERMIT THAT WOULD ALSO BE NECESSARY AS THIS APPLICATION REQUESTS THAT THE REVISED PERMIT PRESCRIBE EMISSION FACTORS FOR CERTAIN UNITS

Overview of This Denial Point, with Information As Required or Specified by Section 39(a) of the Act for Denial of a Permit

1. *The Sections of the Act which may be violated if a revised permit were granted as requested:* Sections 9(a), 39(a)*, 39(a)**, 39(a)***, 39.5(5)(i), 39.5(7)(a), 39.5(10(a)(iv) and 39.5(13)(c)(v).

2. *The provision of the regulations under the Act which may be violated if the revised permit were granted as requested:* 35 IAC 201.160(a).

3. *The specific type of information, if any, which the Agency deems the applicant did not provide the Agency:* The 2022 application does not request that the revision to Permit 95010001 add condition(s) generally setting forth how compliance with annual emission limitations set by Permit 95010001 is to be determined. While revisions are requested to establish certain "prescribed emission factors" and "prescribed emission determination methodology," the application does not request related revisions to Permit 95010001 to generally address the procedures that are to be followed when determining compliance with the limitations on annual emissions set by Permit 95010001. In this regard, it is noteworthy that, if it were not stayed, Condition 5.13 of the CAAPP permit for the Granite City Works, Permit 96030056, would address the general procedures for how compliance with limitations on annual emissions set by Permit 95010001 is to be determined. (That condition is currently stayed following an appeal to the Pollution Control Board, PCB 2013-53.) That condition would generally require that compliance with limitations on annual emission be determined using "appropriate emission factors." However, that condition does not address nor would it provide for use of prescribed factors or methodology to determine compliance with limitations on annual emissions, as is being requested by the 2022 application.

4. *A statement of specific reasons why the Act and the regulations might not be met if a revised permit were granted as requested:* If a revised version of Permit 95010001 were issued that provided for use of prescribed emission factors and methodology without condition(s) generally setting forth how compliance with limitations for annual emissions in Permit 95010001 is to be determined for emission units which the permit establishes prescribed emission factors and methodology (similar to CAAPP Condition 5.13 as it currently addresses use of appropriate emission factors), the limitations on annual emissions in the revised permit would not be enforceable as a practical matter. In this regard, at this time, CAAPP Condition 5.13, which addresses the use of appropriate emission factors in determining compliance with annual emission limitations, cannot be relied upon for this purpose. As well as currently being stayed, that condition only provides for use of appropriate emission factors. It does not provide for the use of prescribed emissions factors or prescribed emission determination methodologies. Moreover, in the absence of a request in the 2022 application for suitable condition(s) generally addressing how compliance with limitations on annual emissions is to be determined, the

application does not show that the revision to Permit 95010001 that is requested would meet the criteria for Integrated Processing, as the application also specifically requests. That is, the 2022 application would not show that the request for a revised permit would provide for compliance requirements substantially equivalent to those provided for by the CAAPP since the application does not request that the revised permit include requirements substantially equivalent to those that would have been provided by CAAPP Condition 5.13 if it were not stayed.

Discussion

The 2022 application does not request revisions to general provisions in Permit 95010001 that would enable revisions to the CAAPP permit for the Granite City Works, Permit 96030056, to be made by administrative amendment to allow prescribed emission factors to be used to determine ongoing emissions of certain emission units. In this regard, the CAAPP permit currently provides that "appropriate emission factors" shall be used when determining emissions to evaluate compliance with the emission limits for process units set by Permit 95010001. Permit 95010001 does not specify how emissions are to be determined for this purpose, much less specify that, for certain emission units and pollutants, prescribed emission factors are to be used.[59] Accordingly, the procedures to determine compliance with the emission limits set by Permit 95010001 were established in the CAAPP permit for the Granite City Works. This was necessary because the emission limits set by Permit 95010001 are applicable requirements under the CAAPP. The procedures that were established in the current CAAPP permit do not provide for the use of prescribed emission factors. Rather, the CAAPP permit generally requires US Steel to use "appropriate emission factors," i.e., emission factors that do not understate emissions, with the primary responsibility for the appropriateness of the factors that are used placed on US Steel.[60] The CAAPP permit also provides for recordkeeping and reporting by US Steel so that the Illinois EPA and interested parties can know and may review for the emission factors that are being used. However, the 2022 application simply requests revisions to Permit 95010001 to require use of prescribed emission factors for certain units. The application does not address the fact that the CAAPP permit currently does not accommodate the use of prescribed emission factors to calculate emissions but instead requires use of "appropriate emission factors."[61]

[59] Condition 39(a) of Permit 95010001 did require "one-time testing" for various pollutant for certain emission units within 270 days of the date that this permit was initially issued. Additional time was subsequently provided to complete testing for the particulate emissions of a boiler when burning blast furnace gas. Unfortunately, the permit did not require testing of the NOx and VOM emissions of the BOFs. That testing was subsequently required by the CAAPP permit issued for the facility.

[60] This approach is consistent with a basic principle of the Title V permit program, as reflected in the CAAPP, that the responsibility for showing compliance with applicable air pollution control requirements for a facility lies with the source or Permittee for the facility, and not with the permitting authority.

[61] It should also be noted that in PCB 2013-53, the appeal that is pending before the Pollution Control Board for CAAPP permit 96030056, US Steel challenged Condition 5.13, General Procedures for Certain Permit Limits on Emissions. Condition 5.13 is relevant to the requested revisions of Permit 95010001 as it specifies procedures by which compliance is to be generally determined with the emission factor limits and annual emission limits set by Permit 95010001for process units. In addition to not proposing revisions to Permit 95010001 to accommodate use of prescribed emissions factors, the 2022 application does not address related revisions to Condition 5.13 of Permit 96030056 to potentially facilitate resolution of PCB 2013-53 as Condition 5.13 is challenged in this appeal.

14. THE 2022 APPLICATION DOES NOT ADDRESS THE AMENDMENT TO THE CAAPP PERMIT AUTHORIZED BY CONSTRUCTION PERMIT 11050006, AS IS RELEVANT FOR THE REQUESTED INTEGRATED PROCESSING OF THE REVISION TO PERMIT 95010001

Overview of This Denial Point, with Information As Required or Specified by Section 39(a) of the Act for Denial of a Permit

1. *The Sections of the Act which may be violated if a revised permit were granted as requested:* Sections 9(a), 9.1(d), 39(a)*, 39(a)**, 39(a)***, 39.5(5)(i), 39.5(7)(a), 39.5(10)(a)(iv) and 39.5(13)(c)(v).

2. *The provision of the regulations under the Act which may be violated if the revised permit were granted as requested:* 35 IAC 201.160(a).

3. *The specific type of information, if any, which the Agency deems the applicant did not provide the Agency:* The 2022 application was not accompanied by an application for an administrative amendment to incorporate changes to the CAAPP permit for the Granite City Works, Permit 96030056, that are authorized by Construction Permit 11050006, issued April 1, 2013. That construction permit addresses the baghouse control system installed on the BOFs to improve control of the particulate emissions of these furnaces from charging and tapping. As that construction permit was subject to Integrated Processing, it provides for certain changes to then be made in the CAAPP permit to the requirements for the BOFs as needed to accommodate the use of both this new baghouse control system and the existing electrostatic precipitator (ESP) system for control of emissions. However, US Steel has not initiated a revision to the CAAPP permit to incorporate changes as authorized by Permit 11050006 by submitting an application for an administrative amendment of the CAAPP permit.

4. *A statement of specific reasons why the Act and the regulations might not be met if a revised permit were granted as requested:* Absent the administrative amendment of the CAAPP permit as authorized by Construction Permit 11050006, as the 2022 application requests Integrated Processing, the application requests that revision of Permit 95010001 authorize changes to the current CAAPP permit. As such, the application effectively requests that separate from the revisions that are specifically requested by the application, the Illinois EPA reissue a CAAPP permit that, as related to the BOFs, contains provisions that are no longer accurate. For example, the description of the BOFs in CAAPP Conditions 7.5.1 and 7.5.2 does not indicate the use of the baghouse control system on the BOFs; only the ESP system is addressed. In addition, CAAPP Condition 7.5.5-1 does not address the corrective action procedures for baghouses required by 40 CFR 63.7800(b)(4). The addition of the baghouse system would be appropriately addressed in the CAAPP permit by the earlier amendment authorized by Construction Permit 11050006. As such, it would be contrary to the CAAPP to authorize further revisions to the CAAPP permit by means of Integrated Processing, as is requested by the 2022 application, without first making the revisions to the CAAPP permit authorized by Permit 11050006. Otherwise, the amendment of the CAAPP permit authorized by means of the revision of Permit 95010001 would be deficient. For the BOFs, as such a CAAPP permit, would not address certain applicable requirements, the

permit would not contain provisions to assure compliance with all applicable requirements. It would also continue to include requirements that, as addressed by Permit 11050006, would have become obsolete with the addition of the baghouse control system.

Discussion

The 2022 application does not identify the version of the Clean Air Act Permit Program (CAAPP) permit for the Granite City Works, Permit 96030056, that would be eligible for administrative amendment pursuant to the Integrated Processing of the revisions to Permit 95010001 that are requested. This is relevant because the Illinois EPA has already issued a construction permit with Integrated Processing, i.e., Construction Permit 11050006, issued April 1, 2013. This permit addresses the addition of a baghouse system to improve control of particulate emissions of the basic oxygen furnaces from charging and tapping of the furnaces. With the addition of this new system, the furnaces have three points of emissions, i.e., the new baghouse, the historic ESP, and the roof monitor on the furnace shop.[62] Certain work practices that were required by Permit 95010001 for control of particulate emissions of the furnaces with only an ESP system conflicted with the use of the baghouse system or would no longer be appropriate when emissions were also controlled with the new system. To address the fact that these work practices were also present in the CAAPP permit for the facility, Construction Permit 11050006 was subject to Integrated Processing and allowed certain changes to be made to the CAAPP permit by administrative amendment.[63] This was intended to enable use of the new baghouse system for improved control of particulate emissions in compliance with the CAAPP permit without the need for a subsequent permit proceeding to modify the CAAPP permit. However, US Steel has not initiated action for the Illinois EPA to actually issue an amended CAAPP permit with changes as authorized by Permit 11050006.[64]

Section 39.5(13)(a) of the Illinois Environmental Protection Act provides that "The Agency shall take final action **on a request** for an administrative permit amendment within 60 days after **the**

[62] The new baghouse system required a construction permit because this system would affect the requirements that then existed for control of particulate emissions of the basic oxygen furnaces, including their emissions of lead. For purposes of NSR, the construction permit was issued based on the new baghouse system being a project that would reduce the emissions of particulate and lead from these furnaces rather than increase these emissions. The permit was also based on this new system not increasing the emissions of other pollutants from these furnaces. As such, the construction permit for the new baghouse system, Permit 11050006, did not set limits for emissions from the baghouse system. This permit also did not lower the existing limits for the emissions of the basic oxygen furnaces.

[63] To address the changes to the CAAPP permit that would be needed for use of the new baghouse system, Permit 11050006 provides for replacement of Section 7.5 of the CAAPP permit, which addresses the basic oxygen furnace shop, including the basic oxygen furnaces, in its entirety. The new version of Section 7.5 addresses the basic oxygen furnace shop with the new baghouse system. Given the extent of the changes to Section 7.5 that were needed to accommodate addition of a baghouse to the particulate control system for the basic oxygen furnaces, this approach was taken to Permit 11050006 to provide accuracy, clarity and simplicity in the revisions to the CAAPP permit that were being authorized.

[64] The 2022 application does address the addition of the baghouse control system for the basic oxygen furnaces as related to the emission of the furnaces. US Steel does not propose separate limits set for the individual emission points for these furnaces. Instead, the application requests that the revised permit set overall limits for the emissions from the control systems of the basic oxygen furnaces.

receipt of the request." (Emphasis added.) Accordingly, in the absence of a formal request from US Steel to the Illinois EPA to initiate the administrative amendment of the CAAPP permit contemplated by Permit 11050006, the 2022 application can only request Integrated Processing to allow administrative amendments of the current CAAPP permit, as has actually been physically issued by the Illinois EPA.[65, 66]

[65] The timing of the physical issuance of a revised CAAPP permit by the Illinois EPA is critical as a procedural matter because it starts the period within which the Permittee may appeal such action to the Pollution Control Board. Moreover, in PCB 2013-62, US Steel has already appealed certain elements of the changes to the CAAPP permit that are addressed by the administrative amendment to the CAAPP permit authorized pursuant to Permit 11050006.

Given this appeal, the Illinois EPA would not "reinstate" those provisions when issuing the amended CAAPP permit. Instead, it is expected that the amended CAAPP permit would contain notes that explain that the appealed provisions continue to be present in the that existing CAAPP permit as they were appealed. Nevertheless, it is possible that US Steel would appeal those notes in the amended permit as they would acknowledge the continued existence of the appealed provisions.

[66] Concerns are posed by certain conditions in existing Construction Permit 11050006 and the related amendments to CAAPP Permit 96030056 that it authorizes. The 2022 application is not accompanied by a request for changes to Permit 11050006 or a proposal for how to address these concerns so that they would not be perpetuated in the amended CAAPP permit. One concern is that the deadlines in Permit 11050006 for performing emission testing on the new baghouse and completing certain other actions were based on the basic oxygen furnaces being in routine use once the construction of the new baghouse system was completed. The permit did not contemplate the over two yearlong interruption in production that began in December 2015. US Steel undertook this interruption in production in response to the poor markets for domestic steel at that time. As such, although failures to meet certain deadlines in Permit 11050006 likely were reasonable, it is not clear that they would be excused as being due to *force majeur* (i.e., event(s) that could not reasonably be anticipated or controlled by the source).

The other concern with existing Construction Permit 11050006 and the related amendments to CAAPP Permit 96030056 is that they overlook the role of the existing ESP control system in controlling particulate emissions from charging and tapping of the basic oxygen furnaces. Instead, Permit 11050006 incorrectly indicates that the new baghouse system will control emissions from charging and tapping of the furnaces and the existing ESP system will control emissions from the refining process. In fact, the new baghouse system was constructed to improve control of emissions from charging and tapping, with capture hoods to collect particulate emissions that are not captured by the hoods that serve the ESP system. This is perhaps most clearly shown in the 2010 Memorandum of Understanding between US Steel and the Illinois EPA (MOU) as this MOU addresses improvement in the control of emissions from charging of the furnaces. Section 4(d) of the MOU acknowledges the presence of the existing control for charging with the ESP. It also indicates that control of emissions from charging could be improved by ducting either some or all of these emissions to a new baghouse system. In any case, the errors in the description of the new baghouse system for the basic oxygen furnaces in Permit 11050006 should also be corrected so that erroneous information is not perpetuated in the amendments to the CAAPP permit.

15. THE 2022 APPLICATION WOULD NOT CLARIFY THE RELATIONSHIP BETWEEN FUGITIVE DUST CONTROL MEASURES REQUIRED BY PERMIT 95010001 AND MEASURES REQUIRED BY 35 IAC PART 212 SUBPART K

Overview of This Denial Point, with Information As Required or Specified by Section 39(a) of the Act for Denial of a Permit

1. *The Sections of the Act which may be violated if a revised permit were granted as requested:* Sections 9(a), 9.1(d), 39(a)*, 39(a)**, 39(a)***, 39.5(5)(i), 39.5(7)(a), 39.5(10)(a)(iv) and 39.5(13)(c)(v).

2. *The provision of the regulations under the Act which may be violated if the revised permit were granted as requested:* 35 IAC 201.160(a).

3. *The specific type of information, if any, which the Agency deems the applicant did not provide the Agency:* As related to practices to reduce emissions of fugitive dust from roadways, parking areas and open areas at the Granite City Works and certain public roadways near this facility, the 2022 application does not propose revisions to clarify the interplay between the associated recordkeeping and reporting that are required by Permit 95010001 and the associated recordkeeping and reporting that are required by Board rules. In this regard, except for Condition 25, Permit 95010001 does not address the Board's rules for control of emissions of fugitive dust. (Condition 25 addresses 35 IAC 212.316(e)(1), which limits the opacity of emissions from roadways and parking areas at the facility to no more than 5 percent, average of four vehicle passes, 3 opacity readings for each pass.) While the CAAPP permit for the facility addresses requirements in Board rules for control of fugitive dust, it is unclear whether the requirements for recordkeeping and reporting in 35 IAC 212.316(g) are applicable for the public roadways for which specific measures to reduce emissions of fugitive dust are required by Permit 95010001. This is because Condition 7.13.9(a) in Part 7.0 of the CAAPP permit, which contains "Unit Specific Conditions for Specific Emission Units," provides that the requirements of 35 IAC 212.316(g) apply for "… any fugitive particulate matter emission unit subject to 35 IAC 212.316," without further elaboration on whether public roads are subject to 35 IAC 212.316. However, Condition 5.3.2(c)(ii) in Part 5.0 of the CAAPP permit, which contains "Overall Source Conditions," explicitly applies the requirements for Fugitive Particulate Matter Operating Programs, 35 IAC 212.309, 212.310 and 212.312, to the public roadways for which measures to reduce emissions of fugitive dust are required. Accordingly, for the subject public roadways, the CAAPP permit indirectly indicates that the requirements of 35 IAC 212.316(g) also apply.

4. *A statement of specific reasons why the Act and the regulations might not be met if a revised permit were granted as requested:* Absent clarifying information as described above, the 2022 application does not include the necessary information to allow a revision to Permit 95010001 to be proposed, much less issued, for the Project with Integrated Processing, as is also requested by the application. This is because the amendment of the CAAPP permit that would be authorized by means of the requested revision of Permit 95010001 would be deficient. For roadways, parking areas and other open areas, such an amended CAAPP permit, would not clearly delineate the standards for opacity of emissions pursuant to Board rules that apply to the different

categories of emission units (e.g., 5 percent for roadways and parking areas at the facility, 10 percent for storage piles, and 20 percent for the on-site landfill). In addition, if provisions of 35 IAC 212.316 should not be applied to public roadways, as they are not part of the Granite City Works, such an amended CAAPP permit would improperly perpetuate errors in the current CAAPP permit regarding applicability of Board rules.

Discussion

For roadways, parking areas, and open access areas, Conditions 23, 24, 26, 27, 28, 29 and 30 of Permit 95010001 require implementation of control measures for emissions of fugitive dust. The 2022 application does not make clear the relationship between these requirements established by permit and state regulatory requirements for fugitive emissions in 35 IAC Part 212 Subpart K.[67] In particular, Condition 29 requires daily recordkeeping for the implementation of required measures for on-site dust control. However, it does not address the relationship between these permit-mandated records and the recordkeeping required by 35 IAC 212.316(e)(2).[68] At the same time, Permit 95010001 does address one requirement of 35 IAC Part 212 Subpart K as Condition 25 restates the requirement of 35 IAC 212.316(e)(1), which provides that the opacity of fugitive particulate matter emissions from any roadway or parking area at the Granite City Works shall not exceed 5 percent.[69] That Permit 95010001 does not currently deal with regulatory

[67] Incidentally, the CAAPP permit for the Granite City Works appears to erroneously apply the requirements of 35 IAC Part 212 Subpart K, to the requirements for off-site dust control in Permit 95010001. These regulatory requirements, including that subject sources must be operated under the provisions of an operating program designed to significantly reduce fugitive particulate matter emissions, are applicable to US Steel for sources of fugitive dust at the Granite City Works. However, 35 IAC 212.302 appears to provide that the various emission standards and control requirements in 35 IAC Part 212 Subpart K, other than the general standard for the opacity of fugitive emissions in 35 IAC 212.301, apply for emission units for fugitive dust at certain types of facilities, including manufacturing facilities. Accordingly, these regulatory requirements would not apply to off-site roadways and the compliance procedures for the control measures for off-site roadways should instead be established by permit.

[68] For example, for roadways and parking areas at a steel mill in Granite City (i.e., the Granite City Works), 35 IAC 212.316(g)(2) requires the owner or operator to keep the following detailed records related to the application of control measures for these units:

> 35 IAC 212.316(g)(2) …
>
> D) For each application of water or chemical solution to roadways by truck: the name and location of the roadway controlled, application rate of each truck, frequency of each application, width of each application, identification of each truck used, total quantity of water or chemical used for each application and, for each application of chemical solution, the concentration and identity of the chemical;
> E) For application of physical or chemical control agents: the name of the agent, application rate and frequency, and total quantity of agent, and, if diluted, percent of concentration, used each day;
> F) A log recording incidents when control measures were not used and a statement of explanation.

[69] In Condition 31, Permit 95010001 also refers to 35 IAC Part 212 Subpart U, which also addresses fugitive emissions. For certain facilities, including the Granite City Works, it requires that the owner or operator prepare a contingency measure plan for reductions in particulate emissions that could be implemented in the event of an exceedance of the NAAQS for PM10, 24-hour average. Incidentally, Illinois has never needed to implement the contingency plans required by 35 IAC Part 212 Subpart U.

requirements for fugitive dust is an issue as Integrated Processing of a revision of this this permit requires that the compliance procedures in the revised permit be consistent with those required by the CAAPP.

16. THE 2022 APPLICATION DOES NOT ADDRESS CHANGES TO THE CAAPP PERMIT THAT ARE NEEDED DUE TO REVISIONS TO 40 CFR 63 SUBPART FFFFF, AS COULD BE EXPEDITED BY INTEGRATED PROCESSING OF PERMIT 95010001

Overview of This Denial Point, with Information As Required or Specified by Section 39(a) of the Act for Denial of a Permit

1. *The Sections of the Act which may be violated if a revised permit were granted as requested:* Sections 9(a), 39(a)*, 39(a)**, 39.5(5)(i), 39.5(7)(a), 39.5(10(a)(iv) and 39.5(13)(c)(v).

2. *The provision of the regulations under the Act which may be violated if the revised permit were granted as requested:* 35 IAC 201.160(a) .

3. *The specific type of information, if any, which the Agency deems the applicant did not provide the Agency:* The 2022 application does not address or identify changes to Permit 95010001 and, by means of Integrated Processing of the revision to Permit 95010001, the changes to the CAAPP permit for the Granite City Works, Permit 96030056, that are appropriate as a result of certain revisions of the Iron and Steel NESHAP, 40 CFR 63 Subpart FFFFF. Those revisions, which took effect in January 2022, provide that the emission standards in 40 CFR 63 Subpart FFFFF apply at all times. The prior exemptions from these standards for a subject unit during periods of startup, shutdown and malfunction no longer apply. The provisions of 40 CFR 63 Subpart FFFFF are relevant to Permit 95010001 as it directly or indirectly relies on these rules for the compliance procedures that accompany the permit limitations for the particulate emissions of the NESHAP-subject units, as needed to make those limitations enforceable as a practical matter. For the BOFs, Permit 95010001 directly relies on 40 CFR 63 Subpart FFFFF as Condition 9 refers to applicable provisions of 40 CFR 63 Subpart FFFFF for the work practices, opacity limits, operational limits, emission testing, operational monitoring, recordkeeping and reporting that are required. For the blast furnace casthouse and units other than the BOFs that are subject to 40 CFR 63 Subpart FFFFF, the applicable compliance provisions of this NESHAP are currently indirectly relied upon as those requirements are addressed in the CAAPP permit for the facility,. (For the BOFs, the CAAPP permit also addresses the applicable compliance procedures of 40 CFR 63 Subpart FFFFF.)

4. *A statement of specific reasons why the Act and the regulations might not be met if a revised permit were granted as requested:* Absent explicit recognition in the 2022 application of the recent revisions to 40 CFR 63 Subpart FFFFF, the version of Permit 96030056 that would be authorized by means of the Integrated Processing of revised Permit 95010001 could continue to reflect the historic version of 40 CFR 63 Subpart FFFFFF, prior to the revisions related to startup, shutdown and malfunction. For example, the current CAAPP permit addresses provisions of 40 CFR 63 Subpart FFFFF that required startup, shutdown and malfunction plans that were removed in the revision of these rules. (Refer to CAAPP Condition 7.4.5-2(a) for the “affected blast furnaces and casthouses [sic]” and CAAPP Condition 7.5.5-2(a) “for BOF [sic].”) This would be an impediment to Integrated Processing of a revision to Permit 95010001 if the revised permit would not provide for compliance requirements that are substantially equivalent to those

required by the CAAPP. It would clearly be contrary to the compliance requirements of the CAAPP if for the casthouse and the BOFs, the amended CAAPP permit that would be authorized be issued by means of Integrated Processing would still include provisions of the historic version of 40 CFR 63 Subpart FFFFF that have ceased to apply.

Discussion

The 2022 application does not address revisions to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Integrated Iron and Steel Manufacturing Facilities, 40 CFR 63 Subpart FFFFF, made by USEPA in July 2020. (85 Federal Register, pages 42,074 – 42,130, July 13, 2020). Among other revisions to 40 CFR 63 Subpart FFFFF, USEPA acted to remove exemptions from the emission and opacity limits in this NESHAP for periods of startup, shutdown and malfunction (SSM). Accordingly, effective January 12, 2022, the emission and opacity limits of this NESHAP became applicable at all times. The requirements of this NESHAP that formerly dealt with SSM ceased to be applicable. Notably, subject sources would no longer be required to keep startup, shutdown and malfunction plans detailing the procedures for operating and maintaining subject emission unit(s) during periods of SSM, as had been required by 40 CFR 63 Subpart FFFFF as it had applied 40 CFR 63.6(e)(3) in the general provisions of the NESHAP regulations to subject sources,

These revisions to 40 CFR 63 Subpart FFFFF are relevant for Permit 95010001 and the revisions to this permit requested by the 2022 application. This is because Permit 95010001 relies on the applicable compliance procedures of 40 CFR 63 Subpart FFFFF (i.e., requirements for emission testing, opacity observations operational monitoring and recordkeeping), to verify consistent operation of the casthouse, the basic oxygen furnaces and other NESHAP-subject units and their emission controls, for the purposes of assuring compliance with the emission limits set by this permit for their emissions of particulate. This reliance occurs as the emission limits that are set or would be set by a revised permit would be restated in the CAAPP permit for the Granite City Works, Permit 96030056. The provision currently in CAAPP Permit 96030056 that reflect the exceptions to the requirements of 40 CFR 63 Subpart FFFFF for SSM create a break or interruption in this reliance on the NESHAP for purposes of enforceability of permit limits for emissions, even if the actual nature and effect of this break or interruption is uncertain. Any concern over such interruptions would be eliminated if the former provisions of the NESHAP regulations, which USEPA acted to strike in July 2020, were also no longer present in the CAAPP permit.[70]

[70] From a legal and practical perspective, the continued presence of the former provisions of 40 CFR 63 Subpart FFFFF in the CAAPP permit would be problematic. Would US Steel have to maintain startup, shutdown and malfunction plans as related to particulate emissions of NESHAP-subject units relative to permit limits for particulate emissions? Would the continued presence of these provisions in the CAAPP permit throw Integrated Processing of Permit 95010001 into question as the compliance procedures that would accompany the limits for particulate emissions in revised Permit 95010001 would not be consistent with the procedures required by the CAAPP? Would US Steel and the Illinois EPA have to delineate and then implement a secondary version of the compliance procedures that would deal with emissions of particulate from NESHAP-subject units during SSM events?

17. THE 2022 APPLICATION DOES NOT ADDRESS CHANGES TO THE CAAPP PERMIT THAT HAVE RESULTED FROM SHUTDOWN OF EMISSION UNITS, AS IS RELEVANT FOR THE REQUESTED INTEGRATED PROCESSING OF THE REVISION TO PERMIT 95010001

Overview of This Denial Point, with Information As Required or Specified by Section 39(a) of the Act for Denial of a Permit

1. *The Sections of the Act which may be violated if a revised permit were granted as requested:* Sections 9(a), 39(a)*, 39(a)**, 39(a)***, 39.5(5)(i), 39.5(7)(a), 39.5(10(a)(iv) and 39.5(13)(c)(v).

2. *The provision of the regulations under the Act which may be violated if the revised permit were granted as requested:* 35 IAC 201.160(a).

3. *The specific type of information, if any, which the Agency deems the applicant did not provide the Agency: T*he 2022 application does not identify or address changes to the CAAPP permit for the facility, Permit 96030056, that result from the permanent shutdown of certain emission units at the facility. US Steel has also not taken other action to initiate issuance of a revision of Permit 96030056 that would remove provisions for emission units that are now permanently shutdown. In this regard, for example, Permit 96030056 currently includes provisions addressing the two by-product recovery coke oven batteries at the facility that were permanently shut down in 2015.

4. *A statement of specific reasons why the Act and the regulations might not be met if a revised permit were granted as requested:* Absent information in the 2022 application or other appropriate action by US Steel, as addressed above, the application does not include the necessary information to enable a revision to Permit 95010001 to be issued with Integrated Processing. This is because the application would not show that such a revision to Permit 95010001 would meet the criteria for Integrated Processing, as is specifically requested by the application. That is, the 2022 application would not show that the revisions to Permit 95010001 would provide for procedural and compliance requirements in Permit 96030056 that are substantially equivalent to those provided for by the CAAPP. The application would not support subsequent amendment of Permit 96030056 by means of Integrated Processing that would remove provisions for units that are now shutdown. Instead, absent an appropriate request, the application, would only support issuance of an amended CAPPP permit that would include the current provision for units that are now shut down. In this regard, the Integrated Processing of a construction permit only allows for subsequent amendments to a CAAPP permit as provided for by the construction permit. The Illinois EPA is not given independent authority to revise a CAAPP permit to remove provisions for units that are now shut down but are not otherwise the subject of the construction permit application.

Discussion

The 2022 application does not identify changes to the CAAPP permit for the Granite City Works, Permit 96030056, that are a consequence of permanent shut down of emission units, as generally addressed by Condition 9.11 of the CAAPP permit.

> Condition 9.11 Permanent Shutdown
> This permit only covers emission units and control equipment while physically present at the indicated source location(s). Unless this permit specifically provides for equipment relocation, this permit is void for the operation or activity of any item of equipment on the date it is removed from the permitted location(s) or permanently shutdown. …

While the 2022 application acknowledges that the by-product coke ovens at the Granite City Works have been shut down, this application does not separately address the consequences for the current CAAPP permit. The shutdown of these batteries was accompanied by the shutdown of coal and coke handling operations, the coke by-products plant, the handling of coke by-products, and possibly certain wastewater treatment processes.[71, 72] In addition, although not shut down, Boilers 11 and 12, Ladle Dryer/Preheaters and Slab Reheat Furnaces are no longer able to use COG as fuel since COG is no longer produced at the facility. As such, provisions in the CAAPP permit that identify or address the use of COG in these units are no longer necessary.[73] It would be improper for the revised version of the CAAPP permit authorized by means of the Integrated Processing of a revision to Permit 95010001 to still physically include provisions that should no longer be present in the revised CAAPP permit given the permanent shutdown of the emission units that were subject to those provisions.[74] The responsibility to identify provisions in

---

[71] The elimination of COG also affected the applicability of emission standards to certain units. For example, 35 IAC 212.458(b)(23) is no longer applicable, to ladle dryers/preheaters, contrary to what is stated in Condition 7.5.3-1 of the CAAPP permit.

[72] US Steel's current application for renewal of CAAPP Permit 96030056, which was received by the Illinois EPA on December 3, 2013, also does not address shut down of the by-product coke oven batteries and other related operations at the facility. This application only acknowledges that changes to the CAAPP permit will be needed in the future to address the addition of the baghouse to the particulate control system for the basic oxygen furnaces when construction of the baghouse is complete.

> The existing equipment descriptions for the individual processes at GCW (Granite City Works) in the CAAPP permit sections 7.1 to 7.4 and 7.6 to 7.13 are generally accurate. However, the Basic Oxygen Furnace process described in the CAAPP permit condition 7.5 will eventually need to be updated with the new secondary baghouse added as part of the Emission Reduction Project (Construction Permit No. 11050006) once construction is complete.
>
> Application for Renewal of CAAPP Permit 95030056, Section 2.2.2, "Process Changes."

[73] Irrespective of whether certain provisions in the CAAPP permit related to use of COG are still necessary, Condition 5.6 of the CAAPP permit limits the SO_2 emissions of these units from use of COG. (This condition restates limits from Federally Enforceable State Operating Permit 94120017, originally issued December 12, 1994.) The absence of COG does not act to excuse US Steel from required recordkeeping and periodic reporting for emissions of SO_2 and PM_{10} from these units from use of COG (CAAPP permit, Conditions 5.9(e) and 5.10.3). It also does not excuse US Steel from required operational monitoring for the use and sulfur content of COG (CAAPP permit, Conditions 5.6(a) and 7.3.9(f)). In this regard, the emission units addressed by CAAPP Condition 5.6, which are addressed by these requirements for operational monitoring, recordkeeping and reporting, have not been shut down.

[74] A fundamental requirement of the CAAPP is that applications for CAAPP permits must be truthful, accurate and complete. In this regard, Section 39.5(5)(e) of the Environmental Protection Act provides that "Each submitted CAAPP application shall be certified for truth, accuracy, and completeness by a

the CAAPP permit that should not be carried forward initially falls on US Steel as it is the CAAPP Permittee for the Granite City Works.[75] Moreover, as the 2022 application requests Integrated Processing of the requested revisions to Permit 95010001, the subsequent revisions to the CAAPP permit that would be authorized by the revisions to Permit 95010001 must fulfill the requirement that a CAAPP permit issued for a source accurately identify or address the emission units that constitute the source is being permitted.

responsible official in accordance with applicable regulations." Section 10(a)(i) of the Act provides that one of the standards of issuance for a CAAPP permit by the Illinois EPA is that "… the applicant has submitted a complete and certified application for a permit, permit modification, or permit renewal consistent with subsection 5 and 14 of this Section [Section 39.5 of the Act], as applicable, and applicable regulations." The requirement for an application to be truthful, accurate and complete is applicable to US Steel's current request for revisions to Permit 95010001 as it includes a request for Administrative Amendment to the CAAPP permit for the Granite City Works by means of Integrated Processing under the CAAPP. The scope of this requirement's applicability is not limited to only certain types of CAAPP applications, such as applications for initial CAAPP permits or renewals of CAAPP permits.

[75] As US Steel is the Permittee for a CAAPP source, it must periodically report compliance or noncompliance with each of the requirements set forth in the CAAPP permit. If US Steel believes that it is "in compliance" with regard to certain requirements in the CAAPP permit because those requirements have been affected by Condition 9.11 of the CAAPP Permit, it is appropriate for US Steel to request appropriate changes to the CAAPP permit by means of an appropriate application for amendment or modification of the CAAPP permit. This is especially true as certain requirements in the CAAPP permit that relate to use of COG apply to emission units that have not been shut down.

18. THE EVALUATION OF BEST AVAILABLE CONTROL TECHNOLOGY (BACT) IN THE 2022 APPLICATION FOR CARBON MONOXIDE (CO) IS NOT SUFFICIENT AND DOES NOT ADEQUATELY SUPPORT US STEEL'S PROPOSAL FOR BACT

Overview of This Denial Point, with Information As Required or Specified by Section 39(a) of the Act for Denial of a Permit

1. *The Sections of the Act which may be violated if a revised permit were ranted as requested:* Sections 9(a), 9(b)(2), 9.1(d), 39(a)*, 39(a)** and 39(a)***.

2. *The provision of the regulations under the Act which may be violated if the revised permit were granted as requested:* 35 IAC 201.152*, 201.152***, 201.160(a), 204.280, 204.330, 204.810, 204.820 and 204.1100(c).

3. *The specific type of information, if any, which the Agency deems the applicant did not provide the Agency:* For the blast furnace casthouse, for which BACT for CO must now be set as it has been realized that the casthouse emits CO, the BACT demonstration in the 2022 application does not show that options for BACT for CO other than add-on control devices were considered. For the blast furnace stoves, for which BACT for CO must now be reevaluated as increases in permitted emissions are requested, the application is not accompanied by diagrams and cost data supporting the claim that it is not feasible to conduct emission testing by USEPA reference methods for the CO emissions of the stoves. This information is necessary for the stoves if BACT for CO is to not be set as a numerical standard. (The 2022 application requests that the revised permit recognize CO emissions from the casthouse of about 300 tons/year, of which about 100 tons/year would be the increase from the Production Increase Project; the requested increase in permitted CO emissions from burning blast furnace gas (BFG) in the blast furnace stoves is almost 10,000 tons/year, with an overall increase, also considering the BFG flares and boilers, of more than 20,000 tons/year.) For both the casthouse and the blast furnace stoves, the BACT demonstrations in the application do not include descriptions or documentation for the investigations that were conducted into available options for control of CO.

4. *A statement of specific reasons why the Act and the regulations might not be met if a revised permit were granted as requested:* Absent information as addressed above, the BACT demonstrations in the 2022 application for CO are not complete. They do not show that BACT would be utilized for CO with changes in permitted CO emissions of the Project as requested by the application. As such, they cannot be relied upon to conclude that BACT is utilized for CO for the casthouse and blast furnace stoves, much less, for the Illinois EPA to set appropriate requirements as BACT for CO in a revision to Permit 95010001.

Discussion

The evaluation of Best Available Control Technology (BACT) for CO in Section 8 of the 2022 application lacks necessary information to support US Steel's proposal for BACT for CO for the emissions units for which this must be determined or redetermined under the PSD program as a consequence of the requested revisions to Permit 95010001. The evaluation addresses BACT for

CO for the casthouse for which BACT must now be determined as it is now recognized that the casthouse emits CO. It also addresses BACT for CO for the blast furnace stoves as the 2022 application requests that the revision of Permit 95010001 allow for more emissions of CO from these units.

The Scope of the Evaluation

As explained in the 2022 application, consistent with the definition of BACT in Section 169(3) of the Clean Air Act (42 US Code Section 7479(3)) and as confirmed by USEPA guidance, a determination of BACT must consider options to control or reduce emissions of an emission unit besides add-on control devices.

> In the BACT analyses herein, the term "available" is used, consistent with U.S. EPA guidance to refer to any control strategy that is potentially applicable to the source type in question (i.e., a technology or control option that has a practical potential for application to the source category in general). These may include fuel cleaning, inherently lower polluting processes, and end of pipe control devices. All identified control strategies that are not inconsistent with the fundamental purpose and basic design of the proposed [sic] facility are listed in this step.
>
> 2022 application, Section 8.2.1.4, "Available Control Options," p. 8-4.

For the casthouse, when identifying control options, the BACT evaluation only identifies end-of-pipe or "add-on control" control options. The evaluation does not identify other process-related control options such as work practices (2022 application, Section 8.2.3.3). In contrast, for the blast furnace stoves, the evaluation identifies both add-on control options and a process-related control option. i.e., "Work Practice Standards, including good combustion practices" (2022 application, Section 8.2.2.3). The evaluation does not explain why process-related control options are not available for the casthouse.[76]

Support Provided for the Scope of the BACT Evaluation

[76] Incidentally, with regard to the blast furnace stoves, the evaluation does not explain why "good combustion practices" are considered to be a type of work practice standard rather than a separate control option. In Section 8.2.2.6 "Step 5 - Establish CO BACT," the evaluation proposes operational monitoring for temperature and oxygen levels to confirm operation of the stoves for efficient combustion of fuel, thereby maintaining CO emissions within the level that is achievable given the nature of the physical and operational design of the stoves. The evaluation also separately proposes the less prescriptive practices that are more often considered to constitute good combustion practices. For example, Section 8.2.2.6 also proposes to, "Conduct annual adjustment and tune-up to include, **at a minimum**, inspecting, adjusting, cleaning, or replacing instrumentation and operational control system components and inspecting the air-to-fuel ratio control system and adjusting as **appropriate** for **proper** operation." [Emphasis added.]
Moreover, this statement of what would constitute "good combustion practices" for the stoves would be problematic as it would not be enforceable given the various qualifications, as highlighted, on the actions that are required actions to be taken.

For both the casthouse and the blast furnace stoves, the BACT evaluation in the 2022 application is not accompanied by supporting documentation for the investigation that was conducted into available control options. Instead, the evaluation simply states that a review of available control options was conducted. For example, for the casthouse, the evaluation states:

> Based on a review for BACT determinations in U.S. EPA's RBLC (RACT/BACT/LAER Clearinghouse) database and other literature, the control options that are potentially available to control CO emissions from the blast furnace casthouse are:
>
> - Capture system and thermal incineration and
> - Capture system and catalytic incineration.
>
> 2022 application, Section 8.2.3.3, p. 8-8.

When a BACT evaluation is submitted, it may be appropriate or necessary[77] for the application to also include documentary support for the review of available control options that was conducted. In this regard, BACT evaluations commonly include copies of information from the RBLC that is potentially relevant to the determination of BACT that must be made. Further explanation is also provided if some of that information is not considered applicable to the units that are the subject of the BACT determination. Likewise, as there is relevant information in the literature, especially as it is addresses available control options for the subject pollutant, copies of that information should be included in a BACT evaluation. This information enables the Illinois EPA, the USEPA and interested parties to confirm that the review of available control options for a BACT evaluation was thorough and can be relied upon to have reasonably identified potentially available control options for BACT.

Support Provided for Work Practices As BACT for the Blast Furnace Stoves

For the blast furnace stoves, the BACT evaluation for CO in the 2022 application is not accompanied by supporting documentation to support the claim that it is infeasible to measure their CO emissions so that BACT should not be set as a numerical emission standard.[78]

---

[77] For the 2022 application, this information is considered necessary. BACT determinations for the CO emissions of casthouses for blast furnaces and blast furnace stoves are uncommon. The Illinois EPA does not have the ability based simply on its own experience and knowledge to confirm that the potential control options for CO BACT were reasonably identified in the BACT evaluations in the application.

[78] The definition of BACT at 35 IAC 204.280 provides that:

> If the Agency [Illinois EPA] determines that technological or economic limitations on the application of measurement methodology to a particular emission units would make the imposition of an emission standard infeasible, a design, equipment, work practice, operational standard or combination thereof, may be prescribed instead to satisfy the requirement for the application of BACT. Such standard shall, to the degree possible, set further the emission reduction achievable by implementation of such design, equipment, work practice or operation, and shall provide for compliance by means that achieve equivalent results.

> USS Granite City is proposing work practice requirements rather than numeric limits as BACT. Numeric emission limitations are not proposed because direct measurement of emissions --*i.e.*, use of U.S. EPA reference test methods—is not feasible for any of the fuel emissions units subject to the BACT requirements for CO emissions. In particular, for the stack serving the blast furnace A stoves, there is no sampling port,[45] and for the stack serving the blast furnace B stoves there is no sampling port satisfying the location requirement in U.S. EPA Reference Method 1.[46] Each stack is refractory lined and is believed to be approximately one hundred years old.
>
> For the reasons presented above, numeric CO emission standards are not feasible for the blast furnace stoves.
>
> Footnote 45. For the one-time exhaust gas sampling event discussed in footnote 19 of this permit application, USS Granite City inserted a sampling probe into the stack through a pipe used to inject steam into the stack.
> Footnote 46. Appendix A-1 to 40 CFR part 60.
>
> 2022 application, Section 8.2.2.6 “Step 5 – Establish CO BACT,” p. 8-7.

Further support is needed for the claim that measurement or testing of emissions of the blast furnace stoves is infeasible. While certain information about the stoves is provided, the application does not directly address the technological issues or costs that would be entailed to install suitable ports for testing on one or both sets of blast furnace stoves. For example, the application does not include diagrams for the existing ductwork of the stoves to address whether the configuration of this ductwork would accommodate installation of test ports at a location that would satisfy USEPA Reference Method 1. The application also does not show how the refractory lining on the stacks or their age, approximately one hundred years old, would present significant technical challenges and costs so that the installation of test ports at a suitable location should be considered infeasible. The application also does not show that there are other challenges that would need to be addressed or issues that should be considered, such as requirements of the Occupational Safety and Health Administration (OSHA), that would affect the technical feasibility and cost of installing suitable test ports on the stoves.

19. THE APPLICATION DOES NOT ADDRESS BACT FOR SULFUR DIOXIDE (SO_2) AND CO FROM USE OF COKE OVEN GAS (COG) IN THE BLAST FURNACE STOVES

Overview of This Denial Point, with Information As Required or Specified by Section 39(a) of the Act for Denial of a Permit

1. *The Sections of the Act which may be violated if a revised permit were granted as requested:* Sections 9(a), 9.1(d), 39(a)* and 39(a)**.

2. *The provision of the regulations under the Act which may be violated if the revised permit were granted as requested:* 35 IAC 201.152*, 201.152***, 201.160(a), 204.280, 204.330, 204.810 and 204.1100(c).

3. *The specific type of information, if any, which the Agency deems the applicant did not provide the Agency:* The 2022 application does not include demonstrations of BACT for sulfur dioxide (SO_2) and CO from the burning of coke oven gas (COG) in Project-affected fuel burning units.

4. *A statement of specific reasons why the Act and the regulations might not be met if a revised permit were granted as requested:* Absent information as described above, the 2022 application does not allow a revision to Permit 95010001 to be issued for the Production Increase Project (Project)that considers baseline emissions from burning COG. This is because the application does not provide the demonstrations of BACT that is required as the Project is a major modification for SO_2 and CO under PSD. In this regard, unlike the initial permitting of the Project, the 2022 application now quantifies emissions of particulate, NOx and VOM from burning COG and these emissions are included in revised determinations of baseline emissions. (In 1996, the Project was permitted as a major modification for SO_2 and CO but did not quantitatively address emissions from burning COG.) If emissions from burning of COG are to be relied upon for the issuance of a revised permit, the 2022 application must also address the BACT requirements of PSD for the SO_2 and CO emissions from use of COG, as would have been applicable in 1996, when the Project commenced. The fact that the by-product recovery coke batteries at the Granite City Works were shutdown in 2015 and COG is no longer available at the facility, does not alter the applicable requirements under PSD that must be satisfied. PSD would be violated if a revised permit were issued for the Project based on revised NSR applicability analyses that considered use of COG, as contained in the 2022 application, absent demonstrations that the Project utilized BACT for emissions of SO_2 and CO from use of COG.

Discussion

The 2022 application does not demonstrate that Best Available Control Technology (BACT) was utilized as an aspect of the Project for the SO_2 and CO emissions of the blast furnace stoves, as required under the PSD program (e.g., 35 IAC 204.1100(c)). In this regard, unlike the original application, the 2022 application addresses emissions from use of coke oven gas (COG) as fuel in certain Project-affected units. (Refer to the revised netting analyses for the Project for particulate, NOx and VOM and in the 2022 application.) As the 2022 application now addresses emissions of certain pollutants from burning of COG in fuel-burning units, including the blast

furnace stoves, this application must also address the related consequence for emissions of SO_2 and CO under the PSD program from burning COG in the stoves. SO_2 and CO are pollutants for which the Project is a major modification subject to PSD. However, the 2022 application does not address BACT for SO_2 and CO as applied to use of COG in the stoves. As such, the 2022 application does not demonstrate that prior to February 2015, when the by-product recovery coke oven batteries at the Granite City Works were shut down and COG ceased to be available, BACT was being utilized for the SO_2 and CO emissions from use of COG in the stoves.

With respect to CO, it is relevant that the BACT demonstration in the 2022 application focuses on CO emissions from burning of fuels other than COG. For fuel burning units, the 2022 application states that “CO emissions of these units result primarily from incomplete combustion during the firing of BFG and natural gas.” This ignores the historic contribution of COG to the CO emissions of the stoves prior to February 2015. The 2022 application also does not state that, as of February 2015, it was no longer necessary to address CO emissions from use of COG because COG was no longer produced and available for use.

20. AS RELATED TO SO_2 EMISSIONS FROM USE OF BFG, THE 2022 APPLICATION IS INCONSISTENT WITH A PENDING 2008 APPLICATION

Overview of This Denial Point, with Information As Required or Specified by Section 39(a) of the Act for Denial of a Permit

1. *The Sections of the Act which may be violated if a revised permit were granted as requested:* Sections 9(a), 9(b)(2)), 9.1(d), 39(a)*, 39(a)** and 39(a)***.

2. *The provision of the regulations under the Act which may be violated if the revised permit were granted as requested:* 201.160(a).

3. *The specific type of information, if any, which the Agency deems the applicant did not provide the Agency:* As related to emissions of sulfur dioxide (SO_2) from burning blast furnace gas (BFG), the 2022 application is inconsistent with and conflicts with an earlier application for revisions to Permit 95010001 that was received on February 8, 2008 (the "2008 application"). For the emissions of SO_2 from burning of BFG, the 2008 application requests increases in the emissions that are allowed by Permit 95010001. The 2022 application does not request such increases and does not request any changes to Permit 95010001 related to SO_2 emissions. The 2022 application does not even address the 2008 application to explain why the revisions to Permit 95010001 requested by the 2008 application are no longer needed. US Steel has also not taken other actions that would act to resolve the conflict between the 2022 application, which is being addressed in this proceeding, and the earlier 2008 application, which is still pending. For example, US Steel has not requested withdrawal of the 2008 application. In this regard, it is noteworthy that the approach taken in the 2022 application to SO_2 emissions from burning BFG is different from the approach that is taken for NOx, VOM and particulate. For example, for the BOFs for NOx and VOM, the 2022 application requests revisions to Permit 95010001 to increase permitted emissions so as to facilitate future compliance.

4. *A statement of specific reasons why the Act and the regulations might not be met if a revised permit were granted as requested:* The conflict between the 2008 application and the 2022 application is an impediment to revision of Permit 95010001 as requested by the 2022 application. Absent resolution of this conflict, either by appropriate information or request in the 2022 application or by other appropriate action by US Steel, the 2022 application should not be considered to show compliance with the SO_2 emission limits for burning BFG that are currently in Permit 95010001. As such, the 2022 application does not meet the standards for issuance of a construction permit.

Discussion

In 2008, US Steel applied for revisions to Permit 95010001 to increase permit limits for the sulfur content of BFG and the SO_2 emissions resulting from the use of BFG. That application (the 2008 application) was received on February 4, 2008. The 2022 application is inconsistent with and conflicts with the 2008 application. As such, these applications, as they currently exist, cannot be processed by the Illinois EPA absent appropriate action by US Steel on one or both of these applications, e.g., changes to the 2022 application so that it requests the same revisions to SO_2 emission limits for use of BFG as the 2008 application. In this regard, the 2022 application "… does not request any changes to the emission limits for SO_2 and lead emissions established in the Construction Permit 95010001." (2022 application, p. 2-2.) The 2008 application does request changes to the provisions of the permit for SO_2., as it is an "Application to modify to correct the emission factors used to develop the original application and permit in light of newly identified information on emissions and emission factors." (October 2008 application, p. 1-1.)

In particular, in the 2008 application:

> …US Steel seeks to revise the Production Increase Permit (95010001) to account for US Steel's revised method for calculating the SO_2 emissions from BFG combustion. This will increase the total allowable SO_2 emissions on an annual basis from combustion of BFG in the Production Increase Permit.
>
> 2008 application, pp. 2-2 and 2-3

The 2008 application specifically requests that the SO_2 emission factor limit for BFG be increased from 6.65 to 16.00 pounds/million cubic feet of gas burned. With the revised emission factor, the permitted SO_2 emissions from use of the 185,030 million cubic feet of BFG per year, as allowed by the permit, would increase from 615.22 to 1480.24 tons/year. However, the 2022 application provides that the limits for SO_2 for use of BFG should be unchanged. As such, the 2022 application indicates that for use of BFG the requested revised permit should continue to limit SO_2 emission to 6.65 pounds/million cubic feet burned and 615.22 tons/year.

Moreover, the existence of the 2008 application suggests that the revisions to SO_2 emission limits that it requested were needed at the time of that application. The 2022 application does not show that this was not the case, as it does not address historic SO_2 emissions from use of BFG to show that an SO_2 emission factor of 6.65 pounds/million cubic feet was appropriate when Permit 95010001 was originally issued in 1996 and that annual SO_2 emissions have never exceeded 615.22 tons/year.

21. AS RELATED TO EMISSION LIMITS FOR SO_2, LEAD AND CO, THE 2022 APPLICATION IS INCONSISTENT WITH PENDING BOARD APPEALS

Overview of This Denial Point, with Information As Required or Specified by Section 39(a) of the Act for Denial of a Permit

1. *The Sections of the Act which may be violated if a revised permit were granted as requested:* Sections 9(a), 39(a)*, 39(a)**, 39(a)***, 39.5(5)(i), 39.5(7)(a), 39.5(10)(a)(iv) and 39.5(13)(c)(v).

2. *The provision of the regulations under the Act which may be violated if the revised permit were granted as requested:* 35 IAC 201.160(a).

3. *The specific type of information, if any, which the Agency deems the applicant did not provide the Agency:* For various processes, the 2022 application does not request or propose appropriate changes to the current emission factor limits in Permit 95010001 for SO_2, lead and CO to resolve pending permit appeals (PCB 2013-52 and PCB 2013-62). For these pollutants, Permit 95010001 sets emission factor limits for the blast furnace casthouse and the slag pits for SO_2; for the BOFs for lead and CO; and for desulfurization and reladling for lead. Alternatively, the 2022 application does not indicate that the inclusion of the current emission factor limits in a revised permit is not expected to result in another appeal as these limits are now considered acceptable. For the BOFs for CO, the application also does not indicate that the current emission factor limit, which applies only to the stack emissions from the electrostatic precipitator (ESP), would still be considered acceptable if applied to stack emissions. That is, the current limit would still be acceptable if it applied in aggregate to the CO emissions from the stack of the ESP and the stack of the baghouse, which was subsequently installed to improve control of the particulate emissions of the BOFs (Construction Permit 11050006). This change would be appropriate as particulate emissions of the BOFs are now addressed by two control systems. (Besides particulate, these systems capture emissions of CO and other pollutants from the BOFs but only act to reduce particulate and lead emissions.)

4. *A statement of specific reasons why the Act and the regulations might not be met if a revised permit were granted as requested:* Absent information as described above, the 2022 application does not include information necessary for the Illinois EPA to include conditions in a revised permit to prevent noncompliance with certain current emission factor limits that apply to the subject processes. As the subject limits, as they are or, in the case of PCB 2013-62, would be present in the CAAPP permit, are currently the subject of appeals, it is reasonable for these limitations for the review of the application to be based on compliance not being achieved. Moreover, absent information as described above, the 2022 application does not show that, as the subject limits are appealed and could be stayed in any revised CAAPP permit, these limits should be considered to still meet the substantive requirements of the CAAPP. Finally, it is noteworthy that for the subject processes for the various emission factor limits for PM, PM-10, NOx and VOM, the application does request revisions to the emission factor limits. For those requested revisions, the 2022 application, page 2-3, explains that "USS Granite City anticipates that these revisions will

enable settlement of the permit appeals currently before the Board because they involve provisions of the permit addressing emission factors."

Discussion

As already mentioned, the 2022 application does not request any changes to the emissions limits for SO_2 and lead currently set by Permit 95010001. The application states, "This permit application also does not request any changes to the SO_2 and lead emission limits in Construction Permit No. 950100001, so SO_2 and lead emissions will not be discussed further." [2022 application, Section 2.2, "General Description of Requested Permit Revisions." p. 2-2.][79, 80, 81] For CO, the 2022 application does request that the revised permit address emissions of CO from

[79] In Section 3 of the application, in which support for elimination of emission factor limits and use of group limits is generally provided, the application only addresses limits for particulate, NOx and VOM. For example, the application states that,

> The approach proposed by USS Granite City with respect to the PM, PM_{10}, NOx and VOM emissions caps to be used in any revised Construction Permit No. 95010001, including the proposed revisions to certain emission limitations, compliance demonstration requirements, and other permit conditions as discussed in detail in Sections 5 through 7 of the permit application ["Proposed Changes to Permit Terms for PM and PM_{10} Emissions Increases Analyses," "Proposed Changes to Permit Terms for NOx Emission Increases Analysis, and "Proposed Changes to Permit Terms for VOM Emission Increases Analyses," respectively] is consistent with policy and precedent and will improve the enforceability of the PTE limitations in Construction Permit No, 95010001. In particular, USS Granite City emphasizes that removal of certain conditions and provisions addressing emissions individual emission units or emission points, including both limits on annual emissions and provisions emission addressing emissions factors will not result in impairment of the enforceability of the PTE limitations.
>
> 2022 application, Section 3, "Discussion of Permit Conditions Used to Restrict PTE [Potential to Emit]," 3-3.]

[80] For process operations, Permit 95010001 currently limits SO_2 emissions from the casthouse and slag pits associated with the blast furnaces in pounds per ton of iron produced and tons per year. For the casthouse, the SO_2 emissions of the main baghouse for the casthouse, the baghouse for the iron spouts at the casthouse, and the uncaptured emissions from the casthouse are limited, respectively, to 0.2006, 0.0073, and 0.0104 pounds per ton of iron produced. The SO_2 emissions of the slag pits are limited to 0.0100 pounds per ton of iron produced. (Permit 95010001, Condition 5 and Table 1.)

Although the emission factor limits for the SO_2 emissions of the casthouse are not identified as Best Available Control Technology (BACT) by Permit 95010001, these limits are considered to be the determination of BACT for SO_2 and should have been identified as such in this permit. BACT is required for the casthouse for SO_2 because the Project was a major modification for SO_2 under the PSD program, as is stated in this permit. Accordingly, as Project included physical changes to the blast furnaces to increase their production capability, BACT is required for the SO_2 emissions of the casthouse.

[81] For operations in the basic oxygen furnace shop, Permit 95010001 currently limits lead emissions in pounds per hour and tons per year. For the basic oxygen furnaces, the lead emissions from the ESP stack and roof monitor are limited to 0.01934 and 0.0129 pounds per hour, respectively. The lead emissions from desulfurization and hot metal transfer are limited to 0.0133 pounds per hour. (Permit 95010001, Condition 18 and Table 2.) The permit does not address the lead emissions of the basic oxygen furnaces that are now captured and controlled by the new baghouse system nor does the 2022 application request any revisions to the permit to address the lead emissions of these furnaces that now occur from the stack of the baghouse.

the casthouse and raise the limits for CO emissions of Project-affected fuel burning units.[82] However, the application does not request revisions to the emission limits currently in Permit 95010001 for the CO emissions of the basic oxygen furnaces, i.e., the limits in pounds per ton of steel produced and in tons per year for the CO emissions of these furnaces through the ESP stack.[83,] As such, the application is not consistent with two pending permit appeals before the Board, PCB 0013-53 and PCB 0013-62, as it does not propose revisions to current permit limits for emissions of SO_2, CO and lead. As previously discussed, in these appeals, US Steel challenged all emission factor limits set by Permit 95010001 for individual process operations. US Steel has not amended these appeals so that they only address emission factor limits for PM, PM_{10}, NOx and VOM and no longer address the t emission factor limits that are set for SO_2, CO and lead. In addition, in the 2022 application, US Steel does not explain why the emission factor limits in Permit 95010001 for SO_2, CO and lead that were appealed are no longer considered to be objectionable. That is, US Steel would not again challenge those limits as it has already done in PCB 0013-53 and PCB 0013-62 if a revision to Permit 95010001 were issued that continued to include the current emission factor limits.[84]

With regard to the CO emissions of the basic oxygen furnaces, the 2022 application also does not request revisions to Permit 95010001 as the current permit only addresses CO emissions from the "BOF ESP Stack." The application does not request that these limits be revised so that they address all stack emissions of the basic oxygen furnaces, e.g., CO emissions from both the stack of the new baghouse system and the stack of the ESP system. Moreover, as the 2022 application does not propose such revisions to the current limits for CO emissions of these furnaces, the application effectively requests a relaxation of the current limits. This is because the revised permit would not address the CO emissions of these furnaces that now occur through the baghouse stack. That is, the limits in the revised permit would not account for any CO emissions that are no longer being captured with the ESP system and are instead now being emitted from the baghouse system.[85]

---

[82] In the original application for Permit 95010001, the casthouse was not identified as a source of CO and information for CO emissions was not provided. The application also requests certain updates to the limits for CO emissions from use of blast furnace gas and natural gas in Project-affected fuel burning units to reflect new information for the CO emissions from burning these fuels.

[83] Permit 95010001 currently limits CO emissions of the basic oxygen furnaces through the ESP stack to 8.993 pounds per ton of liquid steel produced and 16,097.47 tons/year. (Permit 95010001, Condition 18, Table 2, Section 1, BOF ESP Stack.) The permit does not address CO emissions that are now captured by the new baghouse system and emitted from its stack or any uncaptured CO emissions, which occur through the roof monitor.

[84] If the subject emission factor limits were included in a revised permit, the Illinois EPA could explain that, if these limits in the revised permit were stayed pursuant to an appeal to the Pollution Control Board, the limits would continue to be enforceable pursuant to Permit 95010001 as issued before the revision of the permit and any appeal of the revised permit to the Board.

[85] The 2022 application also does not request revisions to Permit 95010001 to address uncaptured CO emissions of the basic oxygen furnaces or otherwise address the uncaptured CO emissions of these furnaces. This is not consistent with the approach taken for the casthouse on the blast furnaces. For the casthouse, the application requests that the revised permit limit the overall emissions of CO from the stacks on the control systems serving the casthouse. The application also includes information for the overall CO emissions of the casthouse, including other captured emissions and uncaptured emissions.

22. THE 2022 APPLICATION DOES NOT INCLUDE A SIGNED CERTIFICATION FOR THE ACCURACY AND COMPLETENESS OF THE APPLICATION

Overview of This Denial Point, with Information As Required or Specified by Section 39(a) of the Act for Denial of a Permit

1. *The Sections of the Act which may be violated if a revised permit were granted as requested:* Sections 39(a)* and 39.5(5)(e).

2. *The provision of the regulations under the Act which may be violated if the revised permit were granted as requested:* 35 IAC 201.159 and 270.401(f).

3. *The specific type of information, if any, which the Agency deems the applicant did not provide the Agency:* The 2022 application does not include a certification for the truth, accuracy and completeness of the application, as submitted on October 7, 2022. The certification in the 2022 application is a photocopy of an earlier certification dated February 25, 2020, that accompanied a prior application received on March 2, 2020, several years earlier. That certification cannot serve as the required certification. Also note that the 2022 application replaced the prior 2020 application. The transmittal letter accompanying the 2022 application states that, "Due to the nature of revisions throughout this application, the Illinois EPA should refer to this application for permit processing."

   The 2022 application also was not signed as required by 35 IAC 201.159. Even if Integrated Processing had not been requested so that the procedural requirements of the CAAPP were not applicable, the application still did not meet the procedural requirements for construction permit applications because the application was not signed.

   With respect to the "certification" and "signature" provided in US Steel's Comments responding to the Initial Draft Denial Letter, this was not sufficient to correct these omissions. First, this material, which is dated September 8, 2023, was an attachment to those comments and was not submitted as a supplement to the 2022 application. Second, the certification is not accompanied by an errata or other material correcting erroneous information in the application as either identified by the Illinois EPA in the Initial Draft Denial or identified by US Steel when

---

As discussed in Section 8.2.3.7 of this permit application [BACT Evaluation for Blast Furnace Casthouse], USS Granite City is proposing a CO BACT emission limit of 70 lb/hr based on total emissions of these two baghouses [main casthouse baghouse and iron spout baghouse], assuming 95% capture efficiency for the capture system associated with the cast baghouse, as discussed in Section 5.2.3 of this permit application {A&B Blast Furnace Casthouse Roof Monitor Emissions PM_{10} Revised], the fugitive CO emissions from the casthouse roof monitor are 3.1 lb/hr. Total CO emissions from the casthouse roof monitor, including both baghouse and fugitive emissions are 73.1 lb/hr and 320 tons per year ("TPY").

2022 application, Section 4.4, "Updated CO Emissions Information for Blast Furnace Casthouse."

developing its response to the Initial Draft Denial. Thus, even if the certification had been submitted as a supplement to the 2022 application, its truthfulness and validity would be questionable. The fact that the 2022 application was not certified and signed puts the entire application under a cloud.

4. *A statement of specific reasons why the Act and the regulations might not be met if a revised permit were granted as requested:* The 2022 application does not include the certification required by the Act, the Illinois EPA's regulations, and the Board's regulations.

Discussion

The 2022 application does not include a signed certification for the truth, accuracy and completeness of this application as it was actually submitted in October 2022, as required by 35 IAC 201.159 and Section 39.5(5)(e) of the Illinois Environmental Protection Act. In its place, the 2022 application includes a photocopy of an earlier certification, dated February 25, 2020 ~~2022~~, which was submitted with a prior application (2022 application, "Appendix A – Application Forms (Copies of Previously Submitted Versions)"). However, the 2022 application is a revision of the earlier application and US Steel intends the 2022 application to replace the earlier application submitted in March 2020 in its entirety (2022 application, Cover Letter). Accordingly, the 2022 application must include a new certification for its truth, accuracy and completeness.

Appendix A: Listing of Sections of the Illinois Environmental Protection Act (Act) That Are Cited for the Different Denial Points Detailed in Attachment 1 As Sections of the Act Which May Be Violated If a Revised Permit Were To Be Granted As Requested by the 2022 Application

Note: The text of the Act (415 ILCS 5) is available on a website for Illinois Compiled Statutes maintained by the Illinois General Assembly: https://www.ilga.gov/legislation/ilcs/ilcs3.asp?ActID=1585&ChapterID=36

Section 9(a): General prohibition against air pollution as it provides that no person shall "Cause or threaten to allow the discharge or emission of any contaminant into the environment in any State … so as to violate regulations or standards adopted by the Board (Pollution Control Board) under this Act." For various denial points in the Denial Letter, this general provision of the Act is cited as a provision of the Act that may be violated if a revised construction permit were issued as requested in the 2022 application as such permit would threaten to allow violations of Board regulations.

Section 9(b)(2): Prohibition against violating conditions imposed by air pollution control permits. The introductory language of Section 9 and Subsections 9(b) and 9(b)(1) of the Act provide that, "No person shall … Construct, install and equipment, facility … of any type designated by the Board … without a permit granted by the Agency unless otherwise exempt by this Act or Board regulations…." For persons with permits, the prohibition against violating permit conditions is in Subsection 9(b)(2), serving to provide that no such person shall operate any equipment or facility, "In violation of any conditions imposed by such permit."

Section 9.1(d): Prohibition against violations of certain sections of the federal Clean Air Act, including Section 165 (Prevention of Significant Deterioration (PSD)) and Section 173 (Permit Requirements for Nonattainment New Source Review Programs).

Section 39(a)*: Standard under the Act for issuance of permits. The designation "Section 39(a)*" or "39(a)*" is used to refer to the second clause of the first sentence in Section 39(a) of the Act. This clause provides that "…it shall be the duty of the Agency to issue a permit upon proof by that the applicant that the facility, equipment, vehicle vessel, or aircraft will not cause a violation of this Act or regulations thereunder." In the Denial Letter, this provision of the Act is routinely cited as a provision that may be violated because the 2022 application does not include proof that the Act or air pollution control regulations would not be violated if a revised permit were issued as requested by the application.

Section 39(a)**: Permit procedures under the Act. The designation "Section 39(a)**" or "39(a)**" is used to refer to the fifth sentence of Section 39(a) of the Act as it addresses imposition of conditions on permits. In particular, this sentence provides that in granting permits, "In granting permits, the Agency

may impose such other conditions as may be necessary to accomplish the purposes of this Act, and as are not inconsistent with the regulations promulgated by the Board hereunder." (As addressed below, this Section of the Act also provides that the Illinois EPA may impose reasonable conditions in a permit related to an applicant's compliance history as necessary to correct, detect or prevent noncompliance.) For various points in the Denial Letter, this provision of the Act is cited as one that may be violated because the 2022 application does not include information that may be needed for the Illinois EPA to impose necessary permit conditions in a permit that would be revised as requested by the application.

Section 39(a)***: Permit procedures under the Act. The designation "Section 39(a)***" or "39(a)***" is used to refer to the fourth sentence of Section 39(a) of the Act as it provides, "In granting permits, the Agency may impose reasonable conditions in a permit specifically related to an applicant's past compliance history with this Act as necessary to correct, detect or prevent noncompliance." (As discussed above, the Act also provides that permits may include conditions as may be necessary to accomplish the purposes of the Act and as are not inconsistent with Board regulations.) For certain points in the Denial Letter, this provision of the Act is cited as one that may be violated because the 2022 application does not include information that may be needed for the Illinois EPA to impose conditions to enable or facilitate future compliance.

Section 39.5(5)(e): A paragraph in Subsection 39.5(5) of the Act, "Applications and Completeness," in Section 39.5 of the Act, "Clean Air Act Permit Program." This provision requires that "Each submitted CAAPP application shall be certified for truth, accuracy and completeness by a responsible official in accordance with applicable regulations [i.e., 35 IAC 270.102 and the definition of "responsible official at Subsection 39.5(1) of the Act]. This provision is applicable for the review of the 2022 application as US Steel requests in this application that the processing of the revised permit that is requested be subject to Integrated Processing. As a consequence, the procedural and substantive requirements of Section 39.5 of the Act apply to the 2022 application pursuant to Section 39.5(13)(c)(v) of the Act, which provides the authorization for Integrated Processing of a construction permit.

Section 39.5(5)(i): A paragraph in Subsection 39.5(5) of the Act, "Applications and Completeness," in Section 39.5 of the Act. As already explained, the procedural and substantive requirements of the CAAPP are applicable to the Illinois EPA's review of the 2022 application as US Steel has requested that this application and any resulting revised permit prepared pursuant to this application be subject to Integrated Processing. The first sentence in this provision requires that:

> Any applicant who fails to submit any relevant facts necessary to evaluate the subject source and its CAAPP application or has submitted incorrect information in a CAAPP application shall, upon becoming aware of such failure or incorrect submittal, submit supplementary facts or correct information to the Agency."

For several denial points, Subsection 39.5(5)(i) of the Act is identified as a provision of the Act that might be violated if a revised permit were issued as requested by the 2022 application because it does not include "relevant information" necessary for the evaluation of the application. That is, as

related to the particular applicable requirements, the application lacks information addressing the requirements, the information in the application addressing the requirement is insufficient, or the information in the application supports a finding that the requested revisions might not comply with the requirements. Note that as Subsection 39.5(5)(i) of the Act would not be satisfied by an application, a CAAPP permit cannot be issued pursuant to such application. This is because Subsection 39.5(10)(a)(iv), one of the standards for issuance of a CAAPP permit, would also not be satisfied.

Section 39.5(7)(a): A paragraph in Subsection 39.5(7) of the Act, "Permit Content," in Section 39.5 of the Act. This paragraph requires that "All CAAPP [Clean Air Act Permit Program] permits shall contain limitations and conditions and other enforceable terms and conditions, including but not limited to operational requirements, and schedules for achieving compliance at the earliest reasonable date, which are or will be required to accomplish the purposes and provisions of this Act and to assure compliance with all applicable requirements [emphasis added]." For various points in the denial letter, this provision is cited as a provision of the Act that may be violated because the 2022 application does not include information that may be needed for the Illinois EPA to impose necessary permit conditions in a revised version of Permit 95010001 that would be revised as requested by the application. This provision is relevant to the Illinois EPA's review of the 2022 application as US Steel has requested that the application and any resulting permit be subject to Integrated Processing. As provided by Sections 39.5(13)(a) and (a)(iv), as listed below, this makes the application subject to substantive requirements of the CAAPP. It is also noteworthy that, absent Integrated Processing, any revised construction permit that is issued pursuant to the 2022 application would not resolve US Steel's pending appeal of the current CAAPP permit for the Granite City Works (PCB 2013-53) or the related appeal of Construction Permit 11050006 (PCB 2013-62). Resolution of these appeals would require a separate CAAPP permit application and a permit proceeding to revise the CAAPP permit. Moreover, the revised CAAPP permit that would result from the CAAPP proceeding would not necessarily reflect the terms and conditions established in the earlier revision of Permit 95010001. As such, resolution of these appeals could require two more permit proceedings, i.e., a proceeding to modify the CAAPP permit and another proceeding for revisions to Permit 95010001 to address issues identified during the modification of the CAAPP permit.)

Section 39.5(10)(a)(iv): A paragraph in Subsection 39.5(1) of the Act. As Subsection 39.5(5)(i) of the Act would be violated if a revised permit were issued as requested, the 2022 application also would not satisfy Subsection 39.5(10)(a)(iv) of the Act, one of the standards for issuance of a permit under the CAAPP. This is because this application would not include all "relevant information." Subsections 39.5(10)(a) and (a)(iv) of the Act provide that:

> The Agency shall issue a CAAPP permit, permit modification, or permit renewal if all of the following conditions are met:
>
> …

(iv) The Agency has received a complete application and if necessary, has requested and received additional information from the application consistent with Subsection 5 of this Section and applicable regulations.

Section 39.5(13)(c)(v): Paragraphs (a) and (c)(v) in Subsection 39.5(13) of the Act, "Administrative Permit Amendments," in Section 39.5 of the Act. The designation "Section 39.5(13)(c)(v)" or "39.5(c)(v)" are used to refer to these paragraphs. These paragraphs contain the authorization for the Integrated Processing of a construction permit so as to allow the related revisions to the CAAPP permit to be made by administrative amendment, thereby avoiding the need for a subsequent modification of the CAAPP permit by either a minor or significant modification, as appropriate. These paragraphs of Subsection 39.5(10)(c) of the Act provide:

c. For purposes of this Section [Section 39.5 of the Act] the term "administrative amendment " shall be defined as a permit revision that can accomplish one or more of the changes described below:

…

v. Incorporates into the CAAPP permit the requirements from preconstruction review permits under a USEPA-approved program [i.e., Illinois construction permit program for sources of emissions and air pollution control equipment], provided the program meets procedural and compliance requirements substantially equivalent to those contained in this Section [emphasis added].

For various denial points in the denial letter, these paragraphs are cited as provisions of the Act that may be violated because the 2022 application is not sufficient for the Illinois EPA to impose necessary permit conditions in a new version of Permit 95010001 that would be revised as requested by the 2022 application. That is, this application does not include information that is necessary to enable such a revised permit to meet the compliance requirements, i.e., the substantive requirements, that must be satisfied by a CAAPP permit. For example, for certain emissions units, the Application requests that Permit 95010001 be revised to prescribe the actual emission factors that are to be used to determine compliance with limitations on annual emissions set by this permit. However, the application does not provide the supporting information that USEPA has found necessary for a permitting authority, e.g., the Illinois EPA, to set "prescribed emission factors" when issuing a Title V Permit. Similarly, the 2022 application requests certain revisions to the organization and terminology in Permit 95010001 for consistency with the CAAPP permit. However, the application does not request all such revisions that may be appropriate to reasonably achieve consistency in the organization and terminology of these permits.

Appendix B: Listing of Provisions in Subtitle B of Title 35 of the Illinois Administrative Code (IAC) That Are Cited for the Different Denial Points Detailed in Attachment 1 As Provisions Which May Be Violated If a Revised Permit Were To Be Granted As Requested by the 2022 Application

Note: The text of Illinois' regulations for control of air pollution (Illinois Administrative Code (IAC), Title 5, Subtitle B: Air Pollution, are available on a website maintained by the Board: https://pcb.illinois.gov/SLR/IPCBandIEPAEnvironmentalRegulationsTitle35

35 IAC Part 201, Permits and General Provisions

35 IAC 201.152*, Contents of Application for Construction Permit
This rule requires that applications for construction permits include certain data and information. The designation "201.152*" is used to refer to this rule as it requires this data and information to include "information concerning processes to which the emission unit or air pollution control equipment is related.

35 IAC 201.152**, Contents of Application for Construction Permit
This rule requires that applications for construction permits include certain data and information. The designation "201.152**" is used to refer to this rule as it requires this data and information to include "the quantities and types of raw materials to be used in the emission source or air pollution control equipment."

35 IAC 201.152***, Contents of Application for Construction Permit
This rule requires that applications for construction permit include certain data and information. The designation "201.152**" is used to refer to this rule as it requires this data and information include "… the nature, specific points of emissions and quantities of uncontrolled and controlled air contaminant emissions at the source that includes the emission unit or air pollution control equipment …."

35 IAC 201.159, Signatures
This rule requires applications for air pollution control permit submitted to the Illinois EPA to be signed. It provides that, "All applications and supplements thereto shall be signed by the owner and operator of the source, or their authorized agent, and shall be accompanied by evidence of authority to sign the application."

35 IAC 201.160(a)(1), Standards for Issuance
In 35 IAC 201.160(a) and (a)(1), the Pollution Control Board (Board) restates the standard of issuance in Section 39(a) of the Act for the Illinois EPA to issue a permit as applied specifically to air pollution control construction permits. This rule provides:

a) No construction permit shall be granted unless the applicant submits proof to the Agency that:

1) The emission unit or air pollution control equipment will be constructed or modified to operate so as not to cause a violation of the Act or of this Chapter [Title 35, Subtitle B, Chapter I)];

35 IAC Part 203, Major Stationary Sources Construction and Modification

(35 IAC Part 203 is potentially of concern for the Production Increase Project for emissions of NOx, VOM and particulate. This is because, in 1996, when Permit 95010001 was initially issued for this project, the Granite City Works was in areas that were designated nonattainment for the National Ambient Air Quality Stands (NAAQS) for ozone (emissions of NOx and VOM) and particulate matter (emissions of $PM_{2.5}$). The Granite City Works is still in an area that is designated nonattainment for ozone.)

35 IAC 203.123, Federally Enforceable (Definition)
This definition provides that "Federally Enforceable" means enforceable by the United States Environmental Protection Agency [USEPA].” This definition is cited as a basis for certain denial points as the 2022 application requests revisions to Permit 95010001 to set limitations that would take the place of limitations currently in Permit 95010001. However, the application does not include information showing that these proposed limitations should be considered enforceable as a practical matter.

35 IAC 203.128, Potential to Emit (Definition)
This definition of “potential to emit” is cited as a basis for denial points as related to the role of permit limitations, as distinguished from the physical and operational design of a stationary source, in restricting the potential emissions of emission units. 35 IAC 203.128, along with 35 IAC 203.122, are cited as a basis for denial as the 2022 application does not show that certain emission limitations that are proposed, which would replace emission limitations currently in Permit 95010001, should be considered enforceable as a practical matter. In this regard, the second sentence of this definition of “potential to emit” provides that:

Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design only if the limitation or the effect it would have on emissions is federally enforceable [emphasis added].

35 IAC 203.201, Prohibition
This provision requires an entity that would undertake a project that is "major" for a pollutant in an area that is designated a nonattainment area for the pollutant to comply with the substantive requirements of 35 IAC Part 203 for that pollutant. The various substantive requirements are then addressed later in Subpart C of 35 IAC Part 203. In this regard, the first two sentences of 35 IAC 203.201 provide:

> In any nonattainment area, no person shall cause or allow the construction of a new major stationary source or major modification that is major for the pollutant for which the area is designated a nonattainment area, except as in compliance with this Part [Part 203]for that pollutant. In areas designated nonattainment for ozone, this prohibition shall apply to new major stationary sources or major modifications of sources that emit volatile organic materials or nitrogen oxides.

As the revised NSR applicability analysis for NOx in the 2022 application does not show that the Production Increase Project would not have been a major modification for NOx with the increases in permitted NOx emissions that are being requested, 35 IAC 203.201 is cited as a basis for denial of this application. This is because the application also does not show that the substantive requirements of 35 IAC Part 203 would be fulfilled as the Project is now a major modification. For example, the 2022 application does not address the requirement in 35 IA3.302 that, as related to the role of emissions of NOx on air quality for ozone, an entity undertaking a major project for NOx in an ozone nonattainment area must provide emission offsets for NOx to compensate for the effect of the project's NOx emissions on ozone air quality.

35 IAC 203.203(b), Construction Permit Requirements and Application
For major projects that would be subject to 35 IAC Part 203, this rule sets forth the information that a permit application must contain. This rule provides that:

> Applications for construction permits required under this Section shall contain sufficient information to demonstrate compliance with 35 Ill. Adm. Code 201 [Permits and General Provisions] and the requirements of this Part [Part 203] including, but not limited to, Subpart C [Requirements for Major Stationary Sources in Nonattainment Areas, including the requirements for the Lowest Achievable Emission Rate (LAER) and the requirement to provide emission offsets].

35 IAC 203.208*, Net Emissions Determination – The Increase in Emissions from a Project
Among other aspects of "netting," this rule sets forth how the increases in emissions from a project should be addressed if a source elects to rely on netting with contemporaneous emissions decreases to show that a project would not be a major modification under 35 IAC Part 203. The first paragraph of this rule, referred to as "35 IAC 203 208*" is cited as a basis for denial of the 2022 application as the revised NSR applicability analysis for NOx in the application, which should address NOx emissions of the Production Increase Project, with the increases in permitted NO_X emissions that are now being requested. For certain units, this analysis does not show that the increases in NOx emissions from the Project have been properly addressed. For a project, itself, this rule provides that the increase in actual emissions due to the project should be addressed. However, since the amount of this increase should be determined during permitting,

i.e., before the project is implemented and the modified units begin normal operation with the project, 35 IAC 203.104(c) further provides that the Illinois EPA shall presume that the potential emissions of units with the project are equivalent to their actual emissions for purposes of permitting. (The circumstances are similar for permitting for a project that was improperly constructed without first obtaining a construction permit. This is because such source cannot rely on permit limitations in lieu of potential emissions absent enforceable limitations.) In particular, the first sentence in 35 IAC 203.208 provides:

> A net emissions increase is the amount by which the sum of any increase in actual emissions from a particular physical change or change in method of operation at a source [emphasis added], and any other increases and decreases in actual emissions at the source that are contemporaneous with the particular change and are otherwise creditable, exceeds zero.

35 IAC 203.208**, Net Emissions Determination - The Contemporaneous Time Period and Creditability of Emission Decreases

As discussed above, 35 IAC 203.208 lays out the requirement for a NSR Applicability Analysis if a source elects to rely on netting to show that a project would not be a major modification under 35 IAC Part 203. 35 IAC 203.208(a) and (c)(1), referred to as 35 IAC 203.208**, are also cited as a basis for denial of the 2022 application. This is because the revised NSR applicability analysis for NOx in the application, which addresses NOx emissions with the increases in permitted emissions that are being requested for certain units, would improperly rely on certain decreases in NOx emissions that are neither contemporaneous nor creditable. This is contrary to 35 203.208(a) and (c), which do not allow credit in the revised NSR applicability analysis for NOx based on decreases in emissions due to the shutdown of Boilers 1 through 10 and, due to the shutdown of the two by-product recovery coke oven batteries at the Granite City Works, coke oven gas (COG) no longer being available for use in Project-affected fuel burning units.as a fuel. These actions and the accompanying emission decreases occurred after the implementation of the Production Increase Project and were not contemplated by Permit 95010001. In particular, the introductory paragraph in 35 IAC 203.208 and paragraphs 35 IAC 203.208(a) and (c)(1) provide:

> A net emissions increase is the amount by which the sum of any increase in actual emissions from a particular physical change or change in method of operation at a source, and any other increases and decreases in actual emissions at the source that are contemporaneous with the particular change and are otherwise creditable, exceeds zero. The following steps determine whether the increase or decrease in emissions is available.
>
> a) Except for … [alternative provisions for projects in in serious and severe ozone nonattainment areas], an increase or decrease in actual emissions is contemporaneous only if it occurs between the date that an increase from a particular change occurs and the date five years before a timely and complete application is submitted for the particular change. …
>
> …

c) A decrease in actual emissions is creditable to the extent that:

1) It is federally enforceable at and after the time that actual construction on the particular change begins;

35 IAC 203.301, Lowest Achievable Emission Rate
For a project that is a major modification subject to 35 IAC Part 203, 35 IAC 203.301 sets forth the requirements for a permit application related to Lowest Achievable Emission Rate (LAER) for the emissions units for which LAER is required. 35 IAC 203.301(c) sets forth the requirement that LAER be demonstrated for such emission units. (Ongoing operation of LAER-subject units to comply with LAER is required by 35 IAC 203.601 once a permit is issued setting forth what LAER is for those units.) For the emission units and pollutant(s) for which LAER is required, 35 IAC 203.301(d) explicitly requires that the application include a detailed showing that the emission limitations proposed for the LAER-subject units would constitutes LAER. In this regard, these rules provide that:

c) Except as provided in subsection (e) or (f) below [Alternative provisions for projects ozone nonattainment areas that are classified as serious or severe nonattainment] the owner or operator of a major modification shall demonstrate that the control equipment and process measures applied to the major modification will produce LAER. This requirement applies to each emissions unit at which a net increase in emissions of the pollutant has occurred or would occur as a result of a physical change or change in the method of operation.

d) The owner or operator shall provide a detailed showing that the proposed emission limitations constitute LAER. Such demonstration shall include:

1) A description of the manner in which the proposed emission limitation was selected, including a detailed listing of information resources,

2) Alternative emission limitations, and

3) Such other reasonable information as the Agency may request as necessary to determine whether the proposed emission limitation is LAER.

35 IAC 203.302(a), Maintenance of Further Reasonable Progress and Emission Offsets
For a major project that is subject to 35 IAC Part 203 for a pollutant, this rule sets forth the basic requirement that project be accompanied by emission offsets. Emission offsets are enforceable reductions in the emissions of the subject pollutant, usually by existing source(s) other than the source at which the project would take place, that affect the quality of the ambient air that the emissions of the subject pollutant from the project would affect. The role of the offsets is to counterbalance the effect of the emissions of the subject pollutant from the project on ambient air quality that exceeds the applicable National Ambient Air Quality Standard. In this regard, 35 IAC 203.302(a) provides that:

a) The owner or operator of a new major source or major modification shall provide emission offsets equal to or greater than the allowable emissions from the source or the

net increase in emissions from the modification sufficient to allow the Agency to determine that the source or modification will not interfere with reasonable further progress as set forth in Section 173 of the Clean Air Act (42 U.S.C. 7401 et seq.).

35 IAC Part 204, Prevention of Significant Deterioration

(35 IAC Part 204 is of concern or potential concern for the Production Increase Project for emissions of NOx, SO_2, CO and lead. This is because, when Permit 95010001 was initially issued, the Granite City Works was in various areas that were designated attainment or unclassified, rather than nonattainment, for the NAAQS for CO, SO_2 and lead. It was also in an area designated as attainment or unclassified for the NAAQS for nitrogen dioxide (NO_2). The areas in which the Granite City Works is located are still designated attainment or unclassified for these pollutants. (After the NAAQS for lead was revised in 2008, an area that includes the Granite City Works was then designated nonattainment for lead in 2010. This area was later redesignated to attainment for lead in 2018.)

35 IAC 204.280, Best Available Control Technology (BACT) (Definition)
This definition reflects USEPA's guidance at 40 CFR 51.166(b)(12) for the meaning of this term. It is noteworthy that this definition provides that BACT is to reflect the maximum degree of reduction of emissions for the unit(s) and pollutant(s) for which it is required as determined to be achievable ".. through production processes or available methods, systems and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant." As such, in addition to the use of add-on air pollution control equipment, both a BACT demonstration and a BACT determination must consider approaches to reducing emissions other than tradition air pollution control equipment. In addition, this definition provides that while it is preferred that BACT be codified in a permit as an emission limitation or a limitation for visible emissions, "If the Agency determines that technological or economic limitations on the application of measurement methodology to a particular emissions unit would make the imposition of an emissions standard infeasible, a design, equipment, work practice, operational standard, or combination thereof, may be prescribed instead to satisfy the requirement for the application of BACT."

35 IAC 204.330, Complete (Definition)
For an application for a permit for a major project subject to PSD [Prevention of Significant Deterioration], this definition provides that, "'complete' means, that the application contains all of the information necessary for processing the application."

35 IAC 204.400, Federally Enforceable (Definition)
This definition of "federally enforceable" in 35 IAC Part 204 is similar to the definition at 35 IAC 203.123. This definition also expressly identifies certain limitations that are, by definition, considered enforceable by USEPA (e.g., "…requirements within the SIP, any permit requirements established under 40 CFR 52.21… or this Part [Part 204} or under regulations approved under 40 CFR 51 Subpart I …, including operating permits issued under a USEPA-approved program that is incorporated into the SIP and expressly requires adherence to any permit issued under such

program"). However, it does not provide that limitations in a construction permit are still federally enforceable even if they are not enforceable as a practical matter.

35 IAC 204.550*, Net Emissions Increase (Definition) – The Increase in Emissions from a Project
This provision, which is similar to at 35 IAC 203.208, "Net Emissions Determination," sets forth how the increases in emissions from a project should be addressed if a source elects to rely on netting to show that a project would not be a major modification under 35 IAC Part 204. 35 IAC 204.550(a)(1), referred to as 35 IAC 204.550*, is cited as a basis for denial of the 2022 application as the revised NSR applicability analysis for NOx in the application, which addresses NOx emissions with the increases in permitted emissions that are now being requested for certain units, does not show that certain increases in emissions from the project have been properly addressed. For a project itself, this rule, which did not become effective until October 12, 2021 (86 Federal Register 50459), provides that the increase in actual emissions due to the project should be addressed. However, the application does not address post-project actual emissions. As such, 35 IAC 204.600(a)(4) provides that the potential emissions of units with the project are to be used as their actual emissions for purposes of evaluating applicability of PSD. In 1996, when the Production Increase Project was initially permitted, the requirements for Net Emission Determinations and Net Emission Increase, under the NaNSR and PSD programs respectively, were essentially identical.

35 IAC 204.550**, Net Emissions Increase (Definition) - The Contemporaneous Time Period and Creditability of Emission Decreases
As discussed above, 35 IAC 204.550 lays out the requirement for a NSR Applicability Analysis if a source elects to rely on netting to show that a project would not be a major modification under 35 IAC Part 204. 35 IAC 204.550(b)(2)) and (e)(2), referred to as 35 IAC 203.208**, are also cited as a basis for denial of the 2022 application. This is because the revised NSR applicability analysis for NOx in the application, which addresses NOx emissions with the increases in permitted emissions that are being requested for certain units, would improperly rely on certain decreases in NOx emissions that are neither contemporaneous nor creditable. This is contrary to 35 204.208(b)(2)) and (c)(2), which do not allow credit in the revised NSR applicability analysis for NOx based on decreases in emissions due to the shutdown of Boilers 1 through 10 and the elimination of coke oven gas (COG) with the shutdown of the by-product recovery coke oven batteries at the facility. These actions and the resulting emission decreases occurred after the implementation of the Production Increase Project and were not contemplated by Permit 95010001. In particular, the introductory paragraph in 35 IAC 204.550(b) and (b)(2) and 35 IAC 204.550(e) and (e)(2) provide:

> b) An increase or decrease in actual emissions is contemporaneous with the increase from the particular change only if it occurs between:
>
> …
>
> 2) The date that the increase from the particular change occurs.
>
> e) A decrease in actual emissions is creditable only to the extent that:
>
> …

2) It is enforceable as a practical matter at and after the time that actual construction on the particular change begins;

35 IAC 204.560, Potential to Emit (Definition)
This definition of "potential to emit" is cited as a basis for denial points as related to the role of permit limitations, as distinguished from the physical and operational design of a stationary source, in restricting the potential emissions of emission units. 35 IAC 204.560, along with 35 IAC 204.400, are cited as a basis for denial as the 2022 application does not show that certain emission limitations that are proposed, which would replace emission limitations currently in Permit 95010001, should be considered enforceable as a practical matter. In this regard, this definition of "potential to emit" provides that:

> "Potential to emit" means the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable or legally and practicably enforceable (emphasis added) by a state or local air pollution control agency. Secondary emissions do not count in determining the potential to emit of a stationary source.

35 IAC 204.810(a)(3), Source Information
This rule, with the introductory language in 35 IAC 204.810 and 204.810(a), addresses the information that an applicant must include in a permit application if a determination of BACT is required for the requested permit to be issued. In this regard, they provide that:

> The owner or operator of a proposed major stationary source or major modification shall submit all information necessary to perform any analysis or make any determination required under this Part.
>
> a) With respect to a source or modification to which Sections 204.1100, 204.1110, 204.1130, and 204.1140 apply, such information shall include:
>
> …
>
> 3) A detailed description as to what system of continuous emission reduction is planned for the source or modification, emission estimates, and any other information necessary to determine that BACT, as applicable, would be applied.

35 IAC 204.820, Source Obligation
Any owner or operator who constructs or operates a source or modification not in accordance with the application submitted under this Part or with the terms of any approval to construct (emphasis added), or any owner or operator of a source or modification subject to this Part [35 IAC Part 204] who begins actual construction after September 4, 2020 without applying for and receiving approval under this Part, shall be subject to appropriate enforcement action.

35 IAC 204.1100(c), Control Technology Review
This rule sets forth the BACT requirement for a project that is a major project for pollutant(s) for purposes of Part 204. It provides that:

> A major modification shall apply BACT for each regulated NSR pollutant for which it would result in a significant net emissions increase at the source. This requirement applies to each proposed emissions unit at which a net emissions increase in the pollutant would occur as a result of a physical change or change in the method of operation in the unit.

35 IAC 204.1110, Source Impact Analysis
This rule requires that the applicant for a permit for a project that is a major project for pollutant(s) for purposes of Part 204 demonstrate that the project would not cause or contribute to violation(s) of the relevant National Ambient Air Quality Standard (NAAQS). In this regard, this rule provides that:

> The owner or operator of the proposed source or modification shall demonstrate that allowable emission increases from the proposed source or modification, in conjunction with all other applicable emissions increases [emphasis added] or reductions (including secondary emissions), would not cause or contribute to air pollution in violation of:
>
> a) Any NAAQS in any air quality control region; …

35 IAC 204.1130, Air Quality Analysis
This rule requires that an applicant for a permit for a project that is a major project for pollutant(s) for purposes of Part 204 address the ambient air quality in the area that the project would affect for those pollutant(s). In this regard, 35 IAC 204.1130(a)(1) addresses a "Preapplication Analysis," requiring that:

> 1) Any application for a permit under this Part [35 IAC Part 204] shall contain an analysis of ambient air quality in the area that the major stationary source or major modification would affect for each of the following pollutants:
>
> A) For the source, each pollutant that it would have the potential to emit in a significant amount;
>
> B) For the modification, each pollutant for which it would result in a significant net emissions increase.
>
> …
>
> 3) With respect to any such pollutant for which such a NAAQS does exist, the analysis shall contain continuous air quality monitoring data gathered for purposes of determining whether emissions of that pollutant would cause or contribute to a violation of the standard or any maximum allowable increase.
>
> 4) In general, the continuous air quality monitoring data that is required shall have been gathered over a period of at least one year and shall represent at least the year preceding receipt of the application. However, if the Agency determines that a

> complete and adequate analysis can be accomplished with monitoring data gathered over a period shorter than one year (but not less than four months), the data that is required shall have been gathered over at least that shorter period.
>
> …
>
> 35 IAC Part 270 Clean Air Act Permit Program Procedures

35 IAC 270.401(f), General Application Information (Certification)
This rule expands upon the certification that Clean Air Act Permit Program (CAAPP) applications must contain pursuant to Subsection 39.5(5)(f) of the Act, requiring that such certifications by a responsible official for the source must be based upon information and belief after reasonable inquiry. It provides that:

> A CAAPP application shall contain a certification by a responsible official that, based on information and belief formed by the responsible official after reasonable inquiry, the statements and information in the application are true, accurate, and complete. This certification shall be dated and signed by the responsible official.

Illinois Environmental Protection Agency

Notice of Intent to Deny
Revised Draft Denial Letter and New Public Comment Period
Application for a Revision to a Construction Permit/PSD Approval
US Steel Corporation in Granite City

United States Steel Corporation (US Steel), 1951 State Street, Granite City, has applied to the Illinois Environmental Protection Agency (Illinois EPA) for a revision to an air pollution control construction permit/PSD (Prevention of Significant Deterioration) approval that was originally issued in 1996 for a production increase project at its steel mill located in southeastern Granite City (the Granite City Works). This facility emits particulate, sulfur dioxide, lead, volatile organic material, nitrogen oxides (NOx), and carbon monoxide (CO). The application requests increases in permitted emissions of CO, which the original application understated. As the application requests increases in permitted CO emissions for which the project originally was a major modification subject to PSD, the current application must address compliance with Illinois' rules for PSD, 35 Illinois Administrative Code Part 204. The application also does not show that the requested increase in NOx emission would not make the project a major modification for NOx. Based on its review of the application, the Illinois EPA has made a preliminary determination that the current application does not comply with the applicable air pollution control regulations.

As the application requests revisions to provisions of the permit that would relate to PSD, the Illinois EPA must prepare a draft permit denial letter for public review and comment. A draft permit denial letter was previously made available beginning in July 2023. By this notice, the Illinois EPA, is announcing that it has prepared a revised draft permit denial and is now making this "revised draft denial letter" available for public review and comment. In response to certain comment that were received on the initial draft denial letter, this revised draft denial letter more clearly sets forth the sections of the Illinois Environmental Protection Act, the provision(s) of Title 35 Subtitle B: Air Pollution of the Illinois Administrative Code, and the reasons that would be the basis for the Illinois EPA's proposed denial of this application.

The Illinois EPA is accepting comments prior to making a final decision on this application. **Comments must be postmarked by 11:59 pm, January 8, 2024.** All persons, including the applicant, shall raise all reasonably ascertainable issues and submit all reasonably available arguments supporting their position by the close of the public comment period.

If sufficient interest is expressed in this matter, a hearing or other informational meeting may be held. Comments, questions and requests for information should be directed to

Brad Frost, Office of Community Relations, Illinois EPA, PO Box 19506, Springfield, IL 62794-9506, phone 217/782-7027, TDD 866/273-5488, brad.frost@illinois.gov.

Persons wanting more information may view the draft permit denial letter and project summary at https://epa.illinois.gov/public-notices/boa-notices.html The repository for these documents and the application is located at the Illinois EPA's offices at 1101 Eastport Plaza Drive, Suite 100, Collinsville, 618/346-5120 and 1021 N. Grand Ave. East, Springfield, 217/782-7027. (Please call ahead to assure that someone will be available to assist you). Copies of the documents will be made available upon request to the contact listed above.

The facility is located in a potential Environmental Justice area. More information concerning Environmental Justice may be found at https://epa.illinois.gov/topics/environmental-justice.html

Illinois Environmental Protection Agency
Bureau of Air, Permit Section
Springfield, Illinois

December 2023

Project Summary for the Proposed Denial of an Application* from United States Steel Corporation – Granite City Works for Revisions to a Construction Permit/PSD Approval Issued for a Production Increase Project at its Mill in Granite City

Note : This Project Summary has been prepared to accompany the public comment period that the Illinois EPA is holding on a Revised Draft Denial Letter, which has been prepared in response to certain comments that were received on the initial Draft Denial Letter.

Site Identification No.: 119813AAI
Permit/Application No.: 95010001

Illinois EPA Contacts:
Review Engineers: Minesh Patel, Christopher Romaine and Jason Schnepp
Community Relations Coordinator: Brad Frost

Schedule for Public Comment Period:
Comment Period Begins: December 8, 2023
Comment Period Scheduled to Close: January 8, 2024

*. In its application, U. S. Steel asks that the requested revisions of Permit 95010001 be processed by the Illinois EPA with "Integrated Processing," as is allowed by Section 39.5(13)(a) and (c)(v) of the Illinois Environmental Protection Act. Integrated Processing of the revised permit would allow changes to the Clean Air Act Permit Program (CAAPP) permit for the Granite City Works, as would be set forth in the revised permit, to subsequently be made by means of an Administrative Amendment of the CAAPP permit. Integrated Processing would require that the revision of the permit provide for compliance requirements that are substantially equivalent to those that are required in CAAPP permits. The processing of the permit must also be subject to procedural requirements that are substantially equivalent to those that apply for issuance CAAPP permits, including an opportunity for USEPA to review and comment upon a proposed version of the revised permit following completion of a public comment period on the draft of the revised permit.

1. Introduction

United States Steel - Granite City Works (US Steel) has applied to the Illinois EPA for revisions to an air pollution control construction permit (Permit 95010001) for a project at its Granite City Works, the steel mill in Granite City. This project (the "Project") involved increases in the permitted production of iron and steel by this facility. As this facility is a source of emissions, Permit 95010001 provided approval for the Project under both Illinois' construction permit programs for sources of emissions and the Prevention of Significant Deterioration (PSD) program under the federal Clean Air Act. This permit was originally issued in January 1996 to National Steel and was transferred to US Steel after it became the owner of the facility. This proposed denial involves the US Steel's revised application submitted in October 2022 (the "2022 application").

A key reason why revisions to Permit 95010001 are needed is that emission testing conducted in 2014 on the two basic oxygen furnaces (BOFs), in which steel is produced, showed their emissions of nitrogen oxides (NOx), as well as volatile organic material (VOM), are higher than is allowed by this permit. This is because the original application understated the NOx and VOM emissions of the BOFs and the emission limits in this permit were based on information in the original application.

US Steel has worked to prepare an application for revisions to Permit 9501001 that would allow more emissions of NOx and VOM from the BOFs. The 2022 application also addresses other issues that are now posed by the manner in which the Project was originally permitted and subsequent changes that have occurred at the facility. Notably, the emissions of carbon monoxide (CO) of certain units have also been found to be higher than stated in the original application. A baghouse control system has been installed for the BOFs to improve control of particulate emissions from charging and tapping of these furnaces. The byproduct coke oven batteries formerly at the facility were shut down in 2015. A brief description of some of the revisions to Permit 95010001 that US Steel has requested is provided at the back of this document in Appendix 1. The requested revisions do not include increases in the permitted iron and steel production of the facility as allowed by this permit as issued in 1996.

The Illinois EPA has made a preliminary determination that the 2022 application should be denied. The reasons for this are now set forth in the revised draft of the proposed denial that has been prepared. Brief descriptions of the reasons why the Illinois EPA has determined that the 2022 application should be denied are provided in Appendix 2 of this document. For some requested revisions to Permit 95010001, the application should be denied because it does not show that they would comply with the relevant regulatory requirements and USEPA policy that apply to this permit. For other requested revisions, the application does not include the information needed to support those revisions or enable those revisions to be made as a practical matter. In addition, the application should be denied because it would not allow for processing of a revised permit with Integrated Processing, as has been requested. If the Illinois EPA's final decision is to deny this application, it is expected that Permit 95010001 would continue in effect as it now exists until and unless action is taken on a subsequent application.

As required by the PSD program, the Illinois EPA **must** hold a public comment period on its preliminary determination that the 2022 application should be denied and the draft denial letter that has been prepared. This will allow for the public to consider and comment on this planned action

and the draft of the denial letter that the Illinois EPA has prepared. The Illinois EPA previously prepared a draft of its proposed denial letter and made it available for a public comment period that began in July 2023. The Illinois EPA has now prepared a revised draft of its proposed denial letter and is again making it available for public review and comment. This revised draft of the proposed denial letter more clearly sets forth the sections of the Illinois Environmental Protection Act, the provision(s) of Title 35 Subtitle B: Air Pollution of the Illinois Administrative Code, and the reasons that would be the basis for the Illinois EPA's proposed denial on the 2022 application. For this purpose, for each denial point, Attachment 1 of the revised draft denial letter now includes an overview of the laws, rules and reasons that would be the basis for the Illinois EPA's proposed denial of this application. This is followed by the explanation and discussion that were provided in the initial draft denial letter with, as specifically denoted, corrections to certain numerical emission data and a date in the initial draft denial letter. The revised permit denial letter also has two appendices. Appendix A lists the various sections of the Act that are cited in Attachment 1 as the statutory basis for this denial letter, with description and, in some cases, general explanation why the section might be violated if Permit 95010001 were to be revised as requested by this application. Appendix B lists the various provisions in Subtitle B of Title 35 of the Illinois Administrative Code that are cited as the regulatory basis for this denial letter, with description and, in some cases, general explanation why the provision might be violated if Permit 95010001 were to be revised as requested by this application.

This project summary for the revised draft of the proposed denial letter is identical to the initial project summary except as it explains that a revised draft denial letter has now been prepared and is being made available for public review and comment and this project summary now also makes corrections to certain details in the project summary that accompanied the initial draft denial letter.

2. Background on the Granite City Works

The Granite City Works are an integrated steel mill, making both iron and steel. It has two blast furnaces to make iron from iron ore and an associated casthouse located between them in which tapping of iron and slag from the furnaces take place . Two basic oxygen furnaces (BOFs) are used to process iron from the blast furnaces, together with scrap metal, into steel. Before molten iron from the blast furnaces is charged to a BOF vessel, the iron undergoes "desulfurization" with a reagent to remove sulfur from the iron. Ladles of molten steel produced in the BOFs are transferred to "ladle metallurgy" where with the final additions of alloying materials are made to the molten steel. The two basic oxygen furnaces, the iron desulfurization operation, and the ladle metallurgy operations are all located in the basic oxygen furnace shop (BOF shop). From ladle metallurgy, the ladles of molten steel are transferred to the continuous casters in an adjoining building. The solid steel slabs from continuous casting are processed in rolling mills at the source, which make long, thin strips of steel that are wound in coils. Steel slabs from the casters also go to other plants to be made into finished steel.

Other operations at the Granite City Works include raw material handling and storage, steam boilers, and fuel-burning process equipment. The raw material handling and storage operations handle raw materials, such as iron ore pellets, limestone and other fluxing agents, coke, and alloy materials, for the iron and steel making operations. The steam boilers can burn both natural gas and blast furnace gas (BFG). BFG is a low heat content gaseous byproduct from the blast furnaces. BFG is the principal fuel for the blast furnace stoves in which the blast air supply for these furnaces is

heated. Other fuel-burning process equipment at the source burns natural gas. Vehicle traffic on roads and parking lots at the Granite City Works also is a source of emissions of fugitive dust.

The Granite City Works formerly included two by-product recovery coke oven batteries and associated by-product processing plant. These operations were permanently shut down in February 2015. The primary source for coke used in the blast furnaces is now two heat recovery coke oven batteries in Granite City that are operated by Gateway Energy. With the shutdown of the by-product recovery coke oven batteries, coke oven gas is no longer produced and available for use in the blast furnace stoves, boilers and other fuel-burning equipment at the Granite City Works that previously used coke oven gas to provide a portion of their fuel.

Granite City is located in Madison County, which is part of the S. Louis Major Metropolitan Area. Madison County is designated nonattainment under the federal Clean Air Act for the National Ambient Air Quality Standard (NAAQS) for ozone.[1] For other pollutants for which there are NAAQS, i.e., carbon monoxide (CO), lead, nitrogen dioxide (NO_2), particulate matter$_{10}$ (PM_{10}), particulate matter$_{2.5}$ ($PM_{2.5}$) and sulfur dioxide (SO_2), Madison County is designated attainment or unclassifiable. USEPA maintains information about current ambient air quality for ozone and particulate on the internet at AirNow (airnow.gov). The Illinois EPA prepares annual reports for ambient air quality as measured by its network of air monitoring stations around the states. These reports are also available on the internet (epa.illinois.gov/topics/air-quality-reports).

The Granite City Works are in an area that is of concern for Environmental Justice. As such, any proposed permit actions involving this facility are subject to the Illinois EPA's "Environmental Justice Policy." As addressed in this policy, the Illinois EPA is committed to protecting the environment and the health of the residents of Illinois, and to promoting equity in the administration of its environmental programs.

3. The Production Increase Project or the "Project"

In January 1996, National Steel, the former owner of the Granite City Works was issued Construction Permit 95010001 for increases in the allowable production of iron and steel by the Granite City Works, also referred to as the "Production Increase Project" or the "Project." As explained at that time, the increases in production would in part involve continuing improvements in the operation and maintenance of equipment, which is something that normally occur over the course of time. These would involve things such as the availability and use of ore pellets with higher yield, the availability and use of better refractories linings for furnaces, and ongoing improvements in maintenance practices that would reduce the frequency and duration of furnace outages for maintenance. However, the Project also involved certain physical changes to emission units to enable increased production of iron, i.e., changes to the blast furnace stove blowers to increase their air flow capacity. As such, the Project entailed a modification to the Granite City Works for which an air pollution control construction permit was needed.

[1] Air quality designations are adopted by USEPA. The designations for Illinois are found at 40 Code of Federal Regulations (CFR) 81.314.

National Steel's application for a construction permit for the Project addressed its implications for emissions of the iron and steel making operations and other operations at the Granite City Works that would be affected. The application showed that the increases in emissions from the Project would be significant so that the Project was a major modification for sulfur dioxide (SO_2)and carbon monoxide (CO) under the federal rules for Prevention of Significant Deterioration (PSD), 40 CFR 52.21, as governed in 1996.[2] In this regard, in 1996, Granite City was located in areas that were designated attainment for the NAAQS for SO_2 and CO. The application submitted by National Steel addressed the substantive requirements of the PSD rules, as they applied to the Project for SO_2 and CO. For example, the application addressed the use of Best Available Control Technology (BACT) for the casthouse at the blast furnaces as it was identified as emitting SO_2 and the blast furnace stoves as they were identified as emitting SO_2 and CO. The Illinois EPA found that emissions of these pollutants from these units would be appropriately controlled with measures that reflected BACT.

National Steel's application showed that Project was not a major modification for other pollutants. For lead, the application showed that the increase in lead emissions would not be significant. For particulate matter (PM),[3] particulate matter$_{10,}$[4] nitrogen oxides (NOx) and volatile organic material (VOM), the application showed that the net increases in emissions from the Project, considering contemporaneous decreases and increases in emissions, would not be significant. For example, the shutdown of ingot casting and the associated blooming mill at the Granite City Works provided emission decreases that were contemporaneous with the emission increases from the Project. Accordingly, for lead, PM, PM_{10}, NOx and VOM, the permitting of the Project did not address the substantive requirements of PSD or Illinois's rules for Major Stationary Sources Construction and Modification (MSSCAM), 35 IAC Part 203 (more generally referred to as Nonattainment New Source Review or "NaNSR").

In this regard, in 1996, Granite City was located in areas that were attainment for PM and NO_2.[5] National City's application showed that the net increases in emissions of these pollutant from the Project (i.e., the increases in emissions after considering contemporaneous increases and decreases in emissions) would be below the rates that would be considered to be significant under PSD (25 and 40 tons/year for PM and NOx , respectively). In 1996, Granite City was located in areas that

[2] In 1996, the Illinois EPA administered the USEPA's PSD rules at 40 CFR 52.21 under a delegation agreement with USEPA. The Illinois EPA now implements the PSD program through states regulation at 35 IAC Part 204, which have been approved by USEPA as part of Illinois' State Implementation Plan.

[3] Particulate matter (PM), as addressed by the application and relevant USEPA and Illinois rules, only includes filterable particulate and not condensable particulate. Relevant rules provide that measurements of PM emissions are to be made by test methods that are designed to only measure filterable particulate.

[4] For particulate matter$_{10}$, the application only addressed filterable emissions and not condensable emissions. As subsequently addressed in USEPA rules, emissions of condensable particulate were not regulated as a constituent of particulate matter$_{10}$ before January 1, 2011 [40 CFR 51 Appendix S, Emission Offset Interpretative Ruling, Part II, (A)(31)(ii)(*a*)].
In Illinois' rules, filterable particulate matter$_{10}$ is referred to as "PM-10;" condensable particulate as "condensible PM-10." This usage is confirmed in 35 IAC 212.108(a) and (b) by the methods that are specified for emissions testing.

[5] For purposes of PSD and MSSCAM, NOx was initially regulated as a precursor to the formation of nitrogen dioxide (NO_2) in the atmosphere. As addressed in the Clean Air Act as amended in 1990, NOx also became also regulated as a precursor to the formation of ozone. Finally, NOx is now also regulated as it is a precursor to $PM_{2.5}$.

were designated nonattainment for NAAQS for ozone and PM_{10}. Madison County was and continues to be nonattainment for ozone. The part of Madison County that was nonattainment for PM_{10} included Granite City. For VOM and NOx, as they are regulated as precursors to ozone in the atmosphere, National City's application showed that the net increases in emissions from the Project would be below the rates that would be significant under MSSCAM (40 tons/year for both VOM and NOx). For PM_{10},the application showed that the net increase in PM_{10} emissions from the project would also be below the rate that would be significant under MSSCAM (15 tons/year).

When issuing Permit 95010001 for the Project in 1996, the Illinois EPA included various limits to hold National Steel to the representations made in the application and make those representations enforceable. The future annual production of iron by the blast furnaces and steel by the BOFs were limited to the maximum production levels requested by National Steel in the application. The future annual emissions of different pollutants from the various process units affected by the Project were limited. For the BOFs, whose particulate emissions were only controlled by an electrostatic precipitator (ESP) add-on control system in 1996, separate emission limits were set for the emissions from ESP and the uncaptured emissions from open roof monitor above the BOFs. For fuel-burning units, e.g., the blast furnace stoves and boilers, emissions limits for different pollutants were set collectively for the group of such units, rather than individually. However, separate limits were set for the emissions from burning BFG, natural gas and fuel oil.[6] The annual emission limits for different pollutant were accompanied by "emission factor limits" that addressed emissions in pounds per ton of iron or steel produced or handled, or for the fuel-burning units, emissions in pounds per volume of fuel burned. The permit required emission testing to be conducted for certain units following issuance of the permit to verify compliance with the requirements of the permit. [7, 8]

The Illinois EPA also included certain requirements in Permit 95010001 for the BOFs that were more stringent than those that had previously applied.[9] The opacity of emissions from the roof

[6] For fuel burning units, the permit did not set limits for emissions from the burning of coke oven gas (COG). The operation of the by-product coke oven batteries at the Granite City Works and the associated production of COG was considered to be unaffected by the increased production of iron by the blast furnaces. As a matter of good practice, coke oven batteries are operated at a stable production rate that is consistent with the design and conditions of the batteries. To the extent that the amount of coke produced at a source is more or less than is needed by the source, surplus coke can readily be shipped to other sources, or the deficit made up with coke shipped in from other sources.

[7] For the blast furnaces, emission testing was required for the baghouse that controls particulate emissions of the casthouse, i.e., the structure that encloses the area where molten iron and slag are periodically tapped from the bottoms of the blast furnaces, with testing required PM, VOM, SO_2 and NOx, as well as for opacity. For the BOFs, testing was required for the ESP control system for emissions of PM, CO and lead, as well as for opacity. Testing for emissions of PM was also required for the baghouse that control iron molten iron desulfurization operation that precedes the BOFs and from a representative steam boiler while burning BFG.

[8] The permit stated that the BACT requirement of the PSD rules would be met for SO_2 and CO. However, the permit did not identify specific emission limits or practices that were determined to be BACT for the BACT-subject units. For CO, the specific limits or practice that would be considered to be BACT would be addressed with the proposed revisions to this permit. For CO. US Steel has identified the existence of emissions and higher levels of emissions from the blast furnace casthouse and stoves, respectively. As such, for these unit, BACT for CO must be reevaluated. For SO_2, US Steel has not requested increases in permitted annual emissions. Therefore, BACT for SO_2 does not need to be reevaluated. It would nevertheless be reasonable in the revised permit to identify requirements that are considered to be BACT for SO_2.

[9] The PM-10 emissions of the Granite City Works with the Project were of singular concern to the Illinois EPA. In 1996, an area that included Granite City was designated as nonattainment for PM_{10} air quality. The

monitor was limited to 20 percent on a 3-minute average, from 30 percent on a 6-minute average. Specific practices that were required to be used to reduce particulate emissions of the BOFs. For example, use of flame suppression was required during tapping of a BOF, when molten steel and slag are poured from a BOF into a ladle. Minimum values were set for the air flow through the hoods that capture the particulate emissions of the BOFs for control by the ESP, with different values set for the charging, refining, and tapping steps in the operation of a BOF. A housekeeping program was required for the area below the ESP where collected particulate is transferred from hoppers on the bottom of the ESP into fabric containers for transport off-site. For roadways at the Granite City Works, the permit set specific requirements for the frequency of treatment of different road segment to reduce emissions of fugitive dust due to vehicle traffic on the roadway. These requirements were accompanied by requirements for daily recordkeeping for the treatment of roadways and the implementation of the cleaning program for these roads. The permit also required periodic treatment of certain public roads that serve the source to their reduce emissions.

4. <u>Improved Control of Particulate Emissions of the BOFs (the New Baghouse)</u>

The version of Permit 95010001 that is the subject of US Steel's 2022 application is the revised permit issued on December 17, 2012. In this regard, in 2010, US Steel agreed to install a baghouse control system with fabric filter that would operate along with the existing ESP system to improve control of particulate emissions of the BOFs from charging and tapping. The commitment to the additional control system was made in an agreement between US Steel and the Illinois EPA[10] for several measures to reduce particulate emissions from steelmaking.[11] For the BOFs, installation of a baghouse system was required to improve control of emissions from tapping, when steel and slag are poured from a BOF vessel into a ladle. US Steel was also required to evaluate whether the new baghouse system could be designed to also improve the control of emissions from charging, when iron and scrap metal are poured and unloaded into a BOF vessel. US Steel determined that the new

---

Illinois EPA performed computerized dispersion modeling for the future PM_{10} air quality of the Granite City area with the Project. The modeling analysis showed that the National Ambient Air Quality Standards (NAAQS) for PM_{10} would be met with PM-10 emissions from the Project-affected units at the Granite City Works at the maximum rates in reflected by the application. In May of 1998, the USEPA redesignated the area in which Granite City is located to attainment for PM_{10}.

Incidentally, the Granite City area is now also designated attainment for the NAAQS for $PM_{2.5,}$ The NAAQS for $PM_{2.5}$ were initially adopted by USEPA in 2006, with the NAAQS on an annual average subsequently being lowered in 2012. The ambient air monitoring stations conducted in Granite City by the Illinois EPA continue to show attainment of the NAAQS for PM_{10} and $PM_{2.5}$.

[10] "United States Steel Corporation Granite City Works and IEPA Memorandum of Understanding," signed by US Steel on June 30, 2010, and by the Illinois EPA on July 1, 2010 (the Agreement).

[11] In addition to the new baghouse system for the BOFs, the Agreement also provided for use of "steam rings." In a BOF, oxygen is used during the refining step to remove carbon and silica from the molten iron by oxidation. The oxygen lances are inserted into the BOF through openings in the hood over the BOF. Steam rings inject steam in the annular areas between the lances and the openings for the lances. This interferes with outward flow through the openings in the hood improving capture of particulate. by the hood.

The Agreement also provided for limits for emissions of particulate matter, in grains per dry standard cubic foot (gr/dscf), that were more stringent than the emission standards that were applicable under state rules. and 40 CFR 63 Subpart FFFFF:

Baghouses for iron desulfurization, slag skimming and ladle metallurgy: 0.005 gr/dscf (compared to 0.01 gr/dscf)

ESP for the BOFs: 0.01 gr/dscf (compared to 0.02 gr/dscf)

New baghouse for the BOFs: 0.005 gr/dscf (compared to 0.01 gr/dscf).

baghouse system could be designed to improve control of emissions from both charging and tapping. As such, once the new baghouse system began operation, the existing ESP system continued to control emissions for the BOFs from refining; the emissions from charging and tapping began to be controlled by a combination of the ESP system and the new baghouse system.

The new baghouse system for the BOFs was initially addressed by Construction Permit 11050006, as issued on August 31, 2011. For purposes of PSD and MSSCAM, this permit was based on the new system being a project that would reduce the emissions of particulate and lead from these furnaces AND NOT increase any emissions. US Steel subsequently applied for a revision of this permit, which was issued on April 1, 2013. In the application for revision of this permit, US Steel formally requested Integrated Processing so as to allow certain related changes to the CAAPP permit for the Granite City Works, Permit 96030056, to be made by means of an administrative amendment. This would assure that the baghouse system could be used in compliance with requirements in the CAAPP permit, which did not address the possibility that a baghouse might be added for the BOFs. For example, for tapping of a BOF, flame suppression was required by the CAAPP permit reduce particulate emissions. However, this would not be appropriate with the new baghouse system.[12]

It was not possible to simply revise Permit 11050006 with Integrated Processing to enable the revisions to the CAAPP permit that were needed to facilitate the installation and use of this system. It was first necessary to revise Permit 95010001, the permit that is now the subject of the 2022 application.[13] This is because the requirements in the CAAPP permit that were impediments to moving forward with the baghouse system were actually established by Permit 95010001.[14] For example, Condition 11 of Permit 95010001 required the use of flame suppression for tapping; the CAAPP permit merely restated this requirement. Accordingly, Permit 95010001 was revised to provide that this requirement, as well as similar operational requirements that would be inconsistent with the use of the new baghouse system would cease to apply when the new system began to be operated.[15] In their place, US Steel was broadly required to operate and maintain the BOFs and

[12] In flame suppression, the use of natural gas burners reduces generation of particulate by depleting the amount of oxygen in the air that comes in contact with molten metal. To improve control of emissions from tapping, the new baghouse system includes local hoods specifically to capture emissions from tapping, as well as local hoods to capture emissions from charging. With local capture hoods for tapping, the continued use of flame suppression would be unsafe, posing hazards both to personnel and equipment, as well as being of uncertain effectiveness to reduce emissions. The high levels of draft provided by the local capture hoods are incompatible with flame suppression as they can act to interfere with the stability and orientation of the flame and pose risks of blowing out the flame.

[13] The revision of Permit 95010001 was completed several months before the revision of Permit 11050006, the permit for the baghouse system. As a PSD permit issued pursuant to 40 CFR 52.21, the revision to Permit 95010001 did not take effect on December 13, 2012, when it was issued. It became effective later in January 2013 after the date for filing an appeal of the revised permit with USEPA's Environmental Appeals Board had passed without any appeal. With the effectiveness of revised Permit 95010001, the revision to Permit 11050006 with Integrated Processing could then be completed.

[14] If Permit 95010001 had not been revised to remove operational requirements that precluded the use of the new baghouse system, these requirements could not have been removed from the CAAPP permit by means of Integrated Processing of a revision to Permit 11050006. These operational requirements would still have been applicable since these requirements would have continued to be present in Permit 95010001.

[15] To address the period before the new baghouse system was operational, the revision to Permit 95010001 provided that the use of flame suppression for tapping and other measures that would obstruct the use of the

associated emissions capture and control systems in accordance with the applicable requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Integrated Iron and Steel Facilities, 40 CFR 63 Subpart FFFFF.[16]

In the revision to Permit 95010001, operational requirements for the BOFs and the ESP system that were considered to be obsolete or outdated with the new requirements of the NESHAP, 40 CFR 63 Subpart FFFFF, were also removed. The operational requirements of this NESHAP were determined to better address proper operation of emission control systems for BOFs. For example, as related to capture of secondary emissions,[17] the NESHAP addresses the operation of the capture hoods and the air flow entering the control device(s), rather than the aggregate air flow at the stack of the control device(s).[18] Likewise, the compliance procedures of the NESHAP (e.g., requirements for emission testing and operational monitoring) were determined to be more appropriate for the BOFs and their control systems than the requirements in Permit 95010001.[19]

In summary, the previous revisions to Permit 95010001 were narrowly focused on enabling the installation of the new baghouse system. This was done by removing specific requirements that were inconsistent with the use of this system and, more generally, by removing requirements that were no longer appropriate because of applicable requirements in 40 CFR 63 Subpart FFFFF. The revisions to Permit 95010001 did not extend to other requirements, such as the emissions limits set by this permit for the BOFs. Likewise, the changes to the CAAPP permit that were authorized by means of the Integrated Processing of the revision of Permit 11050006 were focused on enabling the future operation of new baghouse system, including the related changes that had been made in the December 2012 revision to Permit 95010001.[20] The changes authorized to the CAAPP permit

---

new baghouse system cease to apply when US Steel began operation of the new system. [Revised Permit 95010001, Condition 11(b).]

[16] US Steel became subject to the requirements of this NESHAP, which applies to the BOFs and certain other operations at the Granite City Works, beginning May 22, 2006. This is because the facility is considered an existing source under 40 CFR 63 Subpart FFFFF.

[17] In common usage, the particulate emissions of BOFs from refining are often referred to as the "primary emissions;" the emissions from charging and tapping are referred to as "secondary emissions." However, in the NESHAP, 40 CFR 63.7852, the primary particulate emissions of a BOF are defined as the emissions that are captured for control by the primary emission control system; the secondary emissions are the emissions that are not captured for control by the primary emission control system. As such, the Granite City Works, the ESP control system is the primary control device for the BOFs under the NESHAP. All emissions that are captured by this system, including emissions from charging, refining and tapping, are primary emissions.

[18] The NESHAP also places the burden for establishing the specific measures that will be implemented to ensure proper operation of the capture systems and control devices for BOFs on the source rather than on the permitting authority. The measures that are required to be used are the ones that were present when performance testing for particulate matter emissions shows compliance with the applicable standard.

In light of the applicable requirements of the NESHAP, the operating procedures and requirements in Attachment A, as formerly addressed by Condition 10, were also considered overly prescriptive. For example, Attachment A set out actions that were to be to be taken by employees, e.g., the emission control foreman and operator, rather than practices that the Permittee was required to implement.

[19] A practical concern also existed because certain operational requirements of Permit 95010001 were similar to but different than those of the NESHAP. Given the requirements of the NESHAP, which were newer and developed through rulemaking, the continuing implementation and oversight of the older requirements in Permit 95010001 was not considered to be an appropriate or effective use of resources.

[20] The 2012 revision of Permit 11050056 provided that the changes to the CAAPP permit for the facility that were authorized by means of Integrated Processing could only happen or take effect after the new baghouse

also included relevant requirements for the ongoing operation of the baghouse system that were actually set in Permit 11050006 and would appropriately be restated in the CAAPP permit. However, changes were not authorized to the emissions limits in the CAAPP permit for the BOFs and various other emission units as those limits were still present in Permit 95010001.[21]

5. US Steel's Current Application for Revisions to Permit 95010001

US Steel's current application (the "2022 application" or "application") requests a number of revisions to Permit 95010001. A key reason why revisions to Permit 95010001 are needed is that emission testing for the two basic oxygen furnaces (BOFs) shows their emissions of nitrogen oxides (NOx), as well as their emissions of volatile organic material (VOM), are higher than is allowed by this permit.[22] This is because the original application understated the NOx and VOM emissions of the BOFs and the emission limits in this permit reflected information in the application. US Steel has also determined that emissions of carbon monoxide (CO) of the casthouse on the blast furnaces and certain Projected-affected fuel burning units are higher than are addressed by the permit. This is because original application did not address CO emissions from the casthouse and understated CO emissions from Project-affected fuel burning units

Accordingly, the 2022 application requests revisions to Permit 9501001 to allow more emissions of NOx and VOM from the BOFs, which the original application understated. In particular, the application requests that the permitted NOx emissions of the casthouse and the BOFs be increased by 19.4 and 220.2 tons/year, respectively. To support these increases in emissions, the application includes revised netting analyses that attempt to show that the Project would not be a major modification for purposes of either PSD or MSSCAM with the requested increases in emissions.

US Steel also requests that the revised permit address CO emissions from the casthouse and allow more CO emissions from fuel burning units.[23] For CO, the application attempts to show that the

---

system for the BOFs began operation (Permit 11050056, issued April 1, 2013, page 16). US Steel has not yet applied to the Illinois EPA to initiate issuance of an administrative amendment to the CAAPP permit that would reflect the changes to this permit authorized by Permit 11050056.

[21] US Steel filed an appeal of revised Permit 11050056 with the Illinois Pollution Control Board (Board), PCB 13-62. Similar to the appeal of CAAPP permit for the facility (PCD-53), Permit 11050056 was appealed because it also provided for the emission limits for the BOFs and other units in the BOF shop set by Permit 95010001 to again be restated in the CAAPP permit. In this regard, to address the changes to the CAAPP permit that would be needed for use of the new baghouse system, Permit 11050006 provides for the complete replacement of Section 7.5 of the CAAPP permit, which addresses the basic oxygen furnace shop, including the basic oxygen furnaces, with a new, revised Section that addresses the basic oxygen furnace shop with the new baghouse system. As an appeal was filed, the provision of Permit 11050056 that would have restated those limits have been stayed pending resolution of the appeal.

[22] This emissions testing of the BOFs for NOx and VOM was first conducted in 2014, with further testing conducted in 2018 and 2021.

[23] The 2022 application requests that Permit 95010001 be revised to address an additional 25,334 tons/year of CO. This would include emissions of 320 tons/year of CO from the casthouse, for which CO emissions were not identified and addressed in the original permitting for the project. This would also include an additional 25,014 ton/year from Project-affected fuel burning units, other than ten boilers that are now retired. For the fuel burning units, US Steel has determined that the emission factors for CO utilized in the original permitting of the Project, particularly the emission factor for blast furnace gas (BFG) used in the blast furnaces stoves, understated CO emissions.

Project would still comply with the substantive requirements of PSD, which are applicable as the Project originally was a major modification for CO under the PSD program. The application includes an evaluation of BACT for CO for the casthouse and blast furnace stoves, i.e., the units that are or would become subject to the BACT requirement of the PSD program.[24] The application also includes a new air quality impact analysis for CO that would address the Project with the increases in CO emissions as are requested.

This 2022 application also addresses other issues that are now posed by the manner in which the Project was originally permitted. For PM, PM_{10}, NOx and VOM (i.e., pollutants other than CO, sulfur dioxide (SO_2),and lead), the application requests that the revised permit not include the provisions in Permit 95010001 that would address emissions of individual "processes" in pounds/ton of production or throughput. (For convenience, these provisions in the permit that address emissions in pounds/ton of production or throughput or, for lead, in pounds per hour, are generally referred to by the Illinois EPA as "emission factor limits." The Illinois EPA set the emission factor limits and limits on annual emissions in Permit 95010001to ensure that the Project would not be a major modification for purposes of PSD or MSSCAM.[25] With regard to the current limits for the annual emissions of PM, PM_{10}, NOx and VOM of individual processes or emission points, the application requests "group limits" for the annual emissions of groups of related emission units.[26] For emission units for which routine emission testing is feasible, the emissions contributed by units towards the group limits would be determined using emissions rates that reflect the results of emission testing. For certain emissions units or their uncaptured emissions (e.g., the uncaptured particulate emissions of the BOFs), for which routine emission testing is not feasible, the application requests that the revised permit set "prescribed emission factors." For these units or emission points, the prescribed emission factors would effectively replace the provisions currently

[24] The BOFs were not physically modified as part of the Project. Accordingly, they would not become subject to requirements for BACT or LAER even if the Project were a major modification for a pollutant.

[25] The removal from Permit 95010001 of the "emission factor limits" would facilitate resolution of two permit appeals filed by US Steel with the Illinois Pollution Control Board (PCB), PCB 2013-53 and PCB 2013-62, as these appeals address PM, PM_{10} and NOx and VOM emissions. Both appeals indirectly address the emission factor limits in Permit 95010001. PCB 2013-53 concerns the revised Clean Air Act Permit Program (CAAPP) permit for the facility (Permit 96030056) issued in 2013. US Steel appealed this permit as it repeats the emission factor limits as originally set by Permit 95010001. PCB 2013-62 concerns the construction permit for the addition of the baghouse system to improve control of particulate emissions from charging and tapping of the BOFs, Permit 11050006, as reissued in 2013. For the BOFs, this permit also repeats the emission factors limits for the BOFs set by Permit 95010001. US Steel appealed the subject emission factor limits in these permits because, before issuing the revised CAAPP permit for the facility in 2013, the Illinois EPA had explicitly explained that the provisions in the permit containing "emission factors" were considered to constitute enforceable limits on emissions.

[26] For example, the application requests that the revised permit limit the overall emissions of a group of units that includes the casthouse for the blast furnaces and other, ancillary units involved in production of iron. The permit currently sets separate limits for the emissions of the casthouse, the emissions from charging the blast furnaces, and the emissions from slag pit activities. Unlike the current limits for annual emissions, which apply on a calendar year basis, the proposed new limits for annual emissions would be rolled monthly, restricting emissions over each consecutive 12 month period.

in Permit 95010001 for process units that currently restrict emissions in pounds/ton of input or production or in pounds/hour.[27]

Lastly, the application also recognizes subsequent changes at the facility, which occurred after the Project, that were not contemplated in 1996 and not provided for when Permit 95010001 was originally issued. The changes at the facility include the addition of a baghouse control system for the BOFs to improve control of their particulate emissions. The changes also include the shutdown of the by-product coke oven batteries that were formerly at the facility, which eliminated emissions from these operations. In this regard, the application requests revisions to Permit 95010001 to provide for increased use of natural gas by Project-affected fuel burning units. The application explains that this is necessary with the shutdown of the by-product coke oven batteries because COG is no longer available and more natural gas may need to be used.

The Illinois EPA has reviewed the 2022 application to determine whether the application shows compliance with applicable regulatory requirements and would support issuance of a revision to Permit 95010001 as requested by US Steel. The Illinois EPA has also considered whether the application would support issuance of such a revised permit with Integrated Processing, as has also been requested, so that related revisions to the CAAPP permit for the Granite City Works may be made by administrative amendment. The Illinois EPA has made a preliminary determination that the 2022 application should be denied. The reasons for this determination are set forth in the draft of the proposed denial letter that has been prepared.[28] As discussed in further detail below, for some of the revisions requested to Permit 95010001, the application does not show that they would comply with the relevant regulatory requirements and USEPA policy that apply for this permit. For other requested revisions, the application does not include the information needed to support those revisions or enable those revisions to be made as a practical matter. In addition, the application would not allow for processing of a revised permit with Integrated Processing, as has been requested. If the Illinois EPA's final decision is to deny this application, it is expected that Permit 95010001 would continue in effect as it now exists until and unless action is taken on a subsequent application.

6. Discussion of Key Reasons for the Planned Denial of the Application

6.1. The Revised Netting Analysis for the Project for NOx

A. Overview

The revised netting analysis for NOx submitted for the Project with additional NOx emissions as requested does not show that the Project would not become a major modification for NOx. Accordingly, a revised permit cannot be issued as requested because, for emissions of NOx, the 2022 application does not address or show fulfillment of the substantive requirements of the rules for Prevention of Significant Deterioration (PSD) and Major Stationary Sources Construction and

[27] Unlike the emission factor limits in Permit 95010001, which the Illinois EPA considers to be directly enforceable against US Steel, prescribed emissions factors established in a revision to Permit 95010001 would instead be specific values for emission rates that US Steel would have to use for normal operation when determining compliance with the limits on annual emissions set by the revised permit.

[28] Brief descriptions of the reasons why the Illinois EPA's preliminary determination for this application is that it should be denied are provided in Appendix 2 of this document.

Modification related to impacts on air quality, i.e., air quality analysis for impacts on NO_2 air quality per 35 IAC 204.1130 and emission offsets for NOx per 35 IAC 203.302. For the blast furnaces and blast furnace stoves, i.e., the emission units that underwent physical modifications with the Project, the application also does not show fulfillment of the BACT and LAER requirements, respectively of PSD (35 IAC 204.1100) and MSSCAM (35 IAC 203.301) for NOx. This showing is necessary because Permit 95010001 is currently based on the net increase in NOx emissions from the Project not being significant so that the Project is not a major modification for NOx. The application requests that the Project be permitted for additional NOx emissions but does not show that the Project would still not be a major modification for NOx if the permit were revised as requested. As the Project would become a major modification for NOx with the requested revisions to Permit 95010001, the application must show for NOx that the relevant substantive requirements of PSD and MSSCAM are fulfilled for the Project. It would not be appropriate for a revised permit to be issued with increases in permitted NOx emissions as requested by the current application if this application does not also show that the applicable substantive requirements of PSD and MSSCAM would be met for the Project for NOx.

The revised netting analysis for the Project for NOx in the 2022 application suggests that this increase would be accompanied by decreases in the NOx emissions of certain other units. With these accompanying decreases, the net increase in NOx emissions from the Project with the requested revised permit would continue to not be significant.[29] However, the application does not identify the specific decreases in NOx emissions that occurred at different groups of Project-affected fuel burning units. Instead, the application simply indicates that the future NOx emissions of the Project-affected fuel burning units, overall, would be such that the Project would not be a major modification for NOx.

This netting analysis for NOx in the 2022 application cannot be relied upon for issuance of a revised permit for the Project as requested by US Steel. The application does not include relevant information showing that additional decreases in NOx emissions that would now be proposed to be relied upon would be contemporaneous and creditable for permitting of the Project. For emission decreases to be relied on for a netting analysis, 35 IAC 204.550 and 203.208 provide that the decreases must be contemporaneous and creditable. This necessitates information for how the additional decreases in NOx emissions addressed in the revised netting analysis for NOx were created and how the amounts of the decrease were quantified. Most significantly, the application does not show that certain decreases in NOx emissions that it would rely upon should be considered contemporaneous with the Project. A revised permit cannot be issued for the Project that relies upon "post-project" emissions decreases, which occurred after the Project, to show that the Project with the requested increases in NOx emissions of the furnaces, should still not be considered a major modification. This is critical because changes that are unrelated to the Project have occurred at

[29] When a netting analysis that showed a project would not be a major modification is found to have understated emissions of certain new or modified emission units, the next step is usually to examine whether the project should still not be considered a major modification. The revised netting analysis for this purpose may consider adjustments such as reductions in the permitted emissions of other new or modified units involved in the project. It may also consider additional emission decreases that were not relied upon by the original netting analysis but could have been as they are contemporaneous and creditable. As this reexamination of a project shows that it still would not be considered a major modification with appropriate adjustments to the netting analysis, an appropriately revised construction permit may be issued that is based on the project continuing to not be a major modification.

certain fuel burning units after the initial issuance of Permit 95010001. The application proposes to rely upon the decreases in NOx emissions due to these changes, which were not and could not have been relied upon by the original permit for the Project. These decreases in emissions would be relied upon by the revised netting analysis as it does not account for and exclude the emissions decreases from these changes from the analysis. (In addition, as will be addressed below, the application does not include appropriate support for certain units for the quantification of NOx emissions in the revised netting analysis.)

B. The Analysis Relies on Emission Decreases That Are Not Contemporaneous

As related to the requirement of the NSR rules that decreases in emissions relied upon for netting be contemporaneous, the 2022 application relies on decreases in emissions that occurred long after 1996. This includes decreases from the shutdown of ten of the twelve boilers at the facility that were originally addressed by Permit 95010001 in 1996. The shutdown of Boilers 1 through 10 was required by Construction Permit 06070023, which was originally issued in July 2006 for construction of a cogeneration boiler that would burn blast furnace gas (BFG) and natural gas. The application does not show that NOx emissions of these ten boilers, as existed in the period prior to 2009, were considered in the "future" NOx emissions with the Project from the Project-affected fuel burning units. In addition, with regard to the two remaining old boilers at the facility, Boilers 11 and 12, that continue in operation, flue gas recirculation systems have been installed pursuant to Construction Permit 10080022, issued in January 2011. These systems were installed to reduce NOx emissions to facilitate compliance with 35 IAC 217.164. The application does not show that the revised netting analysis for NOx does not rely on the lower NOx emissions from these boilers that are now being achieved with the new systems, rather than the NOx emissions as previously existed with the Project in the period before these systems were installed.

The application also indicates baseline NOx emissions from use of coke oven gas (COG) in the blast furnace stoves and Boilers 11 and 12. In 2015, US Steel shut down the two by-product recovery coke oven batteries at the Granite City Works. COG ceased to be available for use in the stoves or Boilers 11 and 12. However, COG was available for use in the stoves and these boilers in 1996. As related to the Project, the application does not show that the revised netting analysis for NOx would not rely upon decreases in the NOx emissions of the stoves and boilers due to the elimination of COG, which did not occur until 2015.[30]

In summary, for purposes of applicability of NSR, the NOx emissions allowed from the Project in 1996 that would be permitted with the requested revisions to the permit could be substantially higher than indicated in the 2022 application. This application does not show that this would not be the case such that the Project would not become a major modification for NOx with the requested increases in the permitted emissions of the blast furnaces and the BOFs. The timing of actions that have resulted in decreases in NOx emissions of fuel burning units after 1996 is critical when considering applicability of NSR to the Project with the requested revisions to Permit 95010001. As the decreases in NOx emissions from certain actions cannot be considered or would be smaller, the net increase in NOx emissions of the Project would be greater. In this regard, it must be assumed that the "future NOx emissions" indicated in the application reflect maximum actual NOx emissions

[30] The revised netting analysis does address increased use of natural gas by Project-affected fuel burning units because COG is no longer available and more natural gas may need to be used to make up for this.

beginning in 2023, with the requested revisions to Permit 95010001. The application does not suggest that these future NOx emissions are the emissions that should have been allowed by the permit back in 1996 when the permit was issued and the Project commenced.[31]

C. Insufficient Information to Independently Confirm the Revised Baseline NOx Emissions

The revised determination of baseline NOx emissions of Project-affected fuel burning units that is part of the revised netting analysis is not accompanied by information that would allow it to be independently verified. In this regard, the application does not show that all Project-affected fuel burning units have been addressed. For units that are addressed, the application does not show that appropriate emission factors and operating data have been used to estimate emissions. As specific concerns exist with the determination of baseline NOx emissions for certain emission units, concerns exist with the determination of the overall baseline NOx emissions for the Project. In particular, this application does not include supporting documentation or explanation for the baseline usage of COG utilized in the revised netting analysis. The application utilizes a NOx emission factor for Boilers 11 and 12 for use of COG that the application states is based on emission testing conducted on the stack for underfiring of one of the coke batteries, rather than testing on one of these boilers or other similar boiler. For burning of natural gas, the application does not show the emission factor that is utilized for boilers would also be appropriate for ladle preheaters and casting operations.

D. Supporting Date Is Not Provided For Future NOx Emissions of Fuel-Burning Units

The 2022 application proposes a future amount for the NOx emissions of Project-affected fuel burning units of 706 tons/year. The application does not explain why actual NOx emissions of the subject units would not exceed this amount going forward if the permit were revised, much less demonstrate that actual emissions have not exceeded this amount historically. The application does not include a demonstration that the actual NOx emissions of Project-affected fuel burning units would not have exceeded the "future amount" or post-project emissions indicated in the revised netting analysis for the Project for NOx since Construction Permit 95010001 was issued if the production of iron and steel by the source was at the levels allowed by this permit.

6.2. The Application Does Not Address the Potential for Uncaptured Emissions of NOx, VOM and CO Through the Roof Monitor of the BOF Shop

The application is deficient in its approach to the uncaptured emissions of NOx, VOM and CO emissions of the BOFs. For the BOFs, consistent with the original permitting of the Project, the application only quantifies stack emissions of NOx, VOM and CO. Moreover, the revised netting analyses for NOx and VOM assume that all emissions of these pollutants from the BOFs are now captured. That is, with the new baghouse system to improve control of particulate emissions, all

[31] Indeed, with the requested revisions of Permit 95010001, it is unclear how the "future NOx emissions" of affected fuel burning units indicated in the application are emissions that could have been allowed by this permit in 1996. The future NOx emissions of these units indicated in the application are less than their baseline NOx emissions. As the Project did not include any elements that would lower the NOx emissions of fuel burning units, the production of more iron and steel would have been accompanied by increased utilization of the blast furnace stoves and boilers so that in 1996 the NOx emissions of fuel burning units allowed by Permit 95010001 must necessarily be more than the baseline emissions. (Use of COG was not expected to be affected by the Project because production of COG was constrained by the design and operation of the existing coke oven batteries, which were not being modified as part of the Project.).

NOx and VOM emissions of the BOFs that originally were not captured and were emitted through the roof monitor are now captured and emitted through the stack on the baghouse system.

This assumption is not appropriate. At a fundamental level, the application does not include any support for this assumption. A rigorous analysis for and quantification of the uncaptured emissions of NOx and VOM from these furnaces is warranted as these emissions were not addressed in the original permitting for the Project, likely because they were considered negligible. Then, the data for NOx and VOM emissions from the baghouse stack, which is now available from testing of the baghouse, does not support this assumption and, if anything, shows that this assumption is unsound. This is because this testing shows that there are emissions of these pollutants from charging and tapping and, as such, data for the uncaptured emissions of these pollutants is also appropriate. In this regard, the results of emission testing for the NOx and VOM emissions from the new baghouse system on these furnaces, as cited by the application, indicate more than negligible levels of emissions. Finally, the assumption that all NOx and VOM emissions of these furnaces is now captured is inconsistent with the approach taken in the application to the particulate and lead emissions of these furnaces, which assumes that there are uncaptured emissions that still occur through the roof monitor. By way of contrast, the 2022 application requests that the revised permit establish prescribed emission factors for the particulate emissions of the BOFs that occur through the roof monitor.

The fact that there are emissions of NOx and VOM from the BOFs that now occur from the stack of the new baghouse system but were previously not captured and were not originally quantified raises concern that similar circumstances are present for emissions of CO. In this regard, the application requests various revisions to Permit 95010001 to correct issues that are posed for the original permitting of the Project with respect to CO emissions. However, the application does not propose any such revisions for the BOFs or explain why such revisions are not needed. For example, the application also does not explain why it would not be inappropriate for any revised permit to set a limit for the annual emissions of CO from the BOFs through the stacks of the control systems, with associated requirements for periodic emission testing.

6.3. The Inventory Used in the Air Quality Analysis for CO Omits Certain Emissions

The results of the analysis of the impacts of the Project on ambient air quality for CO cannot be relied upon because the inventory for the CO emissions of the facility with the Project does not address all CO emissions or otherwise explain why the CO emissions of certain units need not be considered. The application includes an air quality analysis for CO because the Project was originally permitted as a major modification for CO under the PSD program and the application requests revisions to Permit 95010001 to increase the CO emissions for which the Project is permitted. To support this request, an air quality analysis for CO must be part of the application pursuant to 35 IAC 204.1130, since this request involves revisions to the provisions in Permit 95010001 that involve the Project as it is a major modification for CO under the PSD program. In this regard, the air quality analysis in the 2022 application does not address uncaptured CO emissions of the casthouse. As discussed earlier, the application does not address uncaptured emissions from these furnaces or does not explain why uncaptured emissions would not be present. In this regard, the application does not show 100 percent capture of the particulate emissions of these furnaces by the control systems for particulate. The application also does not explain why the

air quality analysis in the application should not consider the CO emissions of the former by-product coke oven batteries at the facility. These batteries were in operation when the Project was originally permitted in 1996 and did not cease operation until 2015. Accordingly, the analysis does not address CO ambient air quality with the Project as would have been predicted by the original air quality analysis for the Project if it had addressed the additional CO emissions now being requested for the Project. In addition, the air quality analysis uses a value for CO background air quality on an 8-hour average that is based on ambient air quality data collected for a three year period consisting of 2016, 2017 and 2018. As such the value used for background air quality is not necessarily appropriate as a representation of either current ambient air quality or the historic air quality at the time that the Project was originally permitted.

6.4. The Proposed Scope of Proposed Group Emission Limits Is Overly Broad

The application does not show that the proposed collections of emission units for the requested group limits for annual emissions of particulate, NOx and VOM are appropriate. In particular, the application does not propose limits that would only apply to the annual emissions of the casthouse on the blast furnaces and to the annual emissions of the two BOFs. These are principal emission units at this facility. It would be reasonable and appropriate for both the annual emissions of the casthouse and the annual emissions of the two BOFs to be directly limited separately from the emissions of any other units. The construction permits issued by permitting authorities in other jurisdictions cited in the application as support for emission limits that apply to groups of emission units do not show that the annual emissions of the casthouse and the BOFs should not both continue to be limited individually.

In this regard, the application points to USEPA policy and practice concerning how the potential emissions of a source may be restricted. The application shows that USEPA has found that construction permits may be issued that restrict potential emissions by means of limits on annual emissions that are practically enforceable. Accordingly, the current provisions in Permit 95010001 that limit emissions of process units in pounds/ton of production of throughput, which apply on a short-term rather than annual or long-term basis, are not essential to restrict potential emissions. In addition, the application points to several construction permits issued outside of Illinois since 2000 for which the permitting authority determined that annual emission limits that apply to groups of emission units that are practically enforceable were determined to be sufficient to restrict potential emissions without need for accompanying limits that address emissions on a short-term basis.[32] However, the application does not show that the specific circumstances of the Project are such that the current limits for annual emissions of the principal emission units should be replaced with group limits that apply to the combined emissions of the principal emission units and other lesser emission

[32] The application cites two decisions by the USEPA's Environmental Appeals Board (EAB):

- The 2012 decision of the EAB for an Outer Continental Shelf (OCS) Permit to Construct and Title V Air Quality Operating Permit issued by Region 10 of USEPA to Shell Offshore, Inc. (USEPA, EAB, *In Re Shell Offshore, Inc.*, OCS Appeals Nos. 11-05, 11-06 & 11-07, Order Denying Petitions for Review, Decided March 30, 2012).
- The 2018 decision of the EAB for a PSD permit issued by the Department of Environmental Quality for Pima County, Arizona, to Tucson Electric Power (USEPA, EAB, *In Re Tucson Electric Power*, PSD Appeal No. 18-02, Order Denying Review, Decided December 3, 2018).

units.[33] The circumstances of the Granite City Works are not the same as those presented by the cited permits. The Granite City Works are a manufacturing facility at which iron is produced from iron ore and then converted into steel in BOFs. The processes that generate emissions at the Granite City Works are different than the oil-fired engines that are generally addressed by the permit for Shell Offshore and the natural gas-fired engines addressed by the permit for Tucson Electric. The permit for Shell Offshore, Inc., addresses a marine drilling unit, the "Kulluk," and an associated fleet of support vessels that may be used during July through November of each year to conduct exploratory drilling operations in areas of the Beaufort Sea north of Alaska. The permit for Tucson Electric Power addressed a new peaking electrical generating facility with ten engine-generating units at Tucson Electric's Irvington Station.

6.5. Inadequate Justification for Elimination of Current Limits for Project-Affected Fuel Burning Units

The justification provided in the application for revisions to Permit 95010001 to eliminate limits on usage of fuel and, presumably, emission by Project-affected fuel burning units is not adequate. Although this application indicates that the revised permit should not contain the limits for usage of natural gas and blast furnace gas currently set by Permit 95010001, it does not propose any new limits in their place. This rationale is deficient because it does not consider that the application also requests that the revised permit address an increase in the usage of natural gas at the facility as a consequence of the shutdown of the by-product coke oven batteries. While the limits for fuel usage and emissions currently in Permit 95010001 may no longer be relevant, as generally addressed above, this does not mean that other limits for fuel usage and emissions are not appropriate. In this regard, the application does not show that new limits for fuel usage would not now be needed and those limits should address fuel burning units other than the Project-affected units currently addressed by the permit. In this regard, limits for usage of fuels should not extend to Boilers 1 through 10, as they are no longer in operation, having been shut down a number of years before the coke oven batteries were shut down. As the four slab reheat furnaces at the facility were affected by the elimination of COG, new limits may be needed that also extend to these furnaces. It may also be appropriate for the cogeneration boiler to be addressed by the new limits as this boiler began operation several years before the by-product coke oven batteries at the facility were shutdown.

6.6. The Application Does Not Show That the Emission Factors Proposed As Prescribed Factors for Certain Units Would Be Representative

A. <u>Introduction</u>

To calculate baseline emissions for certain emission units for which emission testing is not feasible or practical, the 2022 application necessarily relies on use of emission factors that are not based on

[33] For the casthouse, Permit 95010001 currently sets separate limits for the emissions of various pollutants from the main baghouse for the casthouse, the iron spout baghouse, and the roof monitor (uncaptured emissions). If Permit 95010001 were to be revised, it would be reasonable for each pollutant for which emissions are limited for the permit to restrict the overall emissions of pollutants other than CO from the casthouse, rather than to individually limit the stack emissions of each control system and the uncaptured emissions. (As the Project is subject to BACT for CO, the limit could only apply to stack emissions.)
The circumstances of the BOF are similar, as the current permit separately addresses emissions of particulate and lead from the ESP stack and the roof monitor. It would also be reasonable in a revised permit to set limits for different pollutants for the overall emissions of each pollutant from the BOFs.

source-specific emissions testing. Likewise, for the ongoing determination of the emissions of these units, the application requests that revised Permit 95010001 "prescribe" or specify the emission factors that are to be used. As explained in the application, where a permit relies on a limit on annual emissions or an "annual emission cap" to restrict potential emissions, USEPA policy and precedent provide that:

> Where the permit prescribes an emission factor to be used in conjunction with operational data in demonstrating compliance [with an annual emission cap], the permitting authority should describe the basis for its determination that the emission factor is representative.
>
> 2022 application, Section 3, p. 3.

For the Granite City Works, the USEPA specifically addressed the use of emission factors for determining compliance with emission limits in an order of December 3, 2012. Relative to prescribing emission factors, the USEPA's finding, as is provided below, should be considered *dicta* since the permit that was the subject of the appeal did not actually provide for use of prescribed emission factors. As the order addresses the possibility of using prescribed emission factors in terms of the actions that the Illinois EPA would need to take when issuing a permit that prescribed emission factors, the order serves to identify the underlying information that a permit applicant must provide in an application if it seeks a permit that would provide for use of prescribed emission factors. The Illinois EPA would then be responsible for assuring that the emission factors that are prescribed would be appropriate and sufficient for compliance or noncompliance with the associated emission limits to be reasonably determined.

> …IEPA [Illinois EPA] must include in the permit itself the monitoring methodology for determining compliance with these limits [emission factor limits and annual emission limits]. If using emission factors, IEPA must propose the actual emission factors in the permit or supporting permit record, and provide supporting documentation for the accuracy and appropriateness of these emission factors, such as historical source test data or other available information. If source test data are not readily available for a specific emission unit, as IEPA asserts, other sources of emission factors (including published literature and material and energy balances) must be reviewed and cited for acceptable emission factors before issuing the permit.
>
> USEPA, Order Responding to Petitioner's Request that the Administrator Object to Issuance of State Operating Permit, Petition Number V-2011-2, *In the Matter of United States Steel Corporation – Granite City Works, CAAPP Permit No. 96030056*, Petition Number V-2011-2, dated December 3, 2012, p. 12.

B. Particulate Emissions of the BOFs Through the Roof Monitor

The application does not include support for the particulate emission factors that are proposed as prescribed factors for the roof monitor on the BOF shop (i.e., the uncaptured emissions from the BOFs). In this regard, the permitting of the Project in 1996 relied upon various changes that were made to improve capture and control of emissions of particulate from the BOFs. As capture and control for particulate improved, the factor for future uncaptured emissions would be different and lower (better) than the factor for baseline uncaptured emissions.

C. Continuous Casting Lines

For the caster mold, slab ripping and slab ripping processes on the continuous casting lines, prescribed emission factors that are proposed reflect emission factors from a report prepared by the Illinois EPA in 1991, i.e., "Illinois EPA 1991 EIS PM/PM_{10}." This is not sufficient to show that the emission factors that are proposed as prescribed factors are representative.

D. Particulate Emissions of the Casthouse Through the Roof Monitor

For the casthouse roof monitor (uncaptured emissions particulate emissions of the casthouse), the application only references a single memorandum from 2019 by various USEPA staff and a consultant as support for achievement of 95 percent capture efficiency. Further support is needed for a prescribed emission factor for uncaptured emissions of the casthouse that is based on achievement of this level of capture.

E. Emissions of the Slag Pits and Iron Pellet Screen

For the slag pits and the iron pellet screen, the application does not provide support for the background information or inputs that were used to adjust the published factors for the operating conditions or circumstances of these units at the facility. Absent this information, the Illinois EPA cannot assess whether the prescribed emission factors proposed for these units should be considered representative.

F. Current Provisions of the CAAPP Permit Requiring Use of Appropriate Emission Factors

The application is also deficient as it simply requests revisions to Permit 95010001 to require use of prescribed emission factors for certain units. The application does not address the fact that the CAAPP permit currently does not accommodate the use of prescribed emission factors to calculate emissions but instead requires use of "appropriate emission factors." To facilitate the use of prescribed emission factors, the application also needs to propose or request revisions to general provisions in Permit 95010001 so as to also enable subsequent revisions to be made by administrative amendment to the CAAPP permit for the facility, Permit 96030056, to allow prescribed emission factors to actually be used to determine ongoing emissions of certain units.[34]

6.7. Requested Changes for Consistency with the Grouping of Units in the CAAPP Permit

In the 2022 application, US Steel generally requests changes to the organization of Permit 95010001 because the areas or sections of the CAAPP permit in which certain units are addressed are different than those in Permit 95010001. Most notably, in Permit 95010001, discrete material handling and processing operations are addressed with either the blast furnace operations, operations in the basic oxygen furnace shop or the continuous casting operations, based upon the area with which they were considered to be associated. In the CAAPP permit, these discrete

[34] The CAAPP permit currently provides that "appropriate emission factors" shall be used when determining emissions to evaluate compliance with the emission limits for process units set by Permit 95010001. These procedures do not provide for the use of prescribed emission factors. Rather, US Steel is generally required to use "appropriate emission factors," i.e., factors that do not understate emissions, with the primary responsibility for the appropriateness of the factors that being are used resting on US Steel. The CAAPP permit also provides for recordkeeping and reporting by US Steel so that information about the factors that are being used is publicly available and the Illinois EPA, the USEPA and interested parties can review the factors that are in use.

material handling and processing operations are generally addressed in a separate section of the permit, Section 7.1, "Material Handling and Processing Operations." In addition, in the CAAPP permit, the "Argon Stirring Station and Material Handling Tripper" was addressed with units in the basic oxygen furnace shop in Section 7.5 of the CAAPP permit rather than with the continuous casting operations as in Permit 95010001.

While it is reasonable for there to be consistency in the groupings or categorization of emission units in Permit 95010001 and the CAAPP permit, as generally requested by US Steel, several concerns are posed by the specific changes to Permit 95010001 that have been requested. For example, US Steel requests that the "Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy)" now be addressed in Permit 95010001 with operations in the Basic Oxygen Furnace Shop and be identified as "Baghouse 2 for Argon Stirring and Ladle Metallurgy Facility." However, the application does not actually identify the specific units that would be addressed by the proposed new term.

On the other hand, the application does not request any revisions to Permit 95010001 with respect to the Deslagging Station and Material HS (Handling System). These emission units are currently addressed in Permit 95010001 with continuous casting operations. In the CAAPP permit, a "Steel Deslagging Station" is identified as one of the continuous casting operations. The application does not explain why this steel deslagging operation should not appropriately be categorized as slag skimming and addressed with the other slag skimming operations in the basic oxygen furnace shop as it would constitute a "BOPF {basic oxygen process furnace] shop ancillary operation" for purpose of 40 CFR 63 Subpart FFFFF. US Steel does not explain why the current placement in Permit 95010001 of the steel deslagging station with continuous casting is appropriate and this station should not also be addressed with other BOPF shop ancillary operations.[35]

6.8 The Application Does Not Address the Amendment to the CAAPP Permit Previously Authorized Pursuant to Construction Permit 11050006

The 2022 application does not identify the version of the CAAPP permit for the Granite City Works, Permit 96030056, that would be eligible for administrative amendment pursuant to the Integrated Processing of the revisions to Permit 95010001 that are requested. This is relevant because the Illinois EPA has already issued a construction permit with Integrated Processing, i.e., Permit 11050006, issued April 1, 2013, for the addition of a baghouse system to improve control of particulate emissions of the BOFs. However, US Steel has not initiated action for the Illinois EPA to actually issue an amended CAAPP permit with changes as authorized by Permit 11050006.[36]

[35] For Ladle Drying/Preheating, the application also does not request any changes to Permit 95010001 to maintain consistency with the approach taken in the CAAPP permit. In Permit 95010001, these emission units are addressed with other Project-affected fuel burning units. In the CAAPP permit, these units are addressed in Section 7.5 as "Basic Oxygen Processes" with other units in the BOF Shop, as well as elsewhere in the permit with other Project-affected fuel burning units. In addition, the CAAPP permit sets a limit for the total NOx emissions of the BOF Shop.

[36] The 2022 application does address the addition of the baghouse control system for the BOFs as related to the emission of the furnaces. US Steel does not propose separate limits set for the individual emission points

Accordingly, in the absence of a formal request from US Steel to the Illinois EPA to initiate the administrative amendment of the CAAPP permit contemplated by Permit 11050006, the application can only request Integrated Processing to allow administrative amendments of the current CAAPP permit, as has actually been physically issued by the Illinois EPA.[37]

6.9. The Application Does Not Address Changes to the CAAPP Permit That Are Needed Due to Revisions To 40 CFR 63 Subpart FFFFF

The application does not address revisions to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Integrated Iron and Steel Manufacturing Facilities, 40 CFR 63 Subpart FFFFF, made by USEPA in July 2020. Among other revisions to 40 CFR 63 Subpart FFFFF, USEPA acted to remove exemptions from the emission and opacity limits in this NESHAP for periods of startup, shutdown and malfunction (SSM). Accordingly, effective January 12, 2022, the emission and opacity limits of this NESHAP became applicable at all times. The requirements of this NESHAP that formerly dealt with SSM ceased to be applicable. Notably, subject sources would no longer be required to keep startup, shutdown and malfunction plans detailing the procedures for operating and maintaining subject emission unit(s) during periods of SSM, as had been required by 40 CFR 63 Subpart FFFFF as it had applied 40 CFR 63.6(e)(3) in the general provisions of the NESHAP regulations to subject sources. These revisions to 40 CFR 63 Subpart FFFFF are relevant for Permit 95010001 and the revisions to this permit requested by the application. This is because Permit 95010001 relies on the applicable compliance procedures of 40 CFR 63 Subpart FFFFF (i.e., requirements for emission testing, opacity observations operational monitoring and recordkeeping), to verify consistent operation of the casthouse, the BOFs and other NESHAP-subject units and their emission controls, for the purposes of assuring compliance with the emission limits set by this permit for their emissions of particulate.

6.10. Changes to the CAAPP Permit That Have Resulted from Shutdown of Emission Units

The application is deficient as it does not identify changes to the CAAPP permit for the Granite City Works, Permit 96030056, that are a consequence of permanent shut down of emission units, as generally addressed by Condition 9.11 of the CAAPP permit.

> Condition 9.11 Permanent Shutdown
> This permit only covers emission units and control equipment while physically present at the indicated source location(s). Unless this permit specifically provides for equipment relocation, this permit is void for the operation or activity of any item of equipment on the date it is removed from the permitted location(s) or permanently shutdown. …

for these furnaces. Instead, the application requests that the revised permit set overall limits for the emissions from the control systems of the BOFs.

[37] Concerns are posed by certain conditions in existing Permit 11050006 and the related amendments to CAAPP Permit 96030056 that it authorizes. The application is not accompanied by a request for changes to Permit 11050006 or a proposal for how to address these concerns so that they would not be perpetuated in the amended CAAPP permit.

While the 2022 application acknowledges that the by-product coke ovens at the Granite City Works have been shut down, this application does not separately address the consequences for the current CAAPP permit. The shutdown of these batteries was accompanied by the shutdown of coal and coke handling operations, the coke by-products plant, the handling of coke by-products, and possibly certain wastewater treatment processes. In addition, although not shut down, Boilers 11 and 12, Ladle Dryer/Preheaters and Slab Reheat Furnaces are no longer able to use COG as fuel since COG is no longer produced at the facility. As such, provisions in the CAAPP permit that identify or address the use of COG in these units are no longer necessary. It would be improper for the revised version of the CAAPP permit authorized by means of the Integrated Processing of a revision to Permit 95010001 to still physically include provisions that should no longer be present in the revised CAAPP permit given the permanent shutdown of the emission units that were subject to those provisions.

6.11. The Evaluation of BACT for CO in the Application Is Not Sufficient

The evaluation of BACT for CO in the application lacks necessary information to support US Steel's proposal for BACT for CO for the emissions units for which this must be determined or redetermined under the PSD program as a consequence of the requested revisions to Permit 95010001. The evaluation addresses BACT for CO for the casthouse for which BACT must now be determined as it is now recognized that the casthouse emits CO. It also addresses BACT for CO for the blast furnace stoves as the application requests that the revision of Permit 95010001 allows for more emissions of CO from these units.

A. <u>The Scope of the Evaluation of Available Control Options</u>

As provided in the definition of BACT in Section 169(3) of the Clean Air Act and as confirmed by USEPA guidance, a determination of BACT must consider options to control or reduce emissions of an emission unit besides add-on control devices. For the casthouse, when identifying control options, the BACT evaluation only identifies end-of-pipe or "add-on control" control options. The evaluation does not identify other process-related control options such as work practices. In contrast, for the blast furnace stoves, the evaluation identifies both add-on control options and a process-related control option. i.e., "Work Practice Standards, including good combustion practices." The evaluation does not explain why process-related control options are not available for the casthouse.

B. <u>Documentations for the Investigation into Available Control Options</u>

For both the casthouse and the blast furnace stoves, the BACT evaluation in the application is not accompanied by supporting documentation for the investigation that was conducted into available control options. Instead, the evaluation simply states that a review of available control options was conducted. This is not sufficient for the Illinois EPA, the USEPA and interested parties to confirm that the review of available control options for the BACT evaluation was thorough and can be relied upon to have reasonably identified potentially available control options for BACT.

C. <u>Support for Not Setting Numerical BACT Limits for the Blast Furnace Stoves</u>

For the blast furnace stoves, the BACT evaluation for CO in the application is not accompanied by supporting documentation to support the claim that it is infeasible to measure their CO emissions so that BACT should not be set as a numerical emission standard. Further support is needed for the claim that measurement or testing of emissions of the blast furnace stoves is infeasible. While

certain information about the stoves is provided, the application does not directly address the technological issues or costs that would be entailed to install suitable ports for testing on one or both sets of blast furnace stoves. The application also does not show that there are other challenges that would need to be addressed or issues that should be considered, such as requirements of the Occupational Safety and Health Administration (OSHA), that would affect the technical feasibility and cost of installing suitable test ports on the stoves.

6.12. Inconsistency of the Application with a Pending 2008 Application & Pending Appeals

A. Pending 2008 Application

On February 4, 2008,[38] the Illinois EPA received an application from US Steel applied for revisions to Permit 95010001 to increase permit limits for the sulfur content of blast furnace gas (BFG) and the SO_2 emissions resulting from the combustion of BFG. The 2022 application is inconsistent with and conflicts with that prior application (the "2008 application"). As such, these two applications, as they currently exist, cannot be processed by the Illinois EPA absent appropriate action by US Steel on one or both of these applications, e.g., changes to the 2022 application so that it requests the same revisions to SO_2 emission limits for use of BFG as the 2008 application. In this regard, the 2022 application "… does not request any changes to the emission limits for SO_2 and lead emissions established in the Construction Permit 95010001." The 2008 application does request changes to the provisions of the permit for SO_2, as it is an "Application to modify to correct the emission factors used to develop the original application and permit in light of newly identified information on emissions and emission factors."

B. Pending Board Appeals

The application does not request any changes to the emissions limits for SO_2 and lead currently set by Permit 95010001. For CO, the application does request that the revised permit address emissions of CO from the casthouse and raise the limits for CO emissions of Project-affected fuel burning units.[39] However, the application does not request revisions to the emission limits currently in Permit 95010001 for the CO emissions of the BOFs, i.e., the limits in pounds per ton of steel produced and in tons per year for the CO emissions of these furnaces through the ESP stack. As such, the application is not consistent with two pending permit appeals before the Board, PCB 0013-53 and PCB 0013-62, as it does not propose revisions to current permit limits for emissions of SO_2, CO and lead. In these appeals, US Steel challenged all emission factor limits set by Permit

[38] Several things interfered with work on the 2008 application. These include the amount of effort needed by the Illinois EPA to issue the initial CAAPP permit for the Granite City Works. The first two CAAPP permits issued for this facility had to be enhanced and reissued to address certain deficiencies identified by USEPA in Orders responding to petitions requesting the USEPA object to the permits that had been issued. Then, additional revisions to Permit 95010001, as US Steel has tried to address with the 2022 application, were found to be necessary because the NOx and VOM emissions of the basic oxygen furnaces exceed or may exceed the limits established in this permit. Work on the current application for revisions to this permit was also disrupted by an interruption in the iron and steel production of the facility that began in December 2015. This interruption, which ultimately lasted for over two years, meant that it was uncertain that the facility would resume production of iron and steel.

[39] As already discussed, in the original application for Permit 95010001, the casthouse was not identified as a source of CO and information for CO emissions was not provided. The application also requests updates to the limits for CO emissions from use of BFG and natural gas in Project-affected fuel burning units to reflect new information for the CO emissions from burning these fuels.

95010001 for individual process operations. US Steel has not amended these appeals so that they only address emission factor limits for PM, PM_{10}, NOx and VOM and no longer address the emission factor limits that are set for SO_2, CO and lead. In addition, in the application, US Steel does not explain why the emission factor limits in Permit 95010001 for SO_2, CO and lead that were appealed are no longer considered to be objectionable. That is, US Steel would not again challenge those limits as it has already done in PCB 0013-53 and PCB 0013-62 if a revision to Permit 95010001 were issued that continued to include the current emission factor limits.

With regard to the CO emissions of the BOFs, the application also does not request revisions to Permit 95010001 as the current permit only addresses CO emissions from the "BOF ESP Stack." The application does not request that these limits be revised so that they address all stack emissions of the BOFs, e.g., CO emissions from both the stack of the new baghouse system and the stack of the ESP system.

6.13. Other Deficiencies in the Application

There are also a number of other lesser reasons why the Illinois EPA determined that the application should be denied, as are set forth in the draft of the denial letter. For example, this application does not include a signed certification for its truth, accuracy and completeness. While this deficiency could be remedied with a supplement to the application that provides both this certification and corrections to the errors in the application that have been noted, this would not be sufficient for a revised permit to be issued given more substantial deficiencies in the application that have been identified..

7. Request for Comments

It is the Illinois EPA's preliminary determination that US Steel's 2022 application for revisions to Permit 95010001 should be denied. The Illinois EPA has prepared a draft of the denial letter that it proposes to issue for the 2022 application. The draft denial letter details the reasons why the Illinois EPA has determined that this application should be denied.

The Illinois EPA is providing the public with an opportunity to review and comment on this proposed denial of this application and the reasons for such action identified by the Illinois EPA as set forth in the draft of the denial letter.

Appendix 1

Brief Descriptions of the Revisions to Permit 95010001 Requested By US Steel

- Raise permitted NOx and VOM emissions of the basic oxygen furnaces (steel production) to correct for data in the original application that understated emissions. This revision would facilitate resolution of two appeals to Illinois' Pollution Control Board (PCB), PCB 2013-053 and PCB 2013-062 as they address NOx and VOM emissions of the BOFs. The first appeal addresses the Clean Air Act Permit Program (CAAPP) permit for the facility (Permit 96030056) as issued in 2013 as it repeats emission limits set by Permit 95010001. The second appeal addresses Construction Permit 11050006, a construction permit issued in 2013 for improvements to the particulate control for the BOFs, as this permit also refers to emission limits set by Permit 95010001.

- Eliminate limits set by the permit for individual process operations for emissions of particulate matter and particulate matter$_{10}$ (collectively particulate), NOx and VOM. These limits, which are in pounds/ton of throughput and tons/year, were set for purposes of New Source Review (NSR). In place of these limits, set "group limits" for the annual emissions of groups of related operations, e.g., limits for the overall emissions of the casthouse for the blast furnaces and other units involved in production of iron. This would also facilitate resolution of the two appeals to the PCB as they both challenge the limits in pounds/ton of throughput. These requested revisions would make the permit less stringent. Any "overage" of emissions by certain unit(s) in a group could potentially be balanced by lower levels of emissions by other units in the group. Group limits have been allowed by USEPA for purposes of PSD in certain construction permits issued outside of Illinois.

- Address the CO emissions of the casthouse for the blast furnaces, which were not identified in the original application and are not currently addressed by the permit.

- Provide for an increase in usage of natural gas by Project-affected fuel burning units because coke oven gas is no longer available with the shutdown in 2015 of the byproduct coke oven batteries at the facility.

- Update the construction permit to be consistent with the grouping of units in the CAAPP permit for the facility, including addressing discrete material handling operations as a group of units.

- Process the revised construction permit with "Integrated Processing" so that appropriate revisions can be made to the CAAPP permit for the facility by Administrative Amendment rather than by a separate proceeding for a major modification of the CAAPP permit.

- Update Permit 95010001 with a number of minor revisions as requested to US Steel.

Appendix 2:

Brief Descriptions of Deficiencies in the Application Identified in the Draft Denial Letter

- The revised netting analysis for the Production Increase Project (the "Project") for NOx in the 2022 application attempts to show that the Project would still not be a major modification for purposes of Prevention of Significant Deterioration (PSD) or Major Stationary Source Construction and Modification (MSSCAM) with higher permitted emissions of nitrogen oxides (NOx) from the basic oxygen furnaces, as are being requested. However, the revised netting analysis for NOx does not fulfill relevant requirements of the rules governing netting analyses. As a result, the revised analysis does not show that the Project would still not be a major modification for purposes of PSD and MSSCAM with the requested increases in NOx emissions to correct erroneous data in the original application. In addition, for NOx, the application does not address applicable requirements of the PSD and MSSCAM programs that would become applicable as the Project would now be a major modification. As related to the effect of the Project on air quality, these include an air quality impact analysis for nitrogen dioxide (NO_2) under the PSD program and emission offsets for NOx under MSSCAM. As related to control of NOx emissions, this entails use of appropriate control measures for the NOx emissions of the casthouse on the blast furnaces and the stoves associated with the blast furnaces. This is because the Project included physical modifications to the blast furnaces so that the control measures for NOx must reflect Best Available Control Technology (BACT) under PSD and the Lowest Achievable Emission Rate (LAER) under MSSCAM.

  In particular, the application relies on decreases in NOx emissions due to actions at the facility that occurred after 1996, i.e., the shutdown of ten older boilers in 2010 and the shutdown of the by-product coke oven batteries in 2015. These actions are not contemporaneous with the Project, which occurred in 1996. As such, the accompanying decreases in NOx emissions cannot be relied upon to show that the Project should still be considered non-major.

- Certain emissions data underlying the revised netting analysis cannot be independently confirmed by the Illinois EPA.

- The application lacks detailed supporting information for the contribution of various Project-affected fuel burning units to the actual annual NOx emissions under the requested revised permit.

- The application does not show that the proposed groups of operations for the requested "group limits" for annual emissions are appropriate. In this regard, the 2022 application requests that emission limits currently set by Permit 95010001 that apply to emissions of various pollutants from individual emission units or points of emissions from the casthouse on the blast furnaces and the BOFs, which have both captured/controlled emissions and uncaptured emissions, be replaced with limits that apply to the emissions of groups of related emission units. This would not provide for emission limits that only apply to the blast furnaces casthouse and the two BOFs. These are principal emission units at this facility and their emissions should be directly limited separate from the emissions of other units. The construction permits issued by other jurisdictions cited in the application as support for setting group limits do not eliminate the need

for the Illinois EPA to exercise its technical judgment when deciding whether and to what extent to set group limits.

- The 2022 application does not show that certain emission factors that the application requests be prescribed by the revised permit should be considered representative and acceptable. In this regard, the application requests that for certain emission units, the revised permit specify or prescribe the emission factors that are to be used on an ongoing basis for purposes of assessing compliance with limits on emissions set by the permit.

- As related to sulfur dioxide (SO_2) emissions from burning blast furnace gas, a fuel byproduct from the blast furnaces, the 2022 application is inconsistent with an earlier application for revisions to Permit 95010001. This earlier application was submitted in 2008 pursuant to a state consent decree (*People of the State of Illinois v. US Steel Corporation, Inc.*, Madison County Circuit Court No. 05-CH-750 (December 18, 2007)). This earlier application is still pending. It requests revisions to Permit 95010001 to allow more emissions of SO_2 from burning blast furnace gas, both in pounds of SO_2 per million cubic feet of gas burned and in tons per year. However, the current application does not request any such changes and instead states that the limits for SO_2 emissions from blast furnace gas should not be changed.

- The application does not include information to facilitate Integrated Processing of a revised permit, as requested by US Steel. Most significantly, the application does not provide information to support removal of provisions in the CAAPP permit for the now shutdown coke oven batteries and for use of coke oven gas that should not be included in any amended CAAPP permit.

- US Steel has not taken necessary action to enable Integrated Processing of the requested revised permit. This is because it has not initiated the amendment of the CAAPP permit authorized by Permit 11050006, as issued in 2013, which is an earlier construction permit that was subject to Integrated Processing. That permit addresses the addition of the baghouse control system to the BOFs to improve control of particulate emissions from charging and tapping of these furnaces. Prior to installation of the baghouse system, the particulate emissions from charging and tapping were only controlled with the electrostatic precipitator (ESP) control system.

- There are also a number of other lesser deficiencies in the 2022 application that also warrant the denial of this application.

LaDonna Driver
Licensed in Illinois
Direct Dial: 217-993-6073
nld@heplerbroom.com

HeplerBroom LLC

4340 Acer Grove Drive
Springfield, IL 62711
Ph: 217-528-3674
Fx: 217-528-3964

EDWARDSVILLE (Madison County), IL
SAINT LOUIS, MO • CHICAGO, IL
SPRINGFIELD, IL • CRYSTAL LAKE, IL
HAMMOND (Lake County), IN

www.heplerbroom.com

September 11, 2023

RECEIVED
SEP 11 2023
Community Relations
Illinois EPA

Via Hand Delivery and Electronic Mail

Mr. Brad Frost
Office of Community Relations
Illinois Environmental Protection Agency
PO Box 19506
Springfield, Illinois 62794-9506
brad.frost@illinois.gov

Re: Comment Letter
United States Steel Corporation – Granite City Works
Notice of Intent to Deny Application for Revision to
Construction Permit/PSD Approval (Permit/Application No. 95010001)
ID No. 119813AAI

Dear Mr. Frost:

This letter is written on behalf of my client, United States Steel Corporation ("USSC"). Attached to this letter are comments prepared by USSC in response to the Illinois Environmental Protection Agency's ("Illinois EPA") Notice of Intent to Deny Application for Revision to Construction Permit/PSD Approval for the USSC Granite City Works. The Notice was posted on Illinois EPA's Public Notice website on July 21, 2023 and had an original deadline of August 21, 2023 for submittal of comments. On August 17, 2023, USSC submitted a request for an extension of the comment period. On August 18, 2023, Illinois EPA granted that request and extended the deadline for submitting comments to September 11, 2023. The comments attached to this letter are therefore timely submitted.

We appreciate the opportunity to submit comments on the Notice of Intent, as well as Illinois EPA's careful consideration of our comments.

Sincerely,

N. LaDonna Driver

N. LaDonna Driver

Enclosure

Comments of the United States Steel Corporation - Granite City Works

Notice of the Intent to Deny Application for Revision to Construction Permit/PSD Approval (Permit/Application No. 95010001

While it is with great disappointment that U. S. Steel received Illinois EPA's notice of intent to deny the pending permit application, we respectfully request that the Agency reconsider its preliminary decision and work with U. S. Steel on resolving any outstanding issues. We also request to meet with Illinois EPA in the interest of reaching resolution considering many of the reasons that Illinois EPA raises in its proposed denial were not known to U. S. Steel until it received the notice (or very shortly beforehand) notwithstanding the parties met several times to discuss the permit application. U. S. Steel also notes that Illinois EPA did not notify U. S. Steel of any deficiency in the application or information submitted in such application pursuant to 35 Ill. Admin. Code 201.158 and 204.1300 or 415 ILCS 5/39.5(5). We are greatly disappointed that the Agency took this path, when many of the issues, as explained herein, could have been efficiently resolved if the Illinois EPA raised them during the years while the permit application was pending as is customary. U. S. Steel also notes that the permit application is for a revision to a previously issued PSD permit (as issued to National Steel Corporation in 1996) to a source that has been and continues to operate; and is not a request for a new major modification – and, therefore, the scope of the review is more limited and the process is substantially different than when compared to a major modification or a revision to a PSD permit for a source that has yet to operate.

In Section I below, U. S. Steel addresses Illinois EPA's stated reasons for its proposed denial of the pending permit application, as required by Section 39 of the Illinois Environmental Protection Act and as summarized in the draft denial letter. In Sections II through XIII below, U. S. Steel addresses the denial points listed in Attachment 1 to the draft denial letter.

I. U. S. STEEL DISAGREES WITH ILLINOIS EPA REGARDING WHETHER ISSUANCE OF THE REQUESTED PERMIT REVISION WOULD VIOLATE PROVISIONS OF THE ILLINOIS ENVIRONMENTAL PROTECTION ACT OR THE REGULATIONS OF THE POLLUTION CONTROL BOARD

Illinois EPA proposes to deny the permit application, at least in part, because Illinois EPA preliminarily determined that Section 9.1 of the Illinois Environmental Protection Act *might be violated.* Neither Attachment 1 to the draft denial letter nor the accompanying Project Summary makes any mention of Section 9.1 or provides any indication as to how issuance of the requested permit revision *might violate* this provision. Because the notice is unclear as to what precisely "might be violated," U. S. Steel cannot substantively respond to this assertion. The ambiguity in the stated reason for the proposed denial violates due process. In addition, this assertion inappropriately shifts the burden on U. S. Steel to prove the negative; as Illinois EPA has not shown how or what would be violated. That being said, U. S. Steel is willing to discuss Illinois EPA's assertion such that meaningful discussions can potentially lead to resolution of the issue.

Illinois EPA proposes to deny the permit application, at least in part, because Illinois EPA preliminarily determined that Section 39 of the Illinois Environmental Protection Act might be

violated. Neither Attachment 1 to the draft denial letter nor the accompanying Project Summary makes any mention of Section 39. Section 39(a) states that "it shall be the duty of the Agency to issue …a permit upon proof by the applicant that the facility, equipment, vehicle, vessel, or aircraft will not cause a violation of this Act or of regulations hereunder." As set forth further herein, U. S. Steel maintains that its application demonstrates that the facility and equipment at issue in the application will not cause a violation of the Illinois Environmental Protection Act or the regulations thereunder. Therefore, it is Illinois EPA's duty, under the statute, to proceed with permit issuance. Section 39(a) further provides:

> If the Agency denies any permit under this Section, the Agency shall transmit to the applicant within the time limitations of this Section specific, detailed statements as to the reasons the permit application was denied. Such statements shall include, but not be limited to, the following:
>
> (i) the Sections of this Act which may be violated if the permit were granted;
>
> (ii) the provision of the regulations, promulgated under this Act, which may be violated if the permit were granted;
>
> (iii) the specific type of information, if any, which the Agency deems the applicant did not provide the Agency; and
>
> (iv) a statement of specific reasons why the Act and the regulations might not be met if the permit were granted.

For the various reasons set forth herein, U. S. Steel maintains that the draft permit denial does not satisfy the above requirements. To summarize the matters discussed in this comment: the Illinois EPA has not clearly specified how certain provisions of the Act and regulations might not be met if the permit were granted; for those areas where certain provisions of the Act and regulations are specified, Illinois EPA is incorrect that those provisions would be violated if the permit were granted; and where the Illinois EPA has asserted that information was not provided to the Agency, U. S. Steel is providing that information here, is directing the Illinois EPA to the information in the application, or describes why such information is not pertinent to the issues at hand. Accordingly, Illinois EPA should not issue the proposed permit denial. As stated herein, U. S. Steel stands ready to work with Illinois EPA to resolve any remaining concerns for permit issuance.

Illinois EPA proposes to deny the permit application, at least in part, because Illinois EPA preliminarily determined that subsections 39.5(13)(a) and (c)(v) of the Illinois Environmental Protection Act, pertaining to administrative amendments of Clean Air Act Permit Program ("CAAPP") permits, might be violated. Neither Attachment 1 to the draft denial letter nor the accompanying Project Summary provides any indication as to how issuance of the requested permit revision might violate these provisions; indeed, the only discussion of these provisions in Attachment 1 is a determination by Illinois EPA that the administrative amendment process can be used only to amend "the current CAAPP permit." U. S. Steel agrees with this determination. U. S. Steel further notes that, because the listed subsections of the Illinois Environmental Protection Act relate only to the CAAPP, it would be inappropriate to deny the application for a revision of the construction permit

and PSD approval based on a failure to satisfy these statutory provisions, as discussed in Section XIII.A herein.

Illinois EPA proposes to deny the permit application, at least in part, because Illinois EPA preliminarily determined that subsections 39.5(5)(c) and 39.5(10)(a)(i) of the Illinois Environmental Protection Act might be violated. Neither Attachment 1 to the draft denial letter nor the accompanying Project Summary makes any mention of subsections 39.5(5)(c) or 39.5(10)(a)(i) or provides any indication as to how issuance of the requested permit revision might violate these provisions. The draft denial letter states that the application does not satisfy the requirement for a certification of truth, accuracy, and completeness in subsection 39.5(5)(e); this is not a valid basis for denial of the permit application for the reasons discussed in Section III herein.

Illinois EPA proposes to deny the permit application, at least in part, because Illinois EPA preliminarily determined that 35 Ill. Adm. Code Sections 203.128 and 204.560 might be violated. The cited rule provisions are definitions, not affirmative requirements, and cannot be violated.

Illinois EPA also proposes to deny the permit application, at least in part, because Section 201.142 and Section 201.160 might be violated. However, the Illinois EPA's basis for this assertion is unclear as it simply states that these sections "might be violated" with no supporting information. Nowhere in the letter or in Attachment 1 does Illinois EPA discuss and provide any explanation of this proposition. For this reason, U. S. Steel is unable to respond to the ambiguous claim. Furthermore, simply stating that something might be violated without providing supporting information cannot be used as the basis to deny a permit application.

Illinois EPA proposes to deny the permit application, at least in part, because Illinois EPA preliminarily determined that 35 Ill. Adm. Code Sections 203.601, 203.602, 204.1100, 204.1110, 204.1120 and 204.1130 might be violated. These claims, which relate to the Prevention of Significant Deterioration ("PSD") and Nonattainment New Source Review ("NNSR") programs under the federal Clean Air Act, are without merit for the reasons discussed in Sections VI through VIII below.

II. THE PERMIT APPLICATION SATISFIES 35 ILL. ADM. CODE SECTION 201.159

In Attachment 1 to the draft denial letter, Illinois EPA asserts that the pending permit application "does not include a signed certification for the truth, accuracy and completeness of this application as it was actually submitted in October 2022, as required by 35 IAC 201.159" and that "the 2022 application includes a photocopy of an earlier certification, dated February 25, 2022, which was submitted with a prior application." These assertions are incorrect in several respects.

First, the agency misrepresents the requirements of the cited rule provision, which are as follows. There is no requirement for a certification of truth, accuracy, and completeness.

> All applications and supplements thereto shall be signed by the owner and operator of the source, or their authorized agent, and shall be accompanied by evidence of authority to sign the application.

Second, the application that the agency refers to as the "2022 application" is actually a construction permit application submitted on March 2, 2020. This permit application includes a completed 199-CAAPP form, with a certification signed and dated February 25, 2020, and a completed 197-FEE and form, with a check for the application fee of $23,000 and a certification signed and dated February 25, 2020.

A supplement to the permit application was submitted in October 2022. As required by 35 Ill. Adm. Code Section 201.159, the supplement was signed by Michael Patton, the General Manager of the Granite City Works. No application fee was provided, as is appropriate for a supplement to a pending application for a construction permit.

The list of statutory and regulatory requirements presented in the draft denial letter does not include any reference to 35 Ill. Adm. Code Section 201.159, so it is unclear whether these assertions in Attachment 1 to the draft denial letter are intended to support Illinois EPA's proposed denial of the application. If these assertions are so intended, U. S. Steel disagrees that this is a valid basis for denial of the application for the reasons described above.

Furthermore, U. S. Steel notes that, while Illinois EPA had the permit application supplement for months, and virtually met with U. S. Steel to discuss the pending permit application and the supplement, the Agency never requested such a new certification.

III. A SIGNED CERTIFICATION OF TRUTH, ACCURACY, AND COMPLETENESS IS PROVIDED HEREWITH

In Attachment 1 to the draft denial letter, Illinois EPA asserts that the pending permit application "does not include a signed certification for the truth, accuracy and completeness of this application as it was actually submitted in October 2022" and that such a certification is required by Section 39.5(5)(e) of the Illinois Environmental Protection Act. This is not a valid basis for denial of the permit application for the following reasons.

As noted in Section II above, the agency mischaracterizes the October 2022 submittal as a new or separate permit application, as it is merely a supplement to the permit application submitted in March 2020. In the transmittal letter for the supplement, and for administrative convenience U. S. Steel suggested that Illinois EPA refer to the supplement rather than to the initial submittal from March 2020 because, as requested by Illinois EPA staff following review of the initial permit application submittal, the sections of the permit application were reordered.[1] The cited provision of the Illinois Environmental Protection Act requires that each submitted permit application include a certification, but it does not expressly require a separate certification for each supplement to a permit application.

Nonetheless, and without waiving any rights or defenses, U. S. Steel is providing a new certification of the truth, accuracy and completeness of the supplement that was submitted in October 2022 as Exhibit 1 with these comments. Accordingly, even if Illinois EPA's interpretation of Section 39.5(5)(e) of the Illinois Environmental Protection Act is correct and a separate certification is

[1] For example, the sections summarizing changes to CO emissions and presenting proposed Best Available Control Technology ("BACT") determinations for CO emissions were sections 3 and 4 of the initial permit application and were sections 4 and 8 of the supplement, and these sections were cross-referenced in sections 1 and 2 of each submittal.

required for each supplement to a pending permit application, that requirement is now satisfied and this claimed deficiency is no longer a valid basis for denial of the permit application. Furthermore, this issue could easily have been avoided if IEPA simply made a request to certify the supplement. U. S. Steel has worked collaboratively with Illinois EPA in responding to inquiries and requests.

IV. PURPORTED FAILURE TO BE CONSISTENT WITH PENDING BOARD APPEALS

In Attachment 1 to the draft denial letter, Illinois EPA asserts that the application must be denied because it does not individually address all items that are currently under appeal with the Illinois Pollution Control Board. In particular, Illinois EPA claims, "the application is not consistent with two pending permit appeals before the Board, PCB 0013-53 and PCB 0013-62." Quite strikingly, Illinois EPA cites to no Board order or regulatory or statutory citation to support its assertion. This is for good reason, as there is none. The assertion is without merit. Although it is logical that Illinois EPA might inquire about contested provisions in the appeals before the Board that may appear to be absent in the application, the absence of such mention is not grounds for denying the permit application. Furthermore, the permit application submitted in March 2020 and supplemented in October 2022 has been pending for more than three years, during which time Illinois EPA and U. S. Steel met in person and virtually on several occasions to discuss the PSD permit revisions, yet only in the proposal to deny the permit application did U. S. Steel learn of Illinois EPA's apparent contention that U. S. Steel was obligated to address individually in its permit application all items that are currently under appeal with the Illinois Pollution Control Board. U. S. Steel's understanding from these discussions was that, with satisfactory issuance of the revised permit, the pending appeals could be dismissed in their entirety. U. S. Steel would be pleased to discuss Illinois EPA's concerns in the context of the appeal before the Board, but the Agency cannot claim these differences as a basis to deny the permit application.

V. PURPORTED INCONSISTENCY BETWEEN THIS PERMIT APPLICATION AND THE PERMIT APPLICATION SUBMITTED IN 2008 REQUESTING REVISIONS RELATING TO SO_2 EMISSIONS

In Attachment 1 to the draft denial letter, Illinois EPA asserts that the application must be denied because it "is inconsistent with" a separate permit application submitted in 2008.

Unfortunately, the Illinois EPA has not acted on the 2008 application. That application was submitted in accordance with the Consent Decree between U. S. Steel and the Illinois EPA. (*See, People of the State of Illinois v. United States Steel Corporation,* No. 05-CH-750, Third Judicial Circuit, Madison County.) The 2008 application was submitted based on limited information that was available at the time, and subsequent information indicates that when averaged over the year, the emission factor in the existing permit is appropriate. This topic was discussed with the Illinois EPA as the permit application submitted in 2020 was pending; and the Illinois EPA did not object to this development at the time. To now claim that this discrepancy serves as a basis to deny the PSD application is disingenuous. U. S. Steel cannot simply withdraw the 2008 permit application at this time but would do so following issuance of the revised PSD permit, pursuant to the permit application submitted in 2020 and supplemented in 2022, and termination of the Consent Decree. U. S. Steel has indicated it would work with Illinois EPA on that process and remains committed and willing to do so.

VI. THE PERMIT APPLICATION IS SUFFICIENT AS TO THE PSD AIR QUALITY IMPACTS ANALYSIS FOR CARBON MONOXIDE

The Production Increase Project was a major modification under the preconstruction PSD permitting program because it involved physical and operational changes that would result in a significant net increase in emissions of carbon monoxide (CO). National Steel Corporation, then the owner and operator of Granite City Works, submitted a PSD permit application for this project in 1995. Illinois EPA determined that this PSD permit application included all necessary information and granted PSD approval for the project in conjunction with issuance of Permit No. 95010001 on Jan. 25, 1996. One of the key requirements of the preconstruction PSD permitting program, which Illinois EPA determined had been satisfied by National Steel Corporation's 1995 permit application, is an air quality impact analysis—a demonstration by the applicant that the project will not cause or contribute to a violation of any national ambient air quality standard for CO. 40 CFR § 52.21(k).

As explained in the permit application submitted by U. S. Steel in March 2020 and supplemented in October 2022, recent information suggests that some of the emissions data relied upon by Illinois EPA in issuing Permit No. 95010001 in 1996 is not representative. Therefore, during informal discussions between Illinois EPA and U. S. Steel, the parties agreed that corrective updates to these data and to the CO air quality impact analysis is appropriate. The pending permit application includes such updated analysis.

In Attachment 1 to the draft denial letter, Illinois EPA indicates that a basis for the denial of the permit application is that the updated CO air quality impact analysis "cannot be relied upon because the inventory for the CO emissions of the source with the Project does not address all CO emissions or otherwise explain why the CO emissions of certain units need not be considered." In particular, Illinois EPA indicates it has "concern" there may be some CO emissions from the Basic Oxygen Furnace Shop Roof Monitor which are not reflected in the air quality impact analysis and also suggests that the analysis should "consider the CO emissions of the former by-product coke oven batteries at the source." In addition, Illinois EPA asserts that the ambient background CO concentration data used by U. S. Steel, gathered by Illinois EPA during the period of three calendar years from 2016 through 2018, are "not necessarily appropriate as a representation of either current ambient air quality or the historic air quality at the time that the Project was originally permitted."

None of the concerns listed by Illinois EPA are deficiencies warranting denial of the permit application. Illinois EPA does not identify any provision of the Illinois Environmental Protection Act or the Illinois Administrative Code requiring that a request for revision of a PSD approval include any of the listed information, nor does the agency point to even an application form or guidance document suggesting that such information be provided. Of course, Illinois EPA retains authority to request additional documentation in conjunction with a construction permit application,[2] but that was not done here.

[2] *See, e.g.,* 35 Ill. Adm. Code Section 201.152 ("The Agency may adopt procedures that require data and information in addition to and in amplification of the matters specified in the first sentence of this Section, that are reasonably designed to determine compliance with this Chapter and ambient air quality standards, or that set forth the format by which all data and information shall be submitted.").

As it relates to the possibility of CO emissions from the Basic Oxygen Furnace Shop Roof Monitor, U. S. Steel responds further as follows: Illinois EPA's prior determination that the Production Increase Project would not cause or contribute to a violation of any national ambient air quality standard for CO was based on the agency's assumption that there are no CO emissions from this point. In the pending permit application, U. S. Steel did not request any changes to existing permit terms relating to this emission point. Illinois EPA has neither requested that U. S. Steel's updated CO air quality impacts analysis include any emissions from this emission point, nor has the agency provided a quantitative estimate of those emissions. In the absence of such a request, U. S. Steel had no reasonable basis to conclude that the agency had reconsidered its prior determination as relating to CO emissions from the Basic Oxygen Furnace Shop Roof Monitor; it was therefore reasonable for U. S. Steel to conclude that its updated CO air quality impacts analysis, with revisions to the CO emission rates only for those emission points where the parties agreed that National Steel Corporation's modeled rates should be corrected, was sufficient for the purpose of requesting revisions to the permitted CO emissions from certain combustion units burning blast furnace gas and/or natural gas and affected by Production Increase Project.

As it relates to historical CO emissions from the by-product coke oven batteries that were operated by National Steel Corporation at the time the PSD approval was granted by Illinois EPA in 1996, U. S. Steel responds further as follows: It is unclear to U. S. Steel whether this observation relates to the demonstration that was approved by Illinois EPA in 1996 or to the demonstration submitted by U. S. Steel in March 2020 and supplemented in October 2022. If the former, then U. S. Steel notes that those emissions were, in fact, included.[3] If the latter, then U. S. Steel notes that it is not requesting PSD approval or other authorization for CO emissions from by-product coke oven batteries and that there is no basis for considering emissions under a counterfactual scenario in evaluating whether a requested change will cause or contribute to a violation of any national ambient air quality standard.

Finally, as it relates to the use of 2016-2018 background CO concentration data, U. S. Steel responds further as follows: These data were the most current quality-assured data available at the time of U. S. Steel's submittal of the pending permit application in March 2020 and use of these data was approved by Illinois EPA following its review of U. S. Steel's dispersion modeling protocol in February 2020. U. S. Steel agrees that the 2016-2018 background CO concentration data are less current now than they were at the time of permit application submittal. Currentness of air quality data is one aspect of the permit application review process that is ensured by compliance with the procedural requirements relating to timely processing of permit applications.[4]

VII. THE PERMIT APPLICATION IS SUFFICIENT AS TO BEST AVAILABLE CONTROL TECHNOLOGY

A. Introduction

The pertinent provision of the PSD rule governing the required contents of the permit application pertaining to establishment of Best Available Control Technology ("BACT") is a requirement to include in the application:

[3] *See, e.g.,* permit application supplement submitted by National Steel Corporation Jan. 16, 1996, at Table 5-8.
[4] *See,* 35 Ill. Adm. Code Section 201.158 (providing that a permit application shall be deemed to have been filed 30 days after submittal if Illinois EPA has not notified the applicant that it is incomplete) and 42 U.S.C. § 7475(c) (requiring final action on a PSD permit application not later than one year after filing).

> A detailed description as to what system of continuous emission reduction is planned for the source or modification, emission estimates, and any other information necessary to determine that best available control technology would be applied. 40 CFR § 52.21(n)(1)(iii).[5]

It is undisputed that the permit application includes estimates of the CO emissions from the casthouse and the blast furnace stoves as well as a detailed description of the systems of continuous emission reduction that U. S. Steel plans to use to control these emissions.

In Attachment 1 to the draft denial letter, Illinois EPA asserts that the application "lacks necessary information" for the agency to make BACT determinations for the casthouse and the blast furnace stoves.

B. CO Emissions from Blast Furnace Casthouse

For the casthouse, as discussed in Section 8.2.3 of the permit application, the only control options identified by U. S. Steel for potential consideration in a BACT determination by Illinois EPA are add-on air pollution control equipment options—specifically, installation and use of a capture system and some type of incinerator. Illinois EPA asserts that this part of the permit application is deficient because it provides neither an explanation of "why process-related control options are not available" nor, with respect to the literature search conducted by U. S. Steel that did not identify any process-related control options for CO emissions from blast furnace casthouses, "documentary support for the review of available control options that was conducted." It is unclear to U. S. Steel how it would be helpful to Illinois EPA's BACT determination to have copies of reports that contain no pertinent information, and it is even more unclear how U. S. Steel might be expected to know, without receiving from Illinois EPA a request for specific additional information, which reports containing no pertinent information would be most valuable for this purpose. As to the first of the purported deficiencies listed by Illinois EPA—the failure to explain why no process-related control options are available for controlling CO emissions from the blast furnace casthouse—U. S. Steel notes that Illinois EPA is familiar with the chemical reaction that is intentionally forced to occur in the casthouse as an inherent part of the ironmaking process.[6] Having not received from Illinois EPA a request for specific additional information, U. S. Steel had no way to know that it was necessary to explain in the permit application that the partial combustion of coke inevitably yields carbon monoxide as a reaction product.

U. S. Steel also notes that, as it pertains to CO emissions from the casthouse, U. S. Steel has not requested any changes to its current permits and is currently subject neither to any numeric emission limitations nor to any work practice requirements other than those in 40 CFR part 63, subpart FFFFF. U. S. Steel did not include any information pertaining to BACT for CO emissions from the casthouse in the initial permit application submitted in March 2020; at the request of Illinois EPA, although

[5] *See, also,* the current PSD rule at 35 Ill. Adm. Code Section 204.810(a)(3).

[6] *See, e.g.,* "Statement of Basis for the Planned Issuance of a Revised Clean Air Act Permit Program (CAAPP) Permit for: United States Steel Corporation, Granite City Works," Illinois EPA (Feb. 4, 2013) at 4 ("The charge materials (iron ore, coke, limestone and other flux material) are fed into the furnace at the top through a double-bell lock system. Heated air is blown into the furnace through nozzles or tuyeres near the bottom of the furnaces. In the furnaces, the coke undergoes partial combustion to carbon monoxide providing the heat to melt the charge as well as reducing the iron ore to elemental iron.")

under no obligation to do so,[7] U. S. Steel voluntarily provided a proposed BACT analysis for CO emissions from the casthouse in the permit application supplement submitted in October 2022. Illinois EPA's proposed denial of the permit application will simply ensure the status quo is maintained, *i.e.*, that U. S. Steel is not subject to any limitations on CO emissions from the casthouse.

C. CO Emissions from Blast Furnace Stoves

In the permit application it submitted in 1995, National Steel Corporation made the following proposal:

> Therefore the BACT recommendation for control of CO emissions from the blast furnace stoves is the maintenance of good combustion practices.[8]

As described in Section 8.1 of the permit application, Illinois EPA reviewed this proposal and agreed with it, determining that work practices constitute BACT for CO emissions from the blast furnace stoves at Granite City Works.

As discussed in Section 8.2.1.1 of the permit application, this determination is consistent with the PSD rule requirements, which expressly provides for a PSD permit to prescribe work practices to satisfy the BACT requirement where the permitting authority "determines that technological or economic limitations on the application of measurement methodology to a particular emissions unit would make the imposition of an emissions standard infeasible." 40 CFR § 52.21(b)(12).[9]

In 2013, when issuing the CAAPP permit for the Granite City Works, Illinois EPA again determined that work practices suffice for purposes of demonstrating compliance with the applicable requirements of Permit No. 95010001.[10]

In Section 8.2.2.6 of the permit application, in the discussion of step 5 of the proposed BACT analysis for CO emissions from the blast furnace stoves, U. S. Steel stated as follows:

> USS Granite City is proposing work practice requirements rather than numeric limits as BACT. Numeric emission limitations are not proposed because direct measurement of emissions—*i.e.*, use of U.S. EPA reference test methods—is not feasible for any of the fuel emissions units subject to the BACT requirements for CO emissions. In particular, for the stack serving the blast furnace A stoves, there is no sampling port,[45] and for the stack serving the blast furnace B stoves there is no sampling port satisfying the location requirement in U.S. EPA Reference Method 1.[46] Each stack is refractory lined and is believed to be approximately one hundred years old.
>
> For the reasons presented above, numeric CO emission standards are not feasible for the blast

[7] *See, e.g., U.S. v. Midwest Generation, LLC*, 781 F. Supp. 2d 677 (N.D. Ill. 2011)(holding that source owner's obligations with respect to BACT are limited to those imposed in a PSD permit).
[8] *See*, permit application supplement submitted by National Steel Corporation Oct. 30, 1995, at p. 4-11.
[9] *See, also*, the current PSD rule at 35 Ill. Adm. Code Section 204.280.
[10] *See*, CAAPP Permit No. 96030056 at Condition 7.4.12.b, stipulating that compliance with all applicable requirements for the stoves and certain other processes are demonstrated by meeting "the work practices, testing, monitoring, recordkeeping, and reporting requirements in Sections 7.4 and 5 of this permit;" note that the permit does not include any testing, monitoring, recordkeeping, or reporting requirements specific to the blast furnace stoves.

> furnace stoves.

Footnote 45. For the one-time exhaust gas sampling event discussed in footnote 19 of this permit application, USS Granite City inserted a sampling probe into the stack through a pipe used to inject steam into the stack.

Footnote 46. Appendix A-1 to 40 CFR part 60.

In Attachment 1 to the draft denial letter, Illinois EPA makes the following assertion:

> Further support is needed for the claim that measurement or testing of emissions of the blast furnace stoves is infeasible. While certain information about the stoves is provided, the application does not directly address the technological issues or costs that would be entailed to install suitable ports for testing on one or both sets of blast furnace stoves. For example, the application does not include diagrams for the existing ductwork of the stoves to address whether the configuration of this ductwork would accommodate installation of test ports at a location that would satisfy USEPA Reference Method 1. The application also does not show how the refractory lining on the stacks or their age, approximately one hundred years old, would present significant technical challenges and costs so that the installation of test ports at a suitable location should be considered infeasible. The application also does not show that there are other challenges that would need to be addressed or issues that should be considered, such as requirements of the Occupational Safety and Health Administration (OSHA), that would affect the technical feasibility and cost of installing suitable test ports on the stoves.

With respect to both Illinois EPA's general suggestion that "further support" is needed and its list of specific examples, Illinois EPA does not identify any provision of the Illinois Environmental Protection Act or the Illinois Administrative Code requiring that a permit application include any particular supporting information, nor does the agency point to even an application form or guidance document suggesting that such documentation or additional explanation be provided. Notably, the documentation provided in the permit application supplement submitted in October 2022 regarding infeasibility of emissions testing is more extensive than the documentation provided in the permit application submitted by National Steel Corporation in 1995 and accepted by Illinois EPA when issuing Permit No. 95010001 in 1996. U. S. Steel's permit application includes all information required by the applicable permitting rules—including the PSD rule—relating to BACT for CO emissions from the blast furnace stoves at Granite City Works. Of course, Illinois EPA retains authority to request additional documentation in conjunction with a construction permit application,[11] but that was not done here.

D. Emissions Associated with Combustion of Coke Oven Gas

In Attachment 1 to the draft denial letter, Illinois EPA asserts that the permit application is deficient because it "does not demonstrate that prior to February 2015, when the by-product recovery coke oven batteries at the Granite City Works were shut down and [coke oven gas] ceased to be available, BACT was being utilized for the SO_2 and CO emissions from use of [coke oven gas] in the stoves." U.

[11] *See, e.g.*, 35 Ill. Adm. Code Section 201.152 ("The Agency may adopt procedures that require data and information in addition to and in amplification of the matters specified in the first sentence of this Section, that are reasonably designed to determine compliance with this Chapter and ambient air quality standards, or that set forth the format by which all data and information shall be submitted.").

S. Steel acknowledges that the BACT determination made by Illinois EPA in 1996, in response to the permit application submitted by National Steel Corporation in 1995, may have been deficient in this regard. Nonetheless, Illinois EPA's assertion that any such historical deficiency is relevant to U. S. Steel's pending permit application is entirely without merit.[12]

VIII. PSD AND NNSR APPLICABILITY WITH RESPECT TO NO_X EMISSIONS

A. Lack of Clarity in Illinois EPA's Claims

Attachment 1 to the draft denial letter at paragraph 1 suggests that the permit application is deficient because it does not include or otherwise address the substantive requirements of the PSD and NNSR programs with respect to NO_X emissions. However, in its evaluation of whether the Production Increase Project is or would become a major modification, Illinois EPA appears to take into account emissions and emissions increases that were authorized by Illinois EPA at the time Permit No. 95010001 was issued to National Steel Corporation.[13] In addition, in summarizing its review of the updated net emissions increase ("netting") analysis provided in the permit application, Illinois EPA conspicuously avoids using the controlling language of the source obligation provisions, discussed in detail in Section VIII.B below, but rather states that the application "does not show that the Project would still not be a major modification for NO_X." In this regard, Illinois EPA's assertions regarding applicability of the substantive requirements of the PSD and NNSR programs with respect to NO_X emissions are ambiguous: U. S. Steel cannot determine from the draft denial letter and associated documents whether Illinois EPA is claiming that the Production Increase Project as authorized by Illinois EPA and as implemented by National Steel Corporation prior to U. S. Steel's ownership was a major modification subject to the substantive requirements of the PSD and NNSR programs or, instead, if Illinois EPA is claiming that the measures required by Permit No. 95010001 as issued to National Steel Corporation were sufficient to ensure the Production Increase Project would not be a major modification and that the project would become a major modification solely by virtue of the relaxations requested by U. S. Steel.

For purposes of these comments, U. S. Steel has assumed Illinois EPA's claims fall into the latter category, *i.e.*, that the Production Increase Project would become a major modification for NO_X solely by virtue of the requested relaxations.

---

[12] *See, e.g., U.S. v. Midwest Generation, LLC*, 781 F. Supp. 2d 677 (N.D. Ill. 2011)(holding that source owner's obligations with respect to BACT are limited to those imposed in a PSD permit).

[13] *See, e.g.,* Attachment 1 at p. 4, suggesting that the updated applicability analysis should include "'future' NO_X emissions" from Boilers 1 through 10 based on the configuration of those boilers as they existed at the time the Production Increase Project was implemented by National Steel and at the time U. S. Steel purchased the assets in 2003, notwithstanding the fact that those boilers are prohibited from operating currently and in the future; Attachment 1 at p. 4, suggesting that the updated applicability analysis should include greater NO_X emission rates from Boilers 11 and 12 based on the configuration of those boilers as they existed at the time the Production Increase Project was implemented by National Steel and at the time U. S. Steel purchased the assets in 2003, notwithstanding the fact that the Boilers are prohibited from operating at those emission rates currently and in the future; Attachment 1 at p. 4, suggesting that the updated applicability analysis should include greater NO_X emission rates from Boilers 11 and 12 and from the blast furnace stoves based on the use of coke oven gas as fuel in those units at the time the Production Increase Project was implemented by National Steel and at the time U. S. Steel purchased the assets in 2003, notwithstanding the fact that coke oven gas is not an available fuel at the facility currently or in the future.

B. Source Obligation

Under the PSD and NNSR programs as in effect at the time of the Production Increase Project, where the project involved changes to existing emissions units that are so significant that the emissions unit was deemed not to have begun normal operation, the post-change actual emissions of that unit are assumed equal to its potential to emit. 40 CFR § 52.21(b)(21).[14] The major modification applicability test was therefore based on a comparison of the pre-project actual emissions and the post-project potential to emit of the emissions unit or group of units. 40 CFR §§ 52.21(b)(2)-(3). An emissions unit's potential to emit is its maximum capacity to emit a pollutant under its physical and operational design. 40 CFR § 52.21(b)(4). Limitations on the capacity to emit a pollutant are treated as part of the design of an emissions unit or group of units if the limitation or the effect it would have on emissions is legally enforceable and enforceable as a practical matter. Where the potential to emit of a unit or group of units is governed by enforceable limitations rather than by the unrestricted physical capacity of that unit or those units, and where those limitations were necessary to a determination that a project was not a major modification, the term "synthetic minor" is commonly used to describe the project and the associated limitations.

As explained in detail in Section 2.2.4 of the permit application, the PSD and NNSR rules provide that after-the-fact PSD or NNSR permitting is required when a project becomes a major modification "solely by virtue of a relaxation in" a synthetic minor limitation. 40 CFR § 52.21(r)(4).[15] These "source obligation" provisions effectively require updated PSD and NNSR applicability analyses in situations where the applicant proposes to relax a synthetic minor limitation in a permit.

Applicability analyses performed in order to determine whether the source obligation provisions apply in conjunction with a requested relaxation are prospective, not retrospective. All of the facts as they will exist at the time of the requested relaxation are considered in the updated emissions increase calculations; there is no consideration of facts as they may have existed at some prior point in time and no "mixing" of facts from different points in time.[16]

The updated NO_X emissions increase calculations presented in the permit application fully conform to and satisfy the source obligation provisions of the PSD and NNSR rules. U. S. Steel's prospective calculation of potential NO_X emissions from the certain fuel combustion units affected by the Production Increase Project includes zero emissions from Boilers 1 through 10, which accurately represents the future potential to emit of those boilers because they no longer exist; does not include

[14] Except as noted, all citations to the applicable PSD rules herein are to the federal PSD rule as codified and in effect at the time of issuance of Permit No. 95010001 in 1996; where the corresponding provision of the then-effective NNSR rule is equivalent, separate citations are not provided.

[15] *See, also,* the current PSD rule at 35 Ill. Adm. Code Section 204.850.

[16] *See, e.g.*, letter from S.C. Riva, U.S. EPA, to R. Frontanes, Pfizer Pharmaceuticals LLC (Sept. 23, 2015), conveying U.S. EPA's non-applicability determination for proposed relaxation of synthetic minor limitations that had been imposed in 1994 in order to establish synthetic minor status with respect to NO_X emissions from a project that involved installation of five diesel generators and two boilers. The synthetic minor limitations imposed in 1994 established the combined potential to emit NO_X from the seven new units at 56 tons per year; if the combined potential to emit had been 65 tons per year or more, the project would have been a major modification. U.S. EPA's 2015 applicability determination allowed relaxation of the limitations such that the new potential to emit would be 90 tons per year; the agency's source obligation analysis relied on the fact that other facts had changed during the intervening time period and it gave no consideration to the fact that, had the combined potential to emit been 90 tons per year historically, the project would have been a major modification.

the greater NO_X emission rates of Boilers 11 and 12 prior to the required retrofit of flue gas recirculation in those boilers; and includes zero emissions from combustion of coke oven gas as fuel, which accurately represents the future emissions of units that previously burned coke oven gas because coke oven gas is no longer an available fuel at the facility. As discussed further in Sections VIII.C and VIII.D below, if Illinois EPA revises Permit No. 95010001 with the requested relaxations and other changes to the limitations in the permit currently in effect, the Production Increase Project will not become a major modification solely due to those relaxations.

C. Project Emissions Increases and Net Emissions Increases

By definition, the net emissions increase from a project is the sum of two values: The increase in actual emissions from the project and "[a]ny other increases and decreases in actual emissions at the source that are contemporaneous with the particular change and are otherwise creditable." 40 CFR § 52.21(b)(3)(i).

Illinois EPA proposes to deny the permit application, at least in part, because Illinois EPA preliminarily determined that "additional decreases in NO_X emissions that would now be proposed to be relied upon" by U. S. Steel are not contemporaneous and otherwise creditable.[17] This preliminary determination is erroneous for three reasons.

First, to the extent that Illinois EPA's analysis includes separate calculations of increases and decreases based on specific fuels and changes in fuels, those calculations are inconsistent with the PSD and NNSR rule requirements. As described previously, the major modification applicability test requires a comparison of the pre-project actual emissions of the emissions unit or group of units with the post-project actual emissions (or potential to emit) of that emissions unit or group of units; the applicable definition of actual emissions does not provide for a calculation that considers only some portions of the units' emissions. For the certain fuel combustion units affected by the Production Increase Project, the change in actual NO_X emissions is properly calculated as the total post-project actual NO_X emissions, regardless of the fuel or fuels being burned to generate those emissions, minus the total pre-project actual NO_X emissions, regardless of the fuel or fuels that were burned to generate those emissions. This is the basis for the values shown in Table 6-8 of the permit application.

Second, the emissions changes at issue are at certain fuel combustion units affected by the Production Increase Project. Emissions changes at these emissions units must be included in the calculation of the emissions increase that will occur as a result of the project, under the first clause in the definition of the term "net emissions increase."[18] Therefore, it was proper to include the emissions changes at the certain fuel combustion units affected by the Production Increase Project in the updated calculation of the NO_X emissions increase from the project, -10.7 tons per year, as calculated in Table 6-8 of the permit application and as shown in Table 6-9 of the permit application.

Third, even if the contribution of the certain fuel combustion units affected by the Production Increase Project were properly considered as among the other decreases under the second clause of the

[17] Attachment 1 at p. 3.

[18] Contrast this with the emissions changes at the blooming mill and galvanizing line shown in Table 6-9. Because these are emissions units not affected by the Production Increase Project, increases and decreases in actual emissions at these units are among the other changes that are considered under the second clause in the definition.

definition rather than a contribution to the emissions increase from the project under the first clause of the definition, it is not relied upon for the non-applicability determination. The net NO_X emissions increase from the project as presented in Table 6-9 of the permit application is -237.3 tons per year; even if the decrease of 250.3 tons per year as calculated by Illinois EPA is omitted from the calculation, the net emissions increase is 13 tons per year (-237.3+250.3), which is less than the significant level of 40 tons per year and therefore sufficient to demonstrate that the Production Increase Project would not become a major modification solely by virtue of the relaxations requested by U. S. Steel.

D. Substantive Requirements of the PSD and NNSR Programs Are Not Applicable with Respect to NO_X Emissions

Because the Production Increase Project would not become a major modification with respect to NO_X emissions solely by virtue of the relaxations requested by U. S. Steel, the substantive requirements of the PSD and NNSR programs[19] are not required elements of the permit application and the fact that these requirements are not addressed in the permit application is not a valid basis for application denial.

IX. THE PERMIT APPLICATION INCLUDES ALL REQUIRED INFORMATION PERTAINING TO PRE-PROJECT (BASELINE) NO_X EMISSIONS CALCULATIONS

In Attachment 1 to the draft denial letter, Illinois EPA asserts that the permit application is deficient in that it omits certain information that is purportedly necessary for Illinois EPA to validate the PSD/NNSR non-applicability determinations. As explained below, these assertions are without merit.

A. Volume of Coke Oven Gas Combusted During the Pre-Project Baseline Period

In Attachment 1 to the draft denial letter, Illinois EPA states that the updated calculations of the NO_X emissions change resulting from the Production Increase Project include the difference between the pre-project and post-project actual emissions from certain combustion units and that the calculation of pre-project actual NO_X emissions rates for some of these combustion units includes consideration of NO_X formed from combustion of coke oven gas, among other fuels. These statements are correct.

Illinois EPA then asserts that the pre-project coke oven gas usage rates used in calculating these emission contributions "are not accompanied by any documentation or explanation," suggesting that it is not enough to identify the quantity of coke oven gas consumed in each type of affected combustion unit. With respect to an "explanation," this assertion is incorrect. The permit application includes extensive discussion of the use of coke oven gas as fuel during the pre-project baseline period.[20]

With respect to additional documentation or further explanation, Illinois EPA does not identify any provision of the Illinois Environmental Protection Act or the Illinois Administrative Code requiring that a permit application include any particular documentation or explanation in conjunction with a historical operational rate or emissions rate, nor do they point to even an application form or guidance document suggesting that such documentation or additional explanation be provided. Notably, the

[19] 35 Ill. Adm. Code Sections 203.601, 203.602, 204.1100, 204.1110, 204.1120 and 204.1130.
[20] *See, e.g.*, pp. 2-4, 4-2, 5-5, and 11-2 of the body of the permit application. Additional information is provided in the appendices to the application.

documentation provided for coke oven gas in the permit application supplement submitted in October 2022 is indistinguishable from the documentation provided with respect to other fuels, both in the permit application supplement submitted in October 2022 and in the permit application submitted by National Steel Corporation in 1995 and accepted by Illinois EPA when issuing Permit No. 95010001 in 1996. In all cases, what was provided was a table of usage values, with no primary source documents such as strip charts, because it is neither required nor customary to provide such documents. Of course, Illinois EPA retains authority to request additional documentation in conjunction with a construction permit application,[21] but that was not done here.

B. NO_X Emission Factor for Use of COG in Boilers 11 and 12:

In Attachment 1 to the draft denial letter, Illinois EPA correctly states that Table 6-4 in the permit application indicates the emission factor used in calculating the amount of NO_X formed from combustion of coke oven gas in the boilers during the pre-project baseline period is based on emissions testing performed at a coke oven battery.

The emission factor basis listed in Table 6-4 of the permit application is a scrivener's error. The error was pointed out to U. S. Steel by Illinois EPA's permit application reviewer by telephone in January 2023. The factor is actually based on emission testing performed at Boiler #12, which is one of the boilers that is the subject of the calculation. This fact was conveyed to Illinois EPA's permit application reviewer by telephone in January 2023.

C. Emission Factor for Use of Natural Gas in Ladle Preheaters

In Attachment 1 to the draft denial letter, Illinois EPA states that, in the calculations presented in the permit application in support of the pre-project actual NO_X emissions from certain fuel combustion units affected by the Production Increase Project, U. S. Steel used a single emission factor for all such units, including ladle preheaters. This statement is correct.

Illinois EPA then asserts that the permit application "does not show that it is appropriate to utilize this emissions factor for ladle preheaters." Illinois EPA does not identify any provision of the Illinois Environmental Protection Act or the Illinois Administrative Code requiring that a permit application include any particular documentation or justification for the emission factors used to estimate historical emissions, nor do they point to even an application form or guidance document suggesting that such documentation or justification be provided. Notably, for a period of nearly thirty years, the emission factor at issue has been used consistently for all purposes pertaining to the permitting of the Production Increase Project and has been both accepted and prescribed by Illinois EPA for that purpose.[22] In light of Illinois EPA's repeated acceptance of and reliance on this emission factor for

[21] *See, e.g.*, 35 Ill. Adm. Code Section 201.152 ("The Agency may adopt procedures that require data and information in addition to and in amplification of the matters specified in the first sentence of this Section, that are reasonably designed to determine compliance with this Chapter and ambient air quality standards, or that set forth the format by which all data and information shall be submitted.").

[22] *See, e.g.*, "Calculation Sheet" prepared by Jim Ross of Illinois EPA, Dec. 5, 1995 (summarizing Illinois EPA's review of the construction permit application submitted by National Steel Corporation and received by Illinois EPA on Jan. 3, 1995) at p. 12; permit application supplement submitted by National Steel Corporation Jan. 16, 1996, at p. 3-2; Construction Permit No. 95010001 as issued Jan. 25, 1996, at Table 4 (prescribing use of this factor for ladle preheaters and certain other combustion units); Construction Permit No. 95010001 as revised Dec. 17, 2012, at Table 4 (same).

calculating NO_X emissions from combustion of natural gas in ladle preheaters in numerous permitting actions over a period of nearly thirty years, including several permitting actions occurring prior to U. S. Steel's ownership of the facility, U. S. Steel reasonably concluded that no further justification was needed as part of the permit application submitted in March 2020 and supplemented in October 2022.

D. Emissions from Use of Natural Gas on the Continuous Casting Lines:

In Attachment 1 to the draft denial letter, Illinois EPA states that, in the calculations presented in the permit application in support of the pre-project actual NO_X emissions from emissions units affected by the Production Increase Project, U. S. Steel indicated there is no NO_X formation from the continuous casting operation other than from combustion of natural gas and, because all natural gas consumption in the continuous casting operation is accounted for elsewhere, U. S. Steel did not account for any additional pre-project actual NO_X emissions from the continuous casting operation. Illinois EPA's statements in this regard are correct.

Illinois EPA then asserts that U. S. Steel's failure to double-count the pre-project actual NO_X emissions from the continuous casting operation is "problematic." This assertion is incorrect. U. S. Steel's election not to overstate the pre-project actual NO_X emissions from emissions units affected by the Production Increase Project is the correct and appropriate approach, as it best represents the increases in actual emissions resulting from the project, consistent with the requirements of the PSD and NNSR rules. However, the manner in which U. S. Steel presented in the permit application the natural gas usage rates and associated NO_X emissions contributions during the pre-project baseline period gas is unclear, and that lack of clarity appears to have caused confusion on the part of Illinois EPA's reviewer. The lack of clarity and the correctness of the total pre-project actual NO_X emissions from natural gas consumption in certain fuel combustion units affected by the Production Increase Project is explained below.

Following are the natural gas usage rates during the pre-project baseline period as listed in Table 3-2 of the permit application submitted by National Steel Corporation in 1995[23] and accepted by Illinois EPA when issuing Permit No. 95010001 in 1996.

Source Description	Emission Factor	Base Year Throughput	Actual Emission	Projected Throughput	Projected Emission
Boiler House 1 (Blrs 1-10) – NG	306 lb/MMcf	361 MMcf	55.23 tpy	included below	
Boiler #11 – NG	306 lb/MMcf	226 MMcf	34.58 tpy	included below	
Boiler #12 – NG	306 lb/MMcf	218 MMcf	33.35 tpy	included below	
BOF Preheaters/Dryers – NG	306 lb/MMcf	283 MMcf	43.30 tpy	included below	
Continuous Caster #1 & #2 – NG	306 lb/MMcf	57 MMcf	8.72 tpy	included below	
Natural gas usage	306 lb/MMcf	1,145 MMcf	inc. above	1,145 MMcf	175.19

[23] *See,* permit application supplement submitted by National Steel Corporation Jan. 16, 1996, at Table 3-2.

The total natural gas usage in the affected units during the pre-project baseline period is 1,145 million cubic feet per year, including 805 million cubic feet per year from the boilers and 340 million cubic feet per year from the BOF shop and the continuous casting operations. The total associated NO_X contribution during the pre-project baseline period is 175.19 tons per year, including 123.17 tons per year from the boilers and 52.02 tons per year from the BOF shop and the continuous casting operations. National Steel Corporation's projection of the total post-project natural gas usage in the affected units, including the continuous casting operations, was the same as the pre-project amount: 1,145 million cubic feet per year. The total NO_X emissions increase from the Production Increase Project as shown in Table 3-2 of the permit application submitted by National Steel Corporation in 1995 is 238.8 tons per year.

Illinois EPA included in Permit No. 95010001 a limit on total post-project natural gas usage and a limit on total post-project NO_X emissions contribution from this natural gas usage. The limits are 1,145 million cubic feet per year and 175.19 tons per year, respectively.[24] These limits precisely match the values that were presented in Table 3-2 of the permit application submitted by National Steel Corporation in 1995 and that included natural gas usage in the continuous casting operations. Illinois EPA also included in the permit a list of the fuel combustion units to which these limits apply.[25] Likely inadvertently, Illinois EPA omitted the continuous casting operations from this list of fuel combustion units. It is undisputed that Illinois EPA accepted and relied upon both the pre-project baseline information and the projections presented in Table 3-2 of the permit application submitted by National Steel Corporation in 1995: The total NO_X emissions increase authorized in the construction permit issued in 1996 is 238.8 tons per year,[26] which precisely matches the value presented in the 1995 permit application.

In the permit application submitted by U. S. Steel in March 2020 and in the supplement submitted in October 2022, the total natural gas usage in the affected units during the pre-project baseline period is documented as 1,145 million cubic feet per year, including 805 million cubic feet per year from the boilers and 340 million cubic feet per year from the BOF shop. The total associated NO_X contribution during the pre-project baseline period is documented as 175.19 tons per year, including 123.17 tons per year from the boilers and 52.02 tons per year from the BOF shop. Consistent with the approach taken by Illinois EPA in drafting Permit No. 95010001, and perpetuating what was likely an inadvertent error, U. S. Steel omitted the continuous casting operations from the list of fuel combustion units burning natural gas and contributing to the total associated NO_X contribution during the pre-project baseline period but included the contribution of the continuous casting operations. However, emissions associated with natural gas combustion in this operation were properly accounted for both in pre-project baseline and the post project emission for the project affected units.

X. THERE ARE NO QUANTIFIABLE FUGITIVE EMISSIONS OF NO_X OR VOM FROM THE BASIC OXYGEN FURNACES

In Attachment 1 to the draft denial letter, Illinois EPA states that the permit application "does not address uncaptured emissions" of NO_X and VOM from the basic oxygen furnaces and that the emissions calculations presented in the permit application reflect an assumption "that all emissions of

[24] *See, e.g.*, Construction Permit No. 95010001 as issued Jan. 25, 1996, at Special Condition 21 and Table 4.
[25] *Ibid* at Special Condition 21, Special Condition 35, and Table 4.
[26] *Ibid* at Special Condition 42.c and Table 6.

these pollutants from the basic oxygen furnaces are now captured" and routed to atmosphere through the electrostatic precipitator or baghouse. Illinois EPA also acknowledges that such uncaptured emissions, if they exist, are not significant and that, if estimated quantities of such uncaptured emissions were added to the calculations supporting the PSD/NNSR non-applicability demonstrations, would yield smaller (rather than greater) emissions increases.

With one minor exception, Illinois EPA's general statements characterizing the emissions increase calculations presented in the permit application, as summarized above, are correct. The minor exception is this: The permit application does not reflect an assumption that there are zero uncaptured emissions of NO_X and VOM from the basic oxygen furnaces but rather reflects the conclusion that, if there are any such uncaptured emissions, those emissions are fugitive emissions[27] and are not quantifiable. Fugitive emissions are counted for purposes of PSD and NNSR applicability determinations only to the extent that such emissions are quantifiable.[28]

Although Illinois EPA presents speculation regarding possible fugitive emissions of NO_X and VOM from the basic oxygen furnaces, that speculation is not a sufficient basis to determine that such emissions exist and are quantifiable. U. S. Steel nor Illinois EPA has not identified any evidence of such quantifiable emissions in the literature or in the permitting records of other iron and steel mills.

The fact that there are fugitive particulate matter emissions from basic oxygen furnaces is not indicative of the formation of NO_X or VOM emissions. The capture system serving the secondary baghouse at Granite City Works is a large ventilation system that is generally evacuating the space around the basic oxygen furnace vessels during the charging, refining, and tapping operations. The primary mechanism for formation of particulate matter during charging and tapping is the oxidation of molten metal. This formation mechanism cannot be expected to result in the formation of NO_X or VOM.

XI. THE PERMIT APPLICATION INCLUDES ALL REQUIRED INFORMATION PERTAINING TO PRE-PROJECT (BASELINE) PARTICULATE MATTER EMISSIONS CALCULATIONS

In Attachment 1 to the draft denial letter, Illinois EPA asserts that the permit application is deficient for the following reason:

> With regard to baseline particulate emissions, the determination of baseline emissions from handling of coke, iron pellets and limestone provided in the revised netting analysis cannot be

[27] Fugitive emissions are "those emissions which could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening." 40 CFR § 52.21(b)(20). The emissions capture systems serving the basic oxygen furnaces satisfy the stringent requirements of 40 CFR part 63, subpart FFFFF, which reflects U.S. EPA's determination of the maximum degree of reduction in emissions that is achievable for these operations. 42 U.S.C. § 7412(d)(2). It is indisputable that these capture systems reflect the state of the art and that, to the extent there are any uncaptured emissions of NO_X or VOM, those emissions could not reasonably be captured or controlled and thus are fugitive emissions.

[28] *See, e.g.*, 40 CFR § 52.21(i)(4)(vii)(exempting a project from PSD permitting requirements if it would be major "only if fugitive emissions, to the extent quantifiable, are considered" and it would occur at a source that is not in a listed source category); *see, also*, 45 *Fed. Reg.* 52676 at 52692 (Aug. 7, 1980)(EPA explains that it is declining to extend the exemption the exemption at § 52.21(i)(4)(vii) to the listed source categories, such as iron and steel mills, but stated, "EPA emphasizes, however, that fugitive emissions from a source in one of the listed categories will only be included in threshold calculations 'to the extent quantifiable'").

> independently confirmed. In this regard, the 2022 application does not provide needed supporting information for the "corrected" determinations of baseline particulate emissions of these operations as it is not accompanied by detailed calculations for the emissions from handling each material.

The assertion regarding a deficiency in the permit application is, for two reasons, without merit. First, Illinois EPA does not identify any provision of the Illinois Environmental Protection Act or the Illinois Administrative Code requiring that a permit application include any particular supporting information, nor does the agency point to even an application form or guidance document suggesting that such documentation or additional explanation be provided. U. S. Steel's permit application includes all information required by the applicable permitting rules. Second, Illinois EPA's characterization of these pre-project (baseline) emission rates as "corrected" is erroneous: These are the values presented in the permit application submitted by National Steel Corporation in 1995 and accepted by Illinois EPA when issuing Permit No. 95010001 in 1996. U. S. Steel made no change to these values and is not in possession of information that would allow such change. In light of Illinois EPA's acceptance of and reliance on these values during that prior permitting action, which preceded U. S. Steel's ownership of the facility, U. S. Steel reasonably concluded that no further justification was needed as part of the present permit application. Of course, Illinois EPA retains authority to request additional information in conjunction with a construction permit application,[29] but that was not done here.

XII. THE PERMIT APPLICATION INCLUDES ALL REQUIRED INFORMATION RELATING TO POST-PROJECT ACTUAL EMISSIONS OF PM, PM_{10}, NO_X, AND VOM AND TO ENFORCEABLE LIMITATIONS ON POTENTIAL TO EMIT THESE POLLUTANTS

A. It Is Feasible to Establish Enforceable Emission Caps for Groups of Emissions Units and Emission Points as Proposed in the Permit Application

As correctly described by Illinois EPA in Attachment 1 to the draft denial letter, U. S. Steel's permit application proposes that PM, PM_{10}, NO_X, and VOM emissions be subject to annual emission caps covering groups of related emissions units and emission points. For the blast furnace operations and the BOF shop, the proposed groupings include emission points with significant emissions, such as the BOF electrostatic precipitator stack, and minor emission points such as the iron spout baghouse stack. U. S. Steel's permit application also proposes approaches to making these emission caps enforceable as a practical matter, as would be required if these emission caps were to serve as synthetic minor limitations.[30]

In Attachment 1 to the draft denial letter, Illinois EPA asserts that there may be alternative groupings of emissions units and emission points that could be subjected to enforceable emission caps or other limitations:

> It would be reasonable and appropriate for both the annual emissions of the casthouse and the

[29] *See, e.g.*, 35 Ill. Adm. Code Section 201.152 ("The Agency may adopt procedures that require data and information in addition to and in amplification of the matters specified in the first sentence of this Section, that are reasonably designed to determine compliance with this Chapter and ambient air quality standards, or that set forth the format by which all data and information shall be submitted.").

[30] See discussion of synthetic minor limitations in Section VIII.B herein.

> annual emissions of the two basic oxygen furnaces to be directly limited separately from the emissions of any other units.
> *
> *
> Alternatively, limits specifically for the emissions of the casthouse for the blast furnaces and the basic oxygen furnaces, i.e., the principal units at the facility for iron and steel production, could be accompanied by group limits for the overall emissions of these principal units and the other, "non- principal" units in these areas of the facility. For example, limits could be set for both emissions of the casthouse and for the emissions of the casthouse, charging of the blast furnaces, and the slag pits. Attachment 1 at 18-19.

U. S. Steel agrees with Illinois EPA generally that there are potentially suitable groupings other than those proposed in U. S. Steel's permit application and that the approach suggested by Illinois EPA in Attachment 1 is likely permissible under the applicable permitting rules.

It is unclear whether Illinois EPA's discussion of other potentially suitable groupings of other emissions units and emission points is intended to explain Illinois EPA's proposed denial of the permit application.[31] If it is so intended, U. S. Steel disagrees that this represents a valid basis for such denial. It is the responsibility of Illinois EPA to draft a permit with conditions it judges to be suitable and appropriate; the permit applicant has no obligation to reflect in the permit application a correct guess as to how the permitting authority will exercise its judgment regarding these matters.

B. Particulate Matter Emissions Associated with a Facility Configuration No Longer Authorized Are Immaterial to the "Source Obligation" Demonstration

In Attachment 1 to the draft denial letter, Illinois EPA states that the permit application does not include information associated with emissions from the handling of coal and coke at the by-product coke oven batteries that were permanently shut down in 2015. This statement is correct.

Illinois EPA then asserts that this omission represents a deficiency in the permit application because these emissions should be included in the total post-project actual emissions quantity as used in determining whether PSD and NNSR permitting requirements apply. This assertion is without merit. Although this information may be relevant to an evaluation of whether the Production Increase Project as authorized by Illinois EPA and as implemented by National Steel Corporation prior to U. S. Steel's ownership was a major modification subject to the substantive requirements of the PSD and NNSR programs, it is not relevant to the "source obligation" analysis and demonstration that are required here. As discussed in Section VIII.B above, these analyses are prospective, not retrospective; there is no consideration of facts as they may have existed at some prior point in time and no "mixing" of facts from different points in time.

[31] Notably, Illinois EPA has not claimed that the groupings and approaches proposed by Illinois EPA would result in permit conditions that are not enforceable as a practical matter or that are otherwise impermissible under the applicable rules.

C. The Permit Application Includes All Required Information Relating to Quantifying Emissions of NO_X and VOM from the Blast Furnace Casthouse Roof Monitor

In Attachment 1 to the draft denial letter, Illinois EPA correctly states that, among the procedures proposed by U. S. Steel in the permit application for demonstration of compliance with the proposed NO_X and VOM emission caps, U. S. Steel proposed that emissions of these pollutants from the Blast Furnace Casthouse Roof Monitor be calculated as 5.3% of the measured emission rate from the Blast Furnace Casthouse Baghouse. (This value reflects the assumption that the emissions from the baghouse represent 95.0% of the total emissions from the casthouse and the uncaptured and unmeasured emissions represent 5.0% of the total: 5% ÷ 95% = 5.3%.)

Illinois EPA then asserts that U. S. Steel's permit application does not demonstrate that the proposed methodology would yield calculated emission rates that are representative of actual emissions from the Blast Furnace Casthouse Roof Monitor under all conditions; in particular, Illinois EPA asserts, the proposed methodology might underestimate actual emissions if the capture efficiency is less than the assumed 95%. Finally, Illinois EPA suggests that prescribing specific emission rates for NO_X and VOM in the permit can reasonably be expected to be more representative than the ratio approach proposed by U. S. Steel.

It is unclear whether these assertions in Attachment 1 to the draft denial letter are intended to support Illinois EPA's proposed denial of the application. If these assertions are so intended, U. S. Steel disagrees that this is a valid basis for denial of the application. It is the responsibility of Illinois EPA to draft a permit with conditions it judges to be suitable and appropriate; the permit applicant has no obligation to reflect in the permit application a correct guess as to how the permitting authority will exercise its judgment regarding these matters.

U. S. Steel agrees that the potential problem identified and discussed by Illinois EPA—that an actual capture efficiency of less than 95% would not be reflected in the calculation methodology proposed by U. S. Steel—exists as a theoretical matter. U. S. Steel contends that this scenario is effectively prohibited, as operation of the blast furnace casthouse capture system is subject to stringent requirements under 40 CFR part 63, subpart FFFFF, particularly § 63.7790(b). Thus, if it were left to U. S. Steel to decide on appropriate compliance demonstration methods for inclusion in the revised construction permit, the proposed 5.3% ratio approach would be used. However, U. S. Steel recognizes that this decision is within the judgment and discretion of Illinois EPA.

D. The Permit Application Includes All Required Information Relating to Quantifying Emissions of Particulate Matter from the Blast Furnace Casthouse Roof Monitor

In Attachment 1 to the draft denial letter, Illinois EPA correctly states that, among the procedures proposed by U. S. Steel in the permit application for demonstration of compliance with the proposed PM and PM_{10} emission caps, U. S. Steel proposed that emissions of these pollutants from the Blast Furnace Casthouse Roof Monitor be calculated using prescribed emission factors of 0.030 lb per ton of iron and 0.0153 lb per ton of iron, respectively. Each of these proposed emission factors is derived

from the pre-control PM emission factor of 0.6 lb per ton of iron published by U.S. EPA.[32] Specifically, the PM emission factor is based on an assumed 95% capture efficiency (*i.e.*, 5% of the pre-control emissions are emitted to atmosphere through the roof monitor; 5% × 0.6 = 0.030). The PM_{10} emission factor is based on an assumed particle size distribution where the PM_{10} emission rate is equal to 51% of the PM emission rate (51% × 0.030 = 0.0153), again based on data published by U.S. EPA.[33]

Illinois EPA then asserts that U. S. Steel's permit application is deficient as relating to these emission factors because the application "does not include relevant supporting information," "only references a single memorandum from 2019 by various USEPA staff and a consultant as support for achievement of 95 percent capture efficiency," and therefore does not demonstrate that the proposed emission factors would yield calculated emission rates that are representative of actual emissions from the Blast Furnace Casthouse Roof Monitor.

The assertion regarding a deficiency in the permit application is without merit. Illinois EPA does not identify any provision of the Illinois Environmental Protection Act or the Illinois Administrative Code requiring that a permit application include any particular supporting information, nor does the agency point to even an application form or guidance document suggesting that such documentation or additional explanation be provided. U. S. Steel's permit application includes all information required by the applicable permitting rules. Notably, the supporting information provided in the permit application regarding the emission factors at issue is more extensive than the documentation provided in the permit application submitted by National Steel Corporation in 1995 and accepted by Illinois EPA when issuing Permit No. 95010001 in 1996. The assumption of 95% capture efficiency for the blast furnace casthouse at Granite City Works has been consistently applied by Illinois EPA for many years.[34]

A brief recap of the history of U. S. Steel's approach with respect to this issue is in order. In the construction permit application submitted in March 2020, U. S. Steel proposed PM and PM_{10} emission factors of 0.031 lb per ton of iron and 0.0155 lb per ton of iron, respectively. These emission factors have been prescribed by Illinois EPA for this purpose for decades.[35] Among Illinois EPA's informal comments regarding that permit application submittal, Illinois EPA's permit application reviewer correctly pointed out that these historically assumed emission factors are slightly higher than the values that would result from correctly calculating the emission factors using Illinois EPA's historic assumptions of 0.6 lb per ton pre-control, 95% capture efficiency, and 51% PM_{10}:PM ratio. Illinois EPA's permit application reviewer also stated that the agency's records do not appear to contain an explanation for this discrepancy. Accordingly, the permit application reviewer suggested

[32] *Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area Sources (AP-42)*, 4th Ed. U.S. EPA, Research Triangle Park, NC. Section 7.5, "Iron and Steel Production," Table 7.5-2, "Particulate Emission Factors for Iron and Steel Mills," May 1983.
[33] *Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area Sources (AP-42)*, 5th Ed. U.S. EPA, Research Triangle Park, NC. Section 7.5, "Iron and Steel Production," Table 7.5-2, "Size Specific Emission Factors," January 1995.
[34] *See, e.g.*, "Statement of Basis for the Planned Issuance of a Revised Clean Air Act Permit Program (CAAPP) Permit for: United States Steel Corporation, Granite City Works," Illinois EPA (Feb. 4, 2013) at 41.
[35] *See, e.g.*, Construction Permit No. 95090167 issued Sept. 15, 1995; Construction Permit No. 95010001 issued Jan. 25, 1996.

that U. S. Steel use the revised and corrected emission factors in the permit application supplement submitted in October 2022, which U. S. Steel did.

In light of Illinois EPA's repeated acceptance of and reliance on the assumption of 95% capture efficiency in numerous permitting actions over a period of nearly thirty years, including several permitting actions occurring prior to U. S. Steel's ownership of the facility, and in light of the informal suggestion by Illinois EPA's permit application reviewer to correct the emission factor calculations in the manner described above, U. S. Steel reasonably concluded that no further justification was needed as part of the permit application supplement submitted in October 2022. Of course, Illinois EPA retains authority to request additional information in conjunction with a construction permit application,[36] but that was not done here.

Alternatively, if Illinois EPA now believes there are insufficient data to quantify the capture efficiency of the state-of-the-art capture system employed at the blast furnace casthouse at Granite City Works, and that the fugitive emissions[37] from the Blast Furnace Casthouse Roof Monitor are therefore not quantifiable, then those emissions should be omitted from the analyses performed by Illinois EPA to determine whether the source obligation provisions apply in conjunction with the permit revisions requested by Illinois EPA. Fugitive emissions are counted for purposes of PSD and NNSR applicability determinations only to the extent that such emissions are quantifiable.[38]

E. The Permit Application Includes All Required Information Relating to Quantifying Emissions of Particulate Matter from the Slag Pits

In Attachment 1 to the draft denial letter, Illinois EPA correctly states that, among the procedures proposed by U. S. Steel in the permit application for demonstration of compliance with the proposed PM and PM_{10} emission caps, U. S. Steel proposed that emissions of these pollutants from the Slag Pits be calculated using a prescribed emission factor of 0.00417 lb per ton of hot metal.

Illinois EPA then asserts that U. S. Steel's permit application is deficient as relating to this emission factor because the application "does not include relevant supporting information" and therefore does not demonstrate that the proposed emission factor would yield calculated emission rates that are representative of actual emissions from the Slag Pits.

---

[36] *See, e.g.,* 35 Ill. Adm. Code Section 201.152 ("The Agency may adopt procedures that require data and information in addition to and in amplification of the matters specified in the first sentence of this Section, that are reasonably designed to determine compliance with this Chapter and ambient air quality standards, or that set forth the format by which all data and information shall be submitted.").

[37] Fugitive emissions are "those emissions which could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening." 40 CFR § 52.21(b)(20). The emissions capture systems serving the blast furnace casthouse satisfy the stringent requirements of 40 CFR part 63, subpart FFFFF, which reflects U.S. EPA's determination of the maximum degree of reduction in emissions that is achievable for these operations. 42 U.S.C. § 7412(d)(2). It is indisputable that these capture systems reflect the state of the art and that, to the extent there are any uncaptured emissions of PM_{10} or PM, those emissions could not reasonably be captured or controlled and thus are fugitive emissions.

[38] *See, e.g.,* 40 CFR § 52.21(i)(4)(vii)(exempting a project from PSD permitting requirements if it would be major "only if fugitive emissions, to the extent quantifiable, are considered" and it would occur at a source that is not in a listed source category); *see, also,* 45 *Fed. Reg.* 52676 at 52692 (Aug. 7, 1980)(EPA explains that it is declining to extend the exemption the exemption at § 52.21(i)(4)(vii) to the listed source categories, such as iron and steel mills, but stated, "EPA emphasizes, however, that fugitive emissions from a source in one of the listed categories will only be included in threshold calculations 'to the extent quantifiable'").

The assertion regarding a deficiency in the permit application is without merit. Illinois EPA does not identify any provision of the Illinois Environmental Protection Act or the Illinois Administrative Code requiring that a permit application include any particular supporting information, nor does the agency point to even an application form or guidance document suggesting that such documentation or additional explanation be provided. U. S. Steel's permit application includes all information required by the applicable permitting rules. Notably, the supporting information provided in the permit application regarding the emission factor at issue is more extensive than the documentation provided in the permit application submitted by National Steel Corporation in 1995 and accepted by Illinois EPA when issuing Permit No. 95010001 in 1996. The emission factor of 0.00417 lb per ton for the Slag Pits at Granite City Works has been consistently applied by Illinois EPA for decades.[39] The summary of the derivation of that factor as provided by U. S. Steel in the permit application is simply a paraphrasing of Illinois EPA's description.[40]

In light of Illinois EPA's repeated acceptance of and reliance on this emission factor in numerous permitting actions over a period of nearly thirty years, including several permitting actions occurring prior to U. S. Steel's ownership of the facility, U. S. Steel reasonably concluded that no further justification was needed as part of the permit application supplement submitted in October 2022. Of course, Illinois EPA retains authority to request additional information in conjunction with a construction permit application,[41] but that was not done here.

F. The Permit Application Includes All Required Information Relating to Quantifying Emissions of Particulate Matter from the Continuous Casting Operation

In Attachment 1 to the draft denial letter, Illinois EPA correctly states that, among the procedures proposed by U. S. Steel in the permit application for demonstration of compliance with the proposed PM and PM_{10} emission caps, U. S. Steel proposed that emissions of these pollutants from the Caster Mold, Slab Cutoff, and Slab Ripping operations be calculated using prescribed emission factors.

Illinois EPA then asserts that U. S. Steel's permit application is deficient as relating to these emission factors because the application does not supporting information "sufficient to show that the emission factors that are proposed as prescribed factors are representative."

---

[39] *See, e.g.,* Construction Permit No. 95090167 issued Sept. 15, 1995; Construction Permit No. 95010001 issued Jan. 25, 1996.

[40] *See, e.g.,* "Statement of Basis for the Planned Issuance of a Revised Clean Air Act Permit Program (CAAPP) Permit for: United States Steel Corporation, Granite City Works," Illinois EPA (Feb. 4, 2013) at 42, stating as follows:

> Emission Factor: 0.00417 lbs/ton of iron
> Origin of EF: Calculated from EPA Assessment of Atmospheric Emissions from Quenching of Blast Furnace Slag. Also, AP-42, Table 13.2.4-4, Fugitive Uncontrolled emissions.
> Summation of the following emission factors:
> a. Slag Quenching = 0.0026 lbs/ton iron,
> b. Slag Digging = 0.00157 lbs/ton iron.

[41] *See, e.g.,* 35 Ill. Adm. Code Section 201.152 ("The Agency may adopt procedures that require data and information in addition to and in amplification of the matters specified in the first sentence of this Section, that are reasonably designed to determine compliance with this Chapter and ambient air quality standards, or that set forth the format by which all data and information shall be submitted.").

The assertion regarding a deficiency in the permit application is without merit. Illinois EPA does not identify any provision of the Illinois Environmental Protection Act or the Illinois Administrative Code requiring that a permit application include any particular supporting information, nor does the agency point to even an application form or guidance document suggesting that such documentation or additional explanation be provided. U. S. Steel's permit application includes all information required by the applicable permitting rules. Notably, the supporting information provided in the permit application regarding the emission factors at issue is more extensive than the documentation provided in the permit application submitted by National Steel Corporation in 1995 and accepted by Illinois EPA when issuing Permit No. 95010001 in 1996. These PM/PM_{10} emission factors for the continuous casting operation at Granite City Works have been consistently prescribed by Illinois EPA for this purpose for many years.[42]

In light of Illinois EPA's repeated acceptance of and reliance on these emission factors in numerous permitting actions over a period of nearly thirty years, including several permitting actions occurring prior to U. S. Steel's ownership of the facility, U. S. Steel reasonably concluded that no further justification was needed as part of the permit application submitted in March 2020 or the permit application supplement submitted in October 2022. Of course, Illinois EPA retains authority to request additional information in conjunction with a construction permit application,[43] but that was not done here.

G. The Permit Application Includes All Required Information Relating to Quantifying Emissions of Particulate Matter from the Iron Pellet Screen

In Attachment 1 to the draft denial letter, Illinois EPA correctly states that, among the procedures proposed by U. S. Steel in the permit application for demonstration of compliance with the proposed PM and PM_{10} emission caps, U. S. Steel proposed that emissions of these pollutants from the Iron Pellet Screen be calculated using a prescribed emission factor of 0.00131 lb per ton of material. As explained in the permit application, the proposed emission factor is derived from the PM_{10} emission factor of 0.0087 lb per ton of material published by U.S. EPA for crushed stone screening,[44] with application of an 85% control efficiency. Specifically, the PM emission factor is based on an assumed 95% capture efficiency (*i.e.*, 5% of the pre-control emissions are emitted to atmosphere through the roof monitor; 5% × 0.6 = 0.030).

Illinois EPA then asserts that U. S. Steel's permit application is deficient as relating to this emission factor because the application "does not include relevant supporting information," particularly with

[42] *See, e.g.*, "Statement of Basis for the Planned Issuance of a Revised Clean Air Act Permit Program (CAAPP) Permit for: United States Steel Corporation, Granite City Works," Illinois EPA (Feb. 4, 2013) at 47; Construction Permit No. 95090167 issued Sept. 15, 1995; Construction Permit No. 95010001 issued Jan. 25, 1996.

[43] *See, e.g.*, 35 Ill. Adm. Code Section 201.152 ("The Agency may adopt procedures that require data and information in addition to and in amplification of the matters specified in the first sentence of this Section, that are reasonably designed to determine compliance with this Chapter and ambient air quality standards, or that set forth the format by which all data and information shall be submitted.").

[44] *Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area Sources (AP-42)*, 5th Ed. U.S. EPA, Research Triangle Park, NC. Section 11.19.2, "Crushed Stone Processing and Pulverized Mineral Processing," Table 11.19.2-2, "Emission Factors for Crushed Stone Processing Operations," updated Aug. 2004. A control efficiency of 85% was applied for this operation 7.5, "Iron and Steel Production," Table 7.5-2, "Particulate Emission Factors for Iron and Steel Mills," May 1983.

respect to the proposal to use an emission factor for PM derived from an emission factor published by U.S. EPA for PM_{10}, and therefore does not demonstrate that the proposed emission factor would yield calculated emission rates that are representative of actual emissions from the Iron Pellet Screen.

The listing of the PM_{10}-derived emission factor as the proposed, prescribed factor for PM emissions was a scrivener's error in the permit application; U. S. Steel's intent was to propose that Illinois EPA prescribe use of the corresponding PM emission factor of 0.00375 lb per ton of material as shown in Table 5-5 of the permit application supplement submitted in October 2022. Nonetheless, the assertion regarding a deficiency in the permit application is without merit. Illinois EPA does not identify any provision of the Illinois Environmental Protection Act or the Illinois Administrative Code requiring that a permit application include any proposed emission quantification methods for fugitive emissions, nor does the agency point to even an application form or guidance document suggesting that such a proposal be provided. U. S. Steel's permit application includes all information required by the applicable permitting rules. It is the responsibility of Illinois EPA to draft a permit with conditions it judges to be suitable and appropriate, including recordkeeping requirements and other compliance demonstration methods; the permit applicant has no obligation to reflect in the permit application a correct guess as to how the permitting authority will exercise its judgment regarding these matters.

H. The Permit Application Includes All Required Information Relating to Quantifying Emissions of Particulate Matter from the Mag Lime Silo

In Attachment 1 to the draft denial letter, Illinois EPA correctly states that U. S. Steel proposed in the permit application that emissions of PM and PM_{10} from the Mag Lime Silo be included in the permit conditions relating to demonstration of compliance with the proposed PM and PM_{10} emission caps, and further proposed that emissions of these pollutants from the Mag Lime Silo be calculated using a prescribed emission rate of 0.009 lb per hour.

Illinois EPA then asserts that U. S. Steel's permit application is deficient as relating to this emission factor because the application does not include supporting information demonstrating that the proposed emission rate of 0.009 lb per hour is representative of actual emissions from the Mag Lime Silo.

The assertion regarding a deficiency in the permit application is without merit. Illinois EPA does not identify any provision of the Illinois Environmental Protection Act or the Illinois Administrative Code requiring that a permit application include any proposed compliance demonstration methods, nor does the agency point to even an application form or guidance document suggesting that such a proposal be provided. U. S. Steel's permit application includes all information required by the applicable permitting rules. It is the responsibility of Illinois EPA to draft a permit with conditions it judges to be suitable and appropriate, including recordkeeping requirements and other compliance demonstration methods; the permit applicant has no obligation to reflect in the permit application a correct guess as to how the permitting authority will exercise its judgment regarding these matters. Here, it is noteworthy that U. S. Steel voluntarily proposed that emissions from the Mag Lime Silo be subject to limits where it had no obligation to do so. Illinois EPA's proposed denial of the permit application will simply ensure the status quo is maintained, *i.e.*, that U. S. Steel is not subject to any limitations on emissions from this emissions unit.

I. The Permit Application Includes All Required Information Relating to Quantifying Emissions of Particulate Matter from the Basic Oxygen Furnace Shop Roof Monitor

In Attachment 1 to the draft denial letter, Illinois EPA correctly states that, among the procedures proposed by U. S. Steel in the permit application for demonstration of compliance with the proposed PM and PM_{10} emission caps, U. S. Steel proposed that emissions of these pollutants from the Basic Oxygen Furnace Shop Roof Monitor be calculated using prescribed emission factors that are lower than the emission factors used by National Steel Corporation in the permit application submitted in 1995 and by Illinois EPA in the permit issued in 1996. Illinois EPA characterizes U. S. Steel's proposal as follows:

> For PM, an emission factor of 0.01986 pounds/ton is proposed as a prescribed factor, compared to the current emission factor limit of 0.0987 pounds/ton; for filterable PM_{10}, an emission factor of 0.0296 pounds/ton is proposed, compared to the current emission factor limit of 0.06614 pounds/ton.

This misstates U. S. Steel's proposal as presented in Section 5.5.2.2 of the permit application:

> For BOF Shop Roof Monitor, use PM emission factor of 0.0296 lb/ton and filterable PM10 emission factor of 0.0198 lb/ton.

Illinois EPA's mischaracterization of U. S. Steel's proposed emission factors for the Basic Oxygen Furnace Shop Roof Monitor is likely a scrivener's error in Attachment 1 to the draft denial letter.

Illinois EPA acknowledges in Attachment 1 to the draft denial letter that the emission factors proposed by U. S. Steel are representative of the current configuration of the Basic Oxygen Furnace Shop, but then asserts that U. S. Steel's permit application is deficient as relating to these emission factors because "those prescribed factors would not be representative of emissions before the new baghouse system was installed" and further asserts that "particulate emissions factors that are representative of particulate emissions circa 1996, before installation of the baghouse system on the furnaces, should be used in the revised netting analyses for PM and PM_{10}."

These assertions are without merit. Although this information may be relevant to an evaluation of whether the Production Increase Project as authorized by Illinois EPA and as implemented by National Steel Corporation prior to U. S. Steel's ownership was a major modification subject to the substantive requirements of the PSD and NNSR programs, it is not relevant to the "source obligation" analysis and demonstration that are required here. As discussed in Section VIII.B above, these analyses are prospective, not retrospective; there is no consideration of facts as they may have existed at some prior point in time and no "mixing" of facts from different points in time.

J. The Permit Application Includes Adequate Explanation of Projected Post-Project Actual Emissions from Fuel Combustion Units and Does Not Diminish Illinois EPA's Authority to Impose Enforceable Limits

In Attachment 1 to the draft denial letter, Illinois EPA states that the permit application represents the maximum total post-project actual NO_X emissions from certain fuel combustion units affected by the

Production Increase Project will be 706 tpy and that the application also requests elimination of the gaseous fuel usage limits for these units. These statements are correct.

Illinois EPA then asserts that the permit application is deficient because it "does not explain why actual NO_X emissions of the subject units would not exceed this amount going forward if the permit were revised" as proposed. This assertion is without merit. The explanation is provided in Table 6-7 of the permit application supplement submitted in October 2022: The maximum potential emissions of the affected fuel combustion units are less than 706 tons NO_X per year.

Illinois EPA further asserts as follows:

> While the limits for fuel usage and emissions currently in Permit 95010001 may no longer be relevant, as generally addressed above, this does not mean that other limits for fuel usage and emissions are not appropriate. In this regard, the 2022 application does not show that new limits for fuel usage and emissions would not now be needed and those limits should address fuel burning units other than the Project-affected units currently addressed by the permit. In this regard, limits for usage of fuels and emissions should not extend to Boilers 1 through 10, as they are no longer in operation, having been shut down a number of years before the coke oven batteries were shutdown. As the four slab reheat furnaces at the facility were affected by the elimination of COG, new limits may be needed that also extend to these furnaces. It may also be appropriate for the cogeneration boiler to be addressed by the new limits as this boiler began operation several years before the by-product coke oven batteries at the facility were shutdown. (Internal footnote omitted.)

A brief recap of the history of U. S. Steel's approach with respect to this issue is in order. In the construction permit application submitted in March 2020, U. S. Steel expressly requested enforceable emission caps for emissions of NO_X and other pollutants from the fuel combustion units affected by the Production Increase Project and provided emission calculations supporting these proposed emission caps. Among Illinois EPA's informal comments regarding that permit application submittal, Illinois EPA's permit application reviewer correctly pointed out that enforceable emission caps are superfluous and unnecessary where the maximum potential emissions of the affected unit or units is less than or equal to the emission caps under consideration. Accordingly, in the permit application supplement submitted in October 2022, U. S. Steel omitted the express request for enforceable emission caps for the affected fuel combustion units.

Notwithstanding this history, it remains the responsibility of Illinois EPA to draft a permit with conditions it judges to be suitable and appropriate. If Illinois EPA is not persuaded that the future actual emissions from the fuel combustion units affected by the Production Increase Project will be less than or equal to the values represented in the permit application in the absence of enforceable limits on fuel usage in, or an enforceable emission caps for, these units, then the agency undisputedly has the discretion and authority to impose such limits in the permit. The permit applicant has no obligation to reflect in the permit application a correct guess as to how the permitting authority will exercise its judgment regarding these matters. That should be especially true where, as here, the agency conveys its preliminary judgment, the applicant revises its permit application to be consistent with that representation, and then the agency vacillates.

With regard to Illinois EPA's suggestion that the limits the agency is now considering may need to "address fuel burning units other than the Project-affected units currently addressed by the permit," such as the slab reheat furnaces and cogeneration boiler at the Granite City Works, U. S. Steel disagrees that such limits would be appropriate. As these emissions units were not among the units affected by the Production Increase Project, the emissions from these units are not relevant to the "source obligation" analysis and demonstration that are required here, as discussed in Section VIII.B above.

K. NO_X Emissions Associated with a Facility Configuration No Longer Authorized or Under a Counterfactual Hypothetical Are Immaterial to the "Source Obligation" Demonstration

In Attachment 1 to the draft denial letter, Illinois EPA states that the permit application represents the maximum total post-project actual NO_X emissions from certain fuel combustion units affected by the Production Increase Project will be 706 tpy. This statement is correct.

Illinois EPA then asserts that the permit application is deficient because it does not "demonstrate that actual emissions have not exceeded this amount historically" nor does it demonstrate that actual emissions would not have exceeded this amount at any point in time since Permit No. 95010001 was issued in 1996 under the hypothetical scenario where "production of iron and steel by the source was at the levels allowed by this permit."

This assertion is without merit. The purportedly missing information relating to historical actual emission levels may be relevant to an evaluation of whether the Production Increase Project as authorized by Illinois EPA and as implemented by National Steel Corporation prior to U. S. Steel's ownership was a major modification subject to the substantive requirements of the PSD and NNSR programs, but it is not relevant to the "source obligation" analysis and demonstration that are required here. As discussed in Section VIII.B above, these analyses are prospective, not retrospective; there is no consideration of facts as they may have existed at some prior point in time and no "mixing" of facts from different points in time. The purportedly missing information relating to a hypothetical is not relevant to any demonstration or analysis that is a required element of the permit application submitted in 2020 and supplemented in 2022.

XIII. THE PERMIT APPLICATION INCLUDES ALL INFORMATION NECESSARY FOR INTEGRATED PROCESSING UNDER THE CAAPP OR, IN THE ALTERNATIVE, ANY DEFICIENCIES DO NOT FORM A BASIS FOR DENYING THE CONSTRUCTION PERMIT APPLICATION

A. Claimed Deficiencies in the Permit Application As Related to Integrated Processing Under the CAAPP Do Not Form a Basis for Denying the Construction Permit Application

As correctly noted by Illinois EPA in the draft denial letter, U. S. Steel requested that the revised construction permit be subjected to "integrated processing," as provided by subsections 39.5(13)(a) and (c)(v) of the Illinois Environmental Protection Act, which would allow the changes to Permit No. 95010001 to be incorporated into the facility's CAAPP permit using the administrative amendment process.

Numerous purported deficiencies in the permit application listed by Illinois EPA in Attachment 1 to the draft denial letter are claimed to be deficient only because of the request for integrated processing. U. S. Steel generally does not agree with Illinois EPA regarding these claimed deficiencies, as discussed in Sections XIII.B through XIII.I below. In addition, U. S. Steel emphasizes that none of these issues would form a valid basis for denying the construction permit application; even if Illinois EPA were correct that these deficiencies would prevent the use of integrated processing, that would only provide a valid basis for denial of the request for integrated processing of the revised construction permit and associated revisions of the CAAPP permit.

B. The Permit Application Includes All Necessary Information Relating to General Provisions in the CAAPP Permit Governing Selection of Emission Factors

In Attachment 1 to the draft denial letter, Illinois EPA states that Permit No. 95010001 does not specify how emissions are to be quantified for purposes of demonstrating compliance with the permitted emission caps and that, in the absence of such compliance demonstration requirements, Illinois EPA imposed monitoring and recordkeeping requirements in the facility's CAAPP permit sufficient to assure compliance with applicable emission limits as required by subsection 39.5(7)(p) of the Illinois Environmental Protection Act. These statements are correct.

Illinois EPA then asserts that the pending permit application does not request revisions to Permit No. 95010001 "that would enable revisions to the CAAPP permit for the Granite City Works, Permit 96030056, to be made by administrative amendment." This assertion is incorrect. U. S. Steel requested that the construction permit be subjected to "integrated processing," which requires that Illinois EPA process the permit application and draft the permit using a program that "meets procedural and compliance requirements substantially equivalent to those" imposed in the CAAPP program. Although this request was stated generally, and the permit application did not specify with precision the monitoring and recordkeeping requirements to be imposed in the revised construction permit and the amended CAAPP permit, that approach is appropriate: It is the responsibility of Illinois EPA to draft a permit with conditions it judges to be suitable and appropriate; the permit applicant has no obligation to reflect in the permit application a correct guess as to how the permitting authority will exercise its judgment regarding these matters. Inherently subsumed in a request for integrated processing is an implied request that Illinois EPA satisfy its mandate to draft a permit or permit revision that includes the minimum elements of a CAAPP permit—including monitoring, reporting, and recordkeeping requirements sufficient to assure compliance with applicable emission limits—and to remove or revise conflicting or redundant permit terms.

C. The Permit Application Includes All Required Information In Conjunction with the Request for Changes to Emission Point Naming

In Attachment 1 to the draft denial letter, Illinois EPA states that, in the permit application, U. S. Steel requested that the emission point currently identified as "Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy)" in Permit No. 95010001 be renamed and identified as "Baghouse 2 for Argon Stirring and Ladle Metallurgy Facility." This statement is correct.

Illinois EPA then asserts that, for the following reasons, the pending permit application is deficient.

> However, the application does not actually identify the specific units that would be addressed

> by the proposed new term. In this regard, the application is not accompanied by an itemized list of the equipment and activities that would be covered by this new term or a diagram that identifies this equipment and activities. US Steel's request also does not explain how the requested revision to Permit 95010001 would do what has generally been requested as the proposed new term would refer to a "Material Handling Tripper." As the 2022 application requests changes to terminology in Permit 95010001, the changes should act to better identify the emissions units that would be addressed, improving the specificity and clarity of the revised permit.[51, 52]
>
> [51] For example, the proposed new term would not make clear that the basic oxygen furnace shop actually has two ladle stirring stations and one ladle metallurgy furnace, all served by Baghouse 2.
>
> [52] The requested change to the terminology for these emissions unit(s) is also problematic as it would refer to a control device, Baghouse 2, rather than to the equipment or activities that generate emissions. Applied literally, the proposed term would only address captured emissions; it would not address the uncaptured emissions, which elude capture for control by the baghouse.

This assertion is without merit. As an initial matter, U. S. Steel has not characterized the listed item as an emissions unit, regardless of naming convention. It is an emission point, and that is how U. S. Steel correctly characterized it in the permit application. The only condition in Permit No. 95010001 that applies to this emission point is a particulate matter emission limit of 12.8 tons per year, which applies solely to the emission point and not separately to "the equipment or activities that generate emissions." Any uncaptured emissions from that equipment or activities are routed to atmosphere through the Basic Oxygen Furnace Shop Roof Monitor. Those emissions are subject to the separate emission limits for the item referenced as "BOF Roof Monitor." This is consistent with the overall structure of Permit No. 95010001, which was issued by Illinois EPA many years prior to U. S. Steel's ownership, in which the emission limits for non-fugitive emissions are applicable to emission points (e.g., "Casthouse Baghouse," "Iron Spout Baghouse," "BOF ESP Stack") rather than emissions units. A similar change to the item naming was effected by Illinois EPA in 2013 when issuing the CAAPP permit for the Granite City Works, where the agency referred to this emission point (i.e., the item to which the particulate matter emission limit of 12.8 tons per year is applicable) as "Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy Baghouse #2)."[45]

The "list of the equipment and activities that would be covered by this new term" – *i.e.*, Baghouse 2 for Argon Stirring and Ladle Metallurgy Facility – is precisely the same as the list of the equipment and activities that are currently covered by the term "Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy)" as used in Permit No. 95010001 and by the term "Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy Baghouse #2)" in the facility's CAAPP permit. U. S. Steel reasonably concluded that Illinois EPA would understand this fact because the permit application requested and enumerated only discrete changes to Permit No. 95010001, none of which related to reconfiguring the equipment and activities venting to this emission point. Illinois EPA does not identify any provision of the Illinois Environmental Protection Act or the Illinois Administrative Code requiring that a straightforward request for revision of the name of an emission point be accompanied by a list of the equipment and activities venting to that emission point, nor does the

[45] *See,* CAAPP Permit No. 96030056 at Condition 7.5.6.g.

agency point to even an application form or guidance document suggesting that such information be provided. Of course, Illinois EPA retains authority to request additional documentation in conjunction with a construction permit application,[46] but that was not done here.

Notwithstanding all of the above, it remains the responsibility of Illinois EPA to draft a permit with conditions it judges to be suitable and appropriate. If Illinois EPA wishes to revise the permit to "improv[e] the specificity and clarity of the revised permit better" or to "identify the emissions units that would be addressed" by a particular emission limit, Illinois EPA has the discretion and authority to make such revisions. The permit applicant has no obligation to reflect in the permit application a correct guess as to how the permitting authority will exercise its judgment regarding these matters.

D. The Permit Application Includes All Required Information Relating to the Steel Slag Removal Station and the Handling Operation for Raw Materials Used in Ladle Metallurgy

In Attachment 1 to the draft denial letter, Illinois EPA states that, in the permit application, U. S. Steel "does not request any revisions to Permit 95010001 with respect to the Deslagging Station and Material HS." Although U. S. Steel did not request any permit revisions with respect to this item that it considers to be substantive, the absolute statement is incorrect, as U. S. Steel indicated in the permit application that this item should be renamed as "Baghouse 1 for Material Handling." This revision was suggested by U. S. Steel for two reasons: First, renaming this item based on the emission point rather than the emitting activity is more consistent with the naming convention generally used in Permit No. 95010001, as discussed in Section XIII.C above. Second, the historical naming of this item is misleading, as this baghouse does not serve to control emissions from any slag removal operation; the steel slag removal station at Granite City Works is not served by any capture system or baghouse.

The requested renaming is consistent with the approach taken by Illinois EPA in Attachment 3 of the CAAPP for the facility, which refers to this item as "Baghouse #1."

Illinois EPA then asserts that the pending permit application is deficient in two respects relating to the steel slag removal station (i.e., the activity identified as "deslagging station" in historical permitting documents). This assertion is without merit as discussed below.

First, Illinois EPA states that the permit application "does not explain why this steel deslagging operation should not appropriately be categorized as slag skimming and addressed with the other slag skimming operations in the basic oxygen furnace shop." U. S. Steel has claimed neither that the steel slag removal station should not appropriately be categorized as slag skimming nor that it should not be addressed with the other slag skimming operations in the basic oxygen furnace shop. Plainly, U. S. Steel was under no obligation to offer, as part of the permit application or otherwise, a justification for a claim that it was not making.

[46] *See, e.g.*, 35 Ill. Adm. Code Section 201.152 ("The Agency may adopt procedures that require data and information in addition to and in amplification of the matters specified in the first sentence of this Section, that are reasonably designed to determine compliance with this Chapter and ambient air quality standards, or that set forth the format by which all data and information shall be submitted.").

Second, Illinois EPA states that the permit application "does not request revisions to Permit 95010001 to facilitate amendment of the CAAPP permit to appropriately address the emissions of this deslagging station and the associated material handling system." Illinois EPA does not identify any provision of the Illinois Environmental Protection Act or the Illinois Administrative Code requiring that any application for a construction permit revision, even one for which integrated processing is requested, include a request for revisions "to facilitate amendment of the CAAPP permit" for the facility. It is the responsibility of Illinois EPA to draft both a construction permit and a CAAPP permit with conditions it judges to be suitable and appropriate. The permit applicant has no obligation to reflect in the permit application a correct guess as to what revisions to one permit would be viewed by the permitting authority as facilitating revisions to another permit.

E. The Permit Application Includes All Required Information Relating to the Ladle Drying Preheaters

In Attachment 1 to the draft denial letter, with respect to the Ladle Drying Preheaters, Illinois EPA states that the permit application is deficient because U. S. Steel "does not request any changes to Permit 95010001 to maintain consistency with the approach to these units in the CAAPP permit."

This assertion is without merit. Illinois EPA does not identify any provision of the Illinois Environmental Protection Act or the Illinois Administrative Code requiring that any application for a construction permit revision, even one for which integrated processing is requested, include a request for revisions "to maintain consistency with the approach to these units in the CAAPP permit" for the facility. It is the responsibility of Illinois EPA to draft both a construction permit and a CAAPP permit with conditions it judges to be suitable and appropriate. The permit applicant has no obligation to reflect in the permit application a correct guess as to what revisions to one permit would be viewed by the permitting authority as maintaining consistency with another permit.

F. The Permit Application Includes All Required Information Relating to Identification of the CAAPP Permit to be Administratively Amended Following Integrated Processing of the Construction Permit Application

In Attachment 1 to the draft denial letter, Illinois EPA states that the permit application is deficient because it "does not identify the version of the Clean Air Act Permit Program (CAAPP) permit for the Granite City Works, Permit 96030056, that would be eligible for administrative amendment" under the integrated processing provisions. Relatedly, Illinois EPA asserts that U. S. Steel "has not initiated action for the Illinois EPA to actually issue an amended CAAPP permit with changes as authorized by Permit 11050006."

These assertions are without merit. Illinois EPA does not identify any provision of the Illinois Environmental Protection Act or the Illinois Administrative Code requiring that any application for a construction permit revision, even one for which integrated processing is requested, specify the "version" of the CAAPP permit for the facility that should be amended. It is solely the responsibility of Illinois EPA to make revisions and amendments to CAAPP permits in conformance with applicable rules and laws.

Regarding whether U. S. Steel has initiated the process of incorporating the provisions of Permit No. 11050006 into the facility's CAAPP permit, U. S. Steel responds further as follows: In November

2013, U. S. Steel submitted an application to renew the CAAPP permit for Granite City Works. In this permit application, U. S. Steel expressly requested that Illinois EPA incorporate the conditions of Permit No. 11050006 into the CAAPP permit and noted that "the Basic Oxygen Furnace process described in the CAAPP permit condition 7.5 needs to be updated with the new secondary baghouse added as part of the Emission Reduction Project (Construction Permit No. 11050006)."[47] That application was deemed complete by operation of law in January 2014.[48] Illinois EPA retains authority to request additional information in conjunction with a CAAPP permit application,[49] but the agency has not done so.

G. The Permit Application Includes All Required Information Relating to the Relationship Between Fugitive Dust Control Measures Required by Permit No. 95010001 and Requirements of 35 Ill. Adm. Code Part 212

In Attachment 1 to the draft denial letter, Illinois EPA states that the permit application is deficient because it "does not make clear the relationship between these requirements established by permit [relating to emissions of fugitive dust from roadways, parking areas, and open access areas] and state regulatory requirements for fugitive emissions in 35 IAC Part 212 Subpart K."

This assertion is without merit. Illinois EPA does not identify any provision of the Illinois Environmental Protection Act or the Illinois Administrative Code requiring that any application for a construction permit revision, even one for which integrated processing is requested, specify the relationship between existing permit terms and applicable rule requirements. It is the responsibility of Illinois EPA to draft a permit with conditions it judges to be suitable and appropriate and in conformance with applicable rules and laws.

H. The Permit Application Includes All Required Information Relating to Applicable Provisions of 40 CFR Part 63 Subpart FFFFF

In Attachment 1 to the draft denial letter, Illinois EPA asserts that the permit application is deficient because it "does not address revisions to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Integrated Iron and Steel Manufacturing Facilities, 40 CFR 63 Subpart FFFFF, made by USEPA in July 2020." Relatedly, in Attachment 1, Illinois EPA makes the observation:

> These revisions to 40 CFR 63 Subpart FFFFF are relevant for Permit 95010001 and the revisions to this permit requested by the 2022 application. This is because Permit 95010001 relies on the applicable compliance procedures of 40 CFR 63 Subpart FFFFF (i.e., requirements for emission testing, opacity observations operational monitoring and recordkeeping), to verify consistent operation of the casthouse, the basic oxygen furnaces and other NESHAP-subject units and their emission controls, for the purposes of assuring compliance with the emission limits set by this permit for their emissions of particulate.

[47] *See,* CAAPP permit renewal application at pp. 2-1 and 4-1.
[48] *See,* subsection 39.5(5)(f) of the Illinois Environmental Protection Act ("Unless the Agency notifies the applicant of incompleteness, within 60 days of receipt of the CAAPP application, the application shall be deemed complete.").
[49] *See,* subsection 39.5(5)(g) of the Illinois Environmental Protection Act ("If after the determination of completeness the Agency finds that additional information is necessary to evaluate or take final action on the CAAPP application, the Agency may request in writing such information from the source with a reasonable deadline for response.").

The assertion regarding a deficiency in the permit application is without merit. Illinois EPA does not identify any provision of the Illinois Environmental Protection Act or the Illinois Administrative Code requiring that any application for a construction permit revision, even one for which integrated processing is requested, include suggested bases upon which Illinois EPA might reopen the facility's CAAPP permit. It is solely the responsibility of Illinois EPA to reopen the CAAPP permit where the agency determines that the permit must be revised or revoked to assure compliance with all applicable requirements.[50]

U. S. Steel generally agrees with Illinois EPA's observation regarding the relevance of the NESHAP requirements and responds further as follows: The applicable requirements of the NESHAP as currently codified are legally enforceable, and the monitoring, testing, recordkeeping, and work practice requirements of that rule provide a sound technical basis for demonstration of compliance with particulate matter emission limits, regardless of whether Illinois EPA satisfies the mandate to reopen the CAAPP permit where such reopening is required to assure compliance with all regulatory requirements.

I. The Permit Application Includes All Required Information Relating to Equipment that is Listed in the CAAPP Permit and Has Been Permanently Shut Down

In Attachment 1 to the draft denial letter, Illinois EPA asserts that the permit application is deficient because it "does not identify changes to the CAAPP permit for the Granite City Works, Permit 96030056, that are a consequence of permanent shut down of emissions units" and further asserts that "[t]he responsibility to identify provisions in the CAAPP permit that should not be carried forward initially falls on US Steel as it is the CAAPP Permittee for the Granite City Works."

These assertions are without merit. Illinois EPA does not identify any provision of the Illinois Environmental Protection Act or the Illinois Administrative Code requiring that any application for a construction permit revision, even one for which integrated processing is requested, request changes to the facility's CAAPP permit other than those directly resulting from the requested revisions of the underlying construction permit. It is the responsibility of Illinois EPA to draft a permit with conditions it judges to be suitable and appropriate and in conformance with applicable rules and laws.

The pending permit application was submitted for the narrow and specific purpose of addressing the outstanding appeal items and the underlying PSD and NNSR applicability evaluations relating to the Production Increase Project implemented by National Steel Corporation. This application was not intended to address changes that are not directly relevant to that purpose.

In November 2013, U. S. Steel submitted an application to renew the CAAPP permit for Granite City Works. That application was deemed complete by operation of law in January 2014.[51] Illinois EPA

[50] *See,* subsection 39.5(15)(a)(iv) of the Illinois Environmental Protection Act.
[51] *See,* subsection 39.5(5)(f) of the Illinois Environmental Protection Act ("Unless the Agency notifies the applicant of incompleteness, within 60 days of receipt of the CAAPP application, the application shall be deemed complete.").

retains authority to request additional information in conjunction with the CAAPP permit application,[52] but the agency has not done so.

[52] *See*, subsection 39.5(5)(g) of the Illinois Environmental Protection Act ("If after the determination of completeness the Agency finds that additional information is necessary to evaluate or take final action on the CAAPP application, the Agency may request in writing such information from the source with a reasonable deadline for response.").

Illinois Environmental Protection Agency
Division Of Air Pollution Control -- Permit Section
P.O. Box 19506
Springfield, Illinois 62794-9506

Construction Permit Application for a Proposed Project at a CAAPP Source	For Illinois EPA use only
	ID No.:
	Appl. No.:
	Date Rec'd:
	Chk No./Amt:

This form is to be used to supply general information to obtain a construction permit for a proposed project involving a Clean Air Act Permit Program (CAAPP) source, including construction of a new CAAPP source. Detailed information about the project must also be included in a construction permit application, as addressed in the "General Instructions For Permit Applications," Form APC-201.

Proposed Project

1. Working Name of Proposed Project:
1996 Construction Permit Revision

2. Is the project occurring at a source that already has a permit from the Bureau of Air (BOA)?
☐ No ☒ Yes If Yes, provide BOA ID Number: 119813AAI

3. Does this application request a revision to an existing construction permit issued by the BOA?
☐ No ☒ Yes If Yes, provide Permit Number: 95010001

4. Brief Description of Proposed Project:
This application proposes revisions to certain emission limits and other requirements in the 1996 Construction Permit for the U.S. Steel Granite City facility.

Source Information

1. Source name:* United States Steel Corporation - Granite City Works

2. Source street address:* 1951 State Street

3. City: Granite City	4. County: Madison	5. Zip code:* 62040

ONLY COMPLETE THE FOLLOWING FOR A SOURCE WITHOUT AN ID NUMBER.

6. Is the source located within city limits? ☐ Yes ☐ No
If no, provide Township Name:

7. Description of source and product(s) produced:	8. Primary Classification Code of source: SIC: _____ or NAICS: _____
9. Latitude (DD:MM:SS.SSSS):	10. Longitude (DD:MM:SS.SSSS):

* Is information different than previous information? ☐ Yes ☐ No
If yes, then complete Form CAAPP 273 to apply for an Administrative Change to the CAAPP Permit for the source.

Identification of Permit Applicant

1. Who is the applicant? ☒ Owner ☐ Operator	2. All correspondence to: (check one) ☒ Source ☐ Owner ☐ Operator
3. Applicant's FEIN: 25-1897152	4. Attention name and/or title for written correspondence: Krista Armentrout - Environmental Manager

This Agency is authorized to require and you must disclose this information under 415 ILCS 5/39. Failure to do so could result in the application being denied and penalties under 415 ILCS 5 et seq. It is not necessary to use this form in providing this information. This form has been approved by the forms management center.

Review Of Contents of the Application	
NOTE: ANSWERING "NO" TO THESE ITEMS MAY RESULT IN THE APPLICATION BEING DEEMED INCOMPLETE	
1. Does the application include a narrative description of the proposed project?	☒ Yes ☐ No
2. Does the application clearly identify the emission units and air pollution control equipment that are part of the project?	☒ Yes ☐ No
3. Does the application include process flow diagram(s) for the project showing new and modified emission units and control equipment, along with associated existing equipment and their relationships?	☒ Yes ☐ No
4. Does the application include a general description of the source, a plot plan for the source and a site map for its location?	☐ Yes ☐ No ☒ N/A* * Material previously provided
5. Does the application include relevant technical information for the proposed project as requested on CAAPP application forms (or otherwise contain all relevant technical information)?	☒ Yes ☐ No
6. Does the application include relevant supporting data and information for the proposed project as provided on CAAPP forms?	☒ Yes ☐ No
7. Does the application identify and address all applicable emission standards for the proposed project, including: State emission standards (35 IAC Chapter I, Subtitle B); Federal New Source Performance Standards (40 CFR Part 60)?	☒ Yes ☐ No
8. Does the application address whether the project would be a major project for Prevention of Significant Deterioration, 40 CFR 52.21?	☒ Yes ☐ No ☐ N/A
9. Does the application address whether the project would be a major project for "Nonattainment New Source Review," 35 IAC Part 203?	☒ Yes ☐ No ☐ N/A
10. Does the application address whether the proposed project would potentially be subject to federal regulations for Hazardous Air Pollutants (40 CFR Part 63) and address any emissions standards for hazardous air pollutants that would be applicable?	☒ Yes ☐ No ☐ N/A* * Source not major ☐ Project not major ☐
11. Does the application include a summary of annual emission data for different pollutants for the proposed project (tons/year), including: 1) The requested permitted emissions for individual new, modified and affected existing units*, 2) The past actual emissions and change in emissions for individual modified units* and affected existing units*, and 3) Total emissions consequences of the proposed project? (* Or groups of related units)	☒ Yes ☐ No ☐ N/A * The project does not involve an increase in emissions from new or modified emission units.
12. Does the application include a summary of the current and requested potential emissions of the source (tons/year)?	☒ Yes ☐ No ☐ N/A* * Applicability of PSD, NA NSR or 40 CFR 63 to the project is not related to the source's emissions.
13. Does the application address the relationships and implications of the proposed project on the CAAPP Permit for the source?	☒ Yes ☐ No ☐ N/A* * CAAPP Permit not issued
14. If the application contains information that is considered a TRADE SECRET, has it been properly marked and claimed and all requirements to properly support the claim pursuant to 35 IAC Part 130 been met? Note: "Claimed" information will not be legally protected from disclosure to the public if it is not properly claimed or does not qualify as trade secret information.	☐ Yes ☐ No ☒ N/A* * No information in the application is claimed to be a TRADE SECRET
15. Are the correct number of copies of the application provided? (See Instructions for Permit Applications, Form 201)	☒ Yes ☐ No
16. Does the application include a completed "FEE DETERMINATION FOR CONSTRUCTION PERMIT APPLICATION," Form 197-FEE, a check in the amount indicated on this form, and any supporting material needed to explain how the fee was determined?	☒ Yes ☐ No

Signature Block

Authorized Signature:

I certify under penalty of law that, based on information and belief formed after reasonable inquiry, the statements and information contained in this application are true, accurate and complete and that I am a responsible official for the source, as defined by Section 39.5(1) of the Environmental Protection Act.

BY: Michael Patton

AUTHORIZED SIGNATURE

General Manager - Granite City Works

TITLE OF SIGNATORY

Michael Patton

TYPED OR PRINTED NAME OF SIGNATORY

9 - 8 - 23

DATE

The above certification pertains to the application supplement signed, dated and previously submitted on October 3, 2022.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 · (217) 782-3397
JB PRITZKER, GOVERNOR JOHN J. KIM, DIRECTOR

Extension of the Public Comment Period in the Matter of the Intent to Deny an Application to Revise a Construction Permit/PSD Approval US Steel Corporation in Granite City

The comment period in this matter has been extended to September 11, 2023. All persons, including the applicant, shall raise all reasonably ascertainable issues and submit all reasonably available arguments supporting their position by the close of the public comment period. Persons wanting more information may view the draft permit denial letter and project summary at https://epa.illinois.gov/public-notices/boa-notices.html All comments should be received no later than September 11, 2023 and sent to:

Illinois EPA
Brad Frost, Office of Community Relations
1021 N. Grand Ave. East
PO Box 19506
Springfield, Illinois 62794-9506
phone 217/782-7027
TDD phone 866/273-5488
Brad.frost@illinois.gov

August 18, 2023

United States Steel Corporation
Law Department
600 Grant Street, Room 1844
Pittsburgh, PA 15219-2800
Tel: 412-433 2919
Fax: 412 433 2811
E-mail: dwhacker@uss.com

David W. Hacker
Senior Counsel - Environmental

August 17, 2023

VIA EMAIL - brad.frost@illinois.gov

Mr. Brad Frost
Office of Community Relations
Illinois EPA
P.O. Box 19506
Springfield, IL 62794-9506

Dear Mr. Frost:

Re: *United States Steel Corporation – Granite City Works*
Request for Extension of Comment Period
Illinois EPA Notice of Intent to Deny Application for
Revision to Construction Permit/PSD Approval – Permit/Application No. 95010001
ID No. 119813AAI

United States Steel Corporation (U. S. Steel) respectfully requests an extension of at least 21-days to the comment period to allow U. S. Steel to properly consider the Illinois EPA's proposed denial of the above referenced permit application. This additional time is necessary to allow a thorough evaluation of the numerous, complex issues raised in the Illinois EPA's proposed denial. With this additional time, U. S. Steel can provide more meaningful comments to assist Illinois EPA in its continued review of the application and its supporting materials. As the Illinois EPA is aware, U. S. Steel worked diligently in preparing the application and meeting with the Illinois EPA – and we desire to continue to work in a collaborative manner with Illinois EPA during this process. We believe the additional time will be beneficial to that process. We appreciate the Illinois EPA's careful consideration of this request.

If you have any questions, please contact me at dwhacker@uss.com or (412) 433-2919.

Kind Regards,

cc: K. Jones, Esq. (USS)
L. Driver, Esq. (Hepler Broom)
A. Piscitelli (USS)
K. Armentrout (USS)
C. Hardin (USS)

217/785-1705

CERTIFIED MAIL

DENIAL OF AN APPLICATION FOR REVISIONS TO A CONSTRUCTION PERMIT/PSD APPROVAL[1] (DRAFT)

(Draft July 2023)

U.S. Steel Granite City
Attn: Krista Armentrout – Environmental Manager
1951 State Street
Granite City, Illinois 62040

Permit/Application No.: 95010001 I. D. No.: 119813AAI
Date Permit Originally Issued: January 25, 1996
Date Application for Revisions Received: October 7, 2022
Subject of Permit: Production Increase
Location: Granite City Works, Southeastern Granite City

The Illinois EPA has reviewed your above application for revisions to the above-referenced construction permit/Prevention of Significant Deterioration (PSD) approval issued for the above referenced project. The permit application is DENIED because Sections 9.1, 39, 39.5(5)(c), 39.5(10)(a)(i) and 39.5(13)(a) and (c)(v) of the Illinois Environmental Protection Act (Act) and Sections 201.142,201.160, 203.128, 203.601, 203.602, 204.560, 204.1100, 204.1110, 204.1120 and 204.1130 of Title 35 of the Illinois Administrative Code (IAC) might be violated.

The specific reasons why provisions of the Act and State regulations may not be met if this permit were revised as requested by this application are detailed in the Listing of Denial Points, Attachment 1 of this permit denial.

Before taking action to deny the above-referenced application, the Illinois EPA held a public comment permit on a draft of a proposed permit denial letter in accordance with 35 IAC Part 252, as provided for by 35 IAC 252.105(b).

If you have any questions on the denial of this application, please call Minesh Patel at 217/785-1705.

William D. Marr
Manager, Permit Section
Bureau of Air

WDM:mvp:tan

[1]. In this application, US Steel request that the revision of this permit be processed with "Integrated Processing," as is provided for by Section 39.5(13)(a) and (c)(v) of the Act. Integrated Processing would allow changes to the Clean Air Act Permit Program (CAAPP) permit for the Granite City Works, as would be set forth in the revised permit, to subsequently be made by means of an Administrative Amendment of the CAAPP permit.

U.S. Steel Granite City (I. D. No. 119813AAI)
Permit/Application No. 95010001
Application for Revisions to the Permit Received on October 7, 2022
Draft of Permit Denial Letter July 2023

ATTACHMENT 1: LISTING OF DENIAL POINTS

1. THE REVISED NETTING ANALYSIS FOR THE PROJECT FOR NITROGEN OXIDES (NOx) DOES NOT FULFILL RELEVANT REQUIREMENTS OF NEW SOURCE REVIEW (NSR) FOR SUCH ANALYSES

Overview

For NOx emissions, the 2022 application for revisions to the Construction Permit 95010001 for the Production Increase Project (Project)[1] does not address or show fulfillment of the substantive requirements of the Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NaNSR) programs related to impacts on air quality, i.e., air quality analysis for impacts on NO_2 air quality per 35 IAC 204.1130 and emission offsets for NOx per 35 IAC 203.302. For the blast furnaces and blast furnace stoves, i.e., the emission units that underwent physical modifications with the Project, the 2022 application also does not show fulfillment of the BACT and LAER requirements, respectively of PSD (35 IAC 204.1100) and NaNSR (35 IAC 203.301) for NOx emissions.[2, 3] This showing is necessary because Permit 95010001 is currently based on the net increase in NOx emissions from the Project not being significant so that the Project is not a major modification for NOx.[4] The 2022 application requests that the Project be permitted for additional NOx emissions but does not show that the Project would still not be a major modification for NOx if the permit were revised as requested. As the Project

[1] Permit 95010001 was initially issued in January 1996 for a "Production Increase" at the Granites City Works. It provides for increases in the allowable production rates of iron from 2,372,500 to 3,165,000 tons per year and of steel from 2,774,000 to 3,580,000 tons per year. This permit was preceded by Construction Permit 9209014, a permit for increases in production issued in September 1992. That permit provided for increases in the permitted production rate on a monthly average basis for iron from 5,600 to 6,500 tons per day (equivalent to production of 2,372,500 tons per year) and for steel from 6,900 to 7,600 tons per day (equivalent to production of 2,774,000 tons per year).

[2] The basic oxygen furnaces, at which the largest increase in permitted NOx emissions is requested, were not physically modified and would not become subject to requirements for BACT or LAER for NOx even if the Project were a major modification.

[3] The 2022 application also does not include an analysis of alternatives. This analysis would have been required to be included in the original application for the Project if it had been recognized in 1996 that the Project was a major modification for NOx. It is beyond the scope of the revisions of Permit 95010001 that are now requested to address the fact that such an analysis was not originally part of the construction permit application for the Project.

[4] Under the PSD program, the significant emission rate for NOx is 40 tons/year; under NaNSR, since Granite City is not in an area that is classified as serious, severe or extreme nonattainment for ozone air quality, the significant emissions rate for NOx is also 40 tons/year. An increase in NOx emissions or, if the source elects to evaluate the net increase in emissions, a net increase in NOx emissions from a project that is equal to or greater than this rate is considered significant. (35 IAC 204.660 and 35 IAC 203.209.)

would become a major modification for NOx with the requested revisions to Permit 95010001, the 2022 application must show for NOx that the relevant substantive requirements of PSD and NaNSR are fulfilled for the Project. It would not be appropriate for a revised permit to be issued with increases in permitted NOx emissions as requested by the current application if this application does not also show that the applicable substantive requirements of PSD and NaNSR would be met for the Project for NOx.

In this regard, the 2022 application requests that the permitted NOx emissions of the casthouse on the blast furnaces and the basic oxygen furnaces be increased by 19.4 and 220.2 tons/year, respectively, for an overall increase of 239.6 tons/year. (2022 application, Appendix B - Emission Calculations, USS Granite City – 1996 Production Increase Project: Revised NOx PSD Net Emissions Increase Analysis.)[5] The revised netting analysis for the Project for NOx in the 2022 application suggests that this increase would be accompanied by decreases in the NOx emissions of certain other units. With these accompanying decreases, the net increase in NOx emissions from the Project with the requested revised permit would continue to not be significant.[6] The requested increase in the permitted NOx emissions of the blast furnaces and basic oxygen furnaces, 239.6 ton/year combined, would not result in the Project becoming a major modification for NOx. For this purpose, the 2022 application indicates that the overall decrease in NOx emissions from Project-affected fuel burning units would now be 250.3 tons/year, comparing their revised baseline NOx emissions of 956.3 tons/year and future NOx emissions of 706 tons/year. (2022 application, Appendix B - Emission Calculations, USS Granite City – 1996 Production Increase Project: Revised NOx PSD Net Emissions Increase Analysis.) However, the 2022 application does not identify the specific decreases in NOx emissions that occurred at different groups of Project-affected fuel burning units. Instead, the 2022 application simply indicates that the future NOx emissions of the Project-affected fuel burning units, overall, would not exceed 706.0 tons/year.

This netting analysis for NOx in the 2022 application cannot be relied upon for issuance of a revised permit for the Project as requested by US Steel. The application does not include relevant information showing that additional decreases in NOx emissions that would now be proposed to be relied upon would be contemporaneous and creditable for permitting of the Project. For

[5] In the 2022 application, the increases in the NOx emissions of the blast and basic oxygen furnaces reflect proposed corrections to baseline emissions, as well as increases in the permitted emissions with the project. For the blast furnaces, the application indicates that baseline NOx emissions should be lowered from 15.6 to 4.6 tons/year. For the basic oxygen furnaces, baseline NOx emissions should be raised from 46.94 to 179.8 tons/year. (2022 application, Table 6-5, "Pre-project Actual Emissions and Summary of Proposed Changes to Pre-project NOx Emission Factors for Affected Emissions Units.")

[6] When a netting analysis that showed a project would not be a major modification is found to have understated emissions of certain new or modified emission units, the next step is usually to examine whether the project should still not be considered a major modification. The revised netting analysis for this purpose may consider adjustments such as reductions in the permitted emissions of other new or modified units involved in the project. It may also consider additional emission decreases that were not relied upon by the original netting analysis but could have been as they are contemporaneous and creditable. As this reexamination of a project shows that it still would not be considered a major modification with appropriate adjustments to the netting analysis, an appropriately revised construction permit may be issued that is based on the project continuing to not be a major modification.

emission decreases to be relied on for the purpose of a netting analysis, 35 IAC 204.550 and 203.208 provide that the decreases must be contemporaneous and creditable. This necessitates information for how the additional decreases in NOx emissions addressed in the revised netting analysis for NOx were created and how the amounts of the decrease were quantified. Most significantly, the 2022 application does not show that certain decreases in NOx emissions that it would rely upon should be considered contemporaneous with the Project. A revised permit cannot be issued for the Project that relies upon "post-project" emissions decreases, which occurred after the Project, to show that the Project with the requested increases in NOx emissions of the furnaces, should still not be considered a major modification. This is critical because changes that are unrelated to the Project have occurred at certain fuel burning units after the initial issuance of Permit 95010001. The 2022 application proposes to rely upon the decreases in NOx emissions due to these changes, which decreases were not and could not have been relied upon by the original permit for the Project. These decreases in emissions would be relied upon by the revised netting analysis as the analysis does not account for and exclude the emissions decreases from these changes from the analysis. (In addition, as will be addressed separately below, the 2022 application does not include appropriate support for certain units for the quantification of NOx emissions in the revised netting analysis.)

Application Relies on Emission Decreases That Are Not Contemporaneous

As related to the requirement of the NSR rules that decreases in emissions relied upon for netting be contemporaneous, the 2022 application indicates baseline NOx emissions of 131.8 and 123.2 tons/year from the use of blast furnace gas (BFG) and natural gas, respectively, in Boilers 1 through 12. (2022 application, Appendix B - Emission Calculations, USS Granite City – 1996 Production Increase Project: Revised NOx PSD Net Emissions Increase Analysis.) Boilers 1 through 12 are the twelve boilers at the source in 1996 that were addressed by Permit 95010001. Ten of these boilers, Boilers 1 through 10, were shut down in 2009.[7] The 2022 application does not show that NOx emissions of these ten boilers, as existed in the period prior to 2009, were considered in the "future" NOx emissions with the Project of at most 706 tons/year from the Project-affected fuel burning units. In addition, with regard to Boilers 11 and 12, the two remaining old boilers at the source that continue in operation, flue gas recirculation systems have

[7] The shutdown of Boilers 1 through 10 was required by Condition 2.6(a) of Construction Permit 06070023, which was originally issued in July 2006. This permit addresses construction of a cogeneration boiler at the facility that would be designed to produce both high-pressure steam to generate electricity and lower pressure process steam. This boiler has been constructed and is in operation. The permitting of this new boiler relied upon contemporaneous decreases in NOx emissions from several actions, most notably, a decrease of 558.9 tons/year from addition of low NOx burners to four reheat furnaces. The permitting of the new cogeneration boiler also relied on a 33.41 tons/year decrease in NOx emissions from the shutdown of Boilers 1 through 10 as this eliminated use of natural gas by these boilers. The related application for emissions decreases that were contemporaneous with the new boiler did not rely on any decreases in the NOx emissions of these boilers from use of COG and BFG. This is because "…the boilers shutdowns will not result in any change in the amount of BFG and COG combusted at the Facility." (Application 06070022, Section 3.3.1. "Boilers 1 through 10 Shutdown Emission Calculations," p. 3-7.) The reliance of Permit 06070023 on emission decreases from the shutdown of these boilers is a further impediment to reliance on these decreases in a revised netting analysis for the Project.

been installed on these boilers pursuant to Construction Permit 10080022, issued in January 2011. These systems were installed to control NOx emissions to facilitate compliance with 35 IAC 217.164. The 2022 application does not show that the revised netting analysis for NOx does not rely on the lower NOx emissions from Boilers 11 and 12 that are now being achieved with the new control systems, rather than their NOx emissions as previously existed with the Project in the period before these control systems were installed.

The application also indicates baseline NOx emissions of 461 tons/year from use of coke oven gas (COG) in the blast furnace stoves and Boilers 11 and 12.[8] In 2015, US Steel shut down the two by-product recovery coke oven batteries at the Granite City Works. COG ceased to be available for use in the stoves or Boilers 11 and 12. However, COG was available for use in the stoves and these boilers in 1996. As related to the Project, the 2022 application does not show that the revised netting analysis for NOx would not rely upon decreases in the NOx emissions of the stoves and boilers due to the elimination of COG, which did not occur until 2015.[9]

In summary, for purposes of applicability of NSR, the NOx emissions allowed from the Project in 1996 that would be permitted with the requested revisions to the permit could be substantially higher than indicated in the 2022 application.[10] This application does not show that this would not be the case such that the Project would not become a major modification for NOx with the

[8] For Project-affected boilers, the 2022 application indicates that baseline NOx emissions from usage of COG are addressed only for Boilers 11 and 12. (2022 application, Table 6-5, "Pre-project Actual Emissions and Summary of Proposed Changes to Pre-project NOx Emission Factors for Affected Emissions Units.") This is likely erroneous since the application for Permit 06070022 indicates that Boilers 1 through 10 also had the ability to use COG.

[9] The 2022 application does reflect increased use of natural gas by Project-affected fuel burning units. The application explains that with the shutdown of the by-product coke oven batteries, COG is no longer available and more natural gas may need to be used (e.g., 2022 application, Section 6.3, Post-Project NOx Emissions Limitations"). Permit 95010001 currently limits annual use of natural gas by the Project-affected fuel burning units to 1,346 million cubic feet. The revised netting analyses in the 2022 application are based on a post-project annual natural gas usage of up to 1,980 million cubic feet (e.g., Tables 5-7, 6-6 and 7-3).

The decreases in NOx emissions that resulted from the shutdown of the coke oven batteries and elimination of COG in 2015 are contemporaneous with any increases in NOx emissions due to the accompanying use of more natural gas. However, these emissions decreases are not contemporaneous relative to the Project, which was undertaken in 1996. In addition, an application for revisions to Permit 95010001 is not an appropriate venue to address the use of more natural gas due to the shutdown of the coke oven batteries. The Project involved increases in production of iron and steel. The Project-affected fuel burning units do not include four slab furnaces that also used COG and now must use more natural gas. Lastly, the consequences of the shutdown of the coke oven batteries on the facility's NOx emissions, including the consequences for the slab reheat furnaces, are the subject of a separate construction permit application, Application 15030001, received March 5, 2015, which application is still pending.

[10] It should be noted that for purposes of applicability of NSR, for the same reasons that the 2022 application understates the net increase in emissions of NOx from Project-affected fuel burning units, the application also understates the increases or net increases in emissions of the Project for purposes of NSR for particulate matter (PM), particulate matter$_{10}$ (PM_{10}) and volatile organic material (VOM), i.e., pollutants other than NOx for which the requested revised permit for the Project would rely upon the increase or net increase in emissions not being significant.

requested increases in the permitted emissions of the blast furnaces and the basic oxygen furnaces. The timing of actions that have resulted in decreases in NOx emissions of fuel burning units after 1996 is critical when considering applicability of NSR to the Project with the requested revisions to Permit 95010001. As the decreases in NOx emissions from certain actions cannot be considered or would be smaller, the net increase in NOx emissions of the Project would be greater. In this regard, it must be assumed that the "future NOx emissions" indicated in the 2022 application reflect maximum actual NOx emissions beginning in 2023, with the requested revisions to Permit 95010001. The application does not suggest that these future NOx emissions are the emissions that should have been allowed by the permit back in 1996 when the permit was issued and the Project commenced.[11]

[11] With the requested revisions of Permit 95010001, it is unclear how, , the "future NOx emissions" of fuel burning units indicated in the 2022 application are NOx emissions that could have been allowed by this permit in 1996. The future NOx emissions of affected fuel burning units indicated in the 2022 application are less than the baseline NOx emissions, i.e., proposed future emissions of 706 tons/year compared to the claimed baseline of 956 tons/year. However, the Project did not include any elements that would lower the NOx emissions of fuel burning units. Rather, the production of more iron and steel would be accompanied by increased utilization of the blast furnace stoves and boilers as more blast air and steam are generally needed for blast furnaces to produce more iron. Accordingly, in 1996, the NOx emissions of fuel burning units allowed by Permit 95010001 must necessarily be more than the baseline emissions, as this permit addresses a project that involves use of more BFG and natural gas by Project-affected fuel burning units. (Use of COG was not expected to be affected by the Project because production of COG was constrained by the design and operation of the existing coke oven batteries, which were not being modified as part of the Project.)

Indeed, the future NOx emissions of the fuel burning units for purposes of any revised netting analysis should be expected to be substantially greater than their baseline emissions. If one assumes that the increases in emissions would be proportional to the permitted increase in iron production, future NOx emissions of the fuel burning units would be expected to increase by roughly 40 percent. If the baseline emissions of these units should have been 956 tons/year, as indicated in the 2022 application, this suggests future emissions of these units with the Project should be about 1,340 tons/year (956 tons/year x 1.4 = 1.338 ~ 1,340 tons/year). Alternatively, absent any decreases in NOx emissions from the twelve boilers and the discontinuation of COG, and disregarding increased use of natural gas in place of COG, the NOx emissions from the Project-affected fuel burning units for purposes of NSR applicability, as of 1996, would be on the order of 1,420 tons/year (Proposed future emissions of 706 tons/year + 131.8 tons/year attributable to use of BFG by the boilers + 123.2 tons/year attributable to use of natural gas by the boilers + 461 tons/year from the discontinuation of the use of COG in the stoves and Boilers 11 and 12 ~ 1,420 tons/year). If so, the calculated change in NOx emissions from Project-affected fuel burning units for purposes of NSR applicability would be a net increase on the order of 460 tons/year (1,420 – 956 = 464), rather than a net decrease of about 250 tons/year.

2. THE DETERMINATION OF BASELINE NOx EMISSIONS IN THE REVISED NETTING ANALYSIS CANNOT BE INDEPENDENTLY CONFIRMED

The new determination of baseline NOx emissions of Project-affected fuel burning units provided in the revised netting analysis cannot be independently confirmed. In this regard, the 2022 application does not show that all Project-affected fuel burning units have been addressed. For units that are addressed, the application does not show that appropriate emission factors and operating data have been used to estimate emissions. As specific concerns exist with the determination of baseline NOx emissions for certain emission units, as discussed below, concerns exist with the determination of the overall baseline NOx emissions for the Project.

Baseline Usage of Coke Oven Gas (COG)

As already discussed, the use of coke oven gas (COG) in Project-affected fuel burning units is introduced in the 2022 application for revisions to Permit 95010001.[12] This application does not include supporting documentation or explanation for the baseline usage of COG utilized in the revised netting analysis. The annual usage of COG in the blast furnace stoves (374 million cubic feet/year) and in boilers (2,211 million cubic feet/year) is simply presented in the revised netting analysis for NOx. (2022 application, Appendix B - Emission Calculations, USS Granite City - 1996 Production Increase Project: Revised NOx PSD Net Emissions Increase Analysis). The indicated usages of COG are not accompanied by any documentation or explanation.

Emission Factor for Use of COG in Boilers 11 and 12:

For COG, the 2022 application utilizes a NOx emission factor for Boilers 11 and 12[13] of 404 pounds/million cubic feet of COG.[14] The application states that this factor is based on emission testing conducted on the stack of A Coke Battery (2022 application, Table 6-4. "NOx Emission

[12] It should be noted that the introduction in the revised netting analysis for the Project of NOx emissions from use of COG in Project-affected fuel burning units is not acknowledged in the section of the 2022 application in which historical production and operating rates are discussed. Section 6.2.1 of the application, "Historical Throughput Rates," states that "The pre-project actual emissions were calculated using the same production and operating rates as the 1995 Application shown in Table 6-3 [Pre-Project Production and Operating Rates for NOx]." This statement is clearly not accurate as the usage of and NOx emissions from COG were not quantified in the 1995 application. Moreover, Table 6-3 does not include information for the historical or baseline usage of COG.

[13] In the 2022 application, there is an inconsistency in the information for the baseline NOx emissions of boilers. In Table 6-5, "Pre-project Actual Emissions and Summary of Changes to Pre-Project NOx Emissions Factors for Affected Emissions Units," baseline NOx emissions of Boilers 1 through 10 do not appear to be addressed since this table shows that baseline emissions are provided for B11 and B12 (Boilers 11 and 12). In Appendix B, USS Granite City – 1996 Production Increase Project: Revised NOx PSD Net Emissions Increase Analysis, baseline NOx emissions appear to be provided for all boilers, as information is shown as being for "boilers."

[14] For the stoves, the revised netting analysis utilizes a lower NOx emission factor of 80 pounds/million cubic feet of COG. The application states that this factor is based on an emission test for which the date is unknown (2022 application, Table 6-4, p. 6-3). As this factor is identical to the NOx emission factor in USEPA's WebFIRE data base for burning of COG in industrial boilers, this factor can be considered appropriate. (USEPA, Clearinghouse for Inventories & Emission Factors, Emission Factors & AP 42, WebFIRE, Search WebFIRE, with search conducted using the term "coke oven gas" in the field under Select options under Source Classification Code.)

Factors for Fuel Burning"). The application does not show that it is appropriate to utilize an emission factor developed from the results of emission testing on the combustion stack of a coke oven battery to calculate emissions of a boiler. There are significant differences between combustion of COG as occurs at coke ovens and combustion of fuel in a boiler. At a fundamental level, a combustion stack emits the products of combustion from the heating of coke ovens to the high temperature needed to convert coal into coke. Regenerative heat exchangers are utilized to efficiently achieve this temperature. Boilers 11 and 12 emit the products of combustion from burning fuel to achieve the temperature needed convert water into process steam.[15]

Emission Factor for Use of Natural Gas in Ladle Preheaters:

For use of natural gas, the 2022 application utilizes a single emission factor for NOx emissions from all Project-affected fuel burning units. This factor, 306 pounds/million cubic feet of natural gas reflects the results of emission testing conducted on Boiler 12 when using natural gas. The application does not show that it is appropriate to utilize this emissions factor for ladle preheaters, which are different types of emissions units than boilers. Moreover, the revised netting analysis for NOx in the application erroneously indicates that the estimated baseline NOx emissions of ladle preheaters were "Revised to use current AP-42 emission factor." (2022 application, Appendix B, Emission Calculations, USS Granite City – 1996 Production Increase Project: Revised NOx PSD Net Emissions Increase Analysis.) The current AP-42 NOx emission factor for small boilers (<100 million Btu/hour heat input) without low NOx burners or flue gas recirculation is only 100 pounds/million cubic feet of natural gas. (USEPA, *Compilation of Air Pollutant Emission Factors*, AP-42, Table 1.4-1.)

Emissions from Use of Natural Gas on the Continuous Casting Lines:

Unlike the original application, the 2022 application does not directly address NOx emissions associated with use of natural gas in continuous casting operations.[16] In this regard, this application states

> The pre-project actual emissions for the Continuous Caster Mold – Caster #1 and Caster 2 process, as presented by National Steel Corporation in the 1995 Application listed NOx emissions from this operation. USS Granite City evaluated this analysis and determined that there is no NOx formation from this operation. Any NOx emissions from this operation are due to combustion of natural gas and are already accounted for under the gaseous fuel burning activities listed above [Section 6.2.2.1, Fuel Burning Emissions Units

[15] Application 15030001, the pending application for a construction permit for use of more natural gas with the shutdown of the by-product coke oven batteries, utilizes an emission factor for use of COG of 80 pounds/million cubic feet for baseline NOx emissions of Boiler 12. This is the NOx emission factor in FIRE for use of COG in boilers. This factor is much lower than 404 pounds/million cubic feet, the factor for COG used in the 2022 application for the baseline emissions of Boilers 11 and 12.

It should be noted that Application 15030001 does not include a NOx emission factor for Boiler 11 for COG. This is likely because Boiler 11 did not use COG in the baseline period used for Boilers 11 and 12 (January 2013 through December 2014) for the net increase analysis in this application.

[16] As reflected in Permit 95010001, the original permitting of the Project accounted for NOx emissions of 89.5 tons/year from Caster Molds – Casting but did not account for any NOx emissions from Slab Cut-Off and Slab Ripping, for which only particulate emissions were addressed.

> Emissions (Revised)]. Therefore, in the revised analysis, NOx emissions are not included from this operation.
>
> 2022 application, Section 6.2.2.7, "Continuous Caster Mold Process Emissions (Revised)."

This is problematic for several reasons. First, the 2022 application does not address the NOx emissions of the natural gas-oxygen torches used in the slab cutting and slab ripping processes, which are part of the continuous casting lines.[17] Second, as the application indicates that NOx emissions are present from the mold processes on the casting lines, the application does not show that the same NOx emission factor is appropriate for this use of natural gas as utilized for ladle preheaters or, alternatively, separately account for the NOx emissions from use of natural gas in the casting process. Lastly, the 2022 application does not identify either the caster processes or the torches as units whose use of natural gas and resulting NOx emissions would be addressed with the emissions of other Project-affected fuel burning units (e.g., 2022 application, Table 6-5, "Pre-project Actual Emissions and Summary of Proposed Changes to Pre-project NOx Emission Factors for Affected Emissions Units").

[17] Alternatively, if NOx is not formed by the torches given they are supplied with oxygen, the application does not confirm that usage of natural gas by the torches was not considered when the baseline NOx emissions from use of natural gas in Project-affected fuel burning units were determined.

3. THE APPLICATION LACKS INFORMATION FOR THE ACTUAL NOx EMISSIONS OF PROJECT-AFFECTED FUEL BURNING UNITS

The 2022 application proposes a future amount for the NOx emissions of Project-affected fuel burning units of 706 tons/year. The 2022 application does not explain why actual NOx emissions of the subject units would not exceed this amount going forward if the permit were revised, much less demonstrate that actual emissions have not exceeded this amount historically.

The 2022 application does not include a demonstration that the actual NOx emissions of Project-affected fuel burning units would not have exceeded the "future amount" or post-project emissions indicated in the revised netting analysis for the Project for NOx since Construction Permit 95010001 was issued if the production of iron and steel by the source was at the levels allowed by this permit.

4. FOR THE BASIC OXYGEN FURNACES, THE 2022 APPLICATION DOES NOT ADDRESS THE POTENTIAL FOR UNCAPTURED EMISSIONS OF NOx, VOM AND CO THROUGH THE ROOF MONITOR FOR THESE FURNACES

For the basic oxygen furnaces, consistent with the original permitting of the Project, the 2022 application only quantifies stack emissions of NOx, VOM and CO. For these furnaces, the application does not address uncaptured emissions of these pollutants. (For these furnaces, the 2022 application does address uncaptured emissions of particulate and lead[18] for which Permit 95010001 limits emissions of these pollutants from the "BOF [Basic Oxygen Furnace] Roof Monitor," (Permit 95010001, Condition 18 and Table 2, Item 2)).

The revised netting analyses for NOx and VOM in the 2022 application assume that all emissions of these pollutants from the basic oxygen furnaces are now captured. That is, with the installation of the new baghouse control system on the furnaces to improve control of particulate emissions from the charging and tapping processes, all NOx and VOM emissions of these furnaces that originally were not captured and were emitted through the roof monitor now are captured and are emitted through the stack on the baghouse system. For example, as related to emissions of NOx, the application explains,[19, 20]

> At the time of the 1995 Application, the BOF Shop did not include a baghouse to capture secondary emissions. Secondary emissions were released to the atmosphere through the BOF Shop roof monitor. No information was available at the time about the NOx emissions from the BOF Shop roof monitor. Since then, the BOF Shop includes a capture system for secondary emissions that are routed to a baghouse. NOx emissions testing for the BOF Shop

[18] The uncaptured lead emissions of the basic oxygen furnaces are summarily addressed by the 2022 application. In Section 2.2, this application states that changes to the current limits for lead emissions set by Permit 95010001 are not requested. As such, this application acknowledges the current limits for lead emissions in Permit 95010001, including the limits for uncaptured emissions from these furnaces that are emitted through the roof monitor (Permit 95010001 Condition 18 and Table 2, Item 2). Revisions to these limits are not requested.

[19] The 2022 application addresses uncaptured emission of VOM of the basic oxygen furnaces in a similar manner in Part 7 of the application. Refer to the second Section 7.2.2.1 in the application on p. 6-4, "BOF Baghouse – Secondary Emissions (New)."

[20] As reflected in this excerpt, the 2022 application refers to the NOx and VOM emissions of the baghouse system as "secondary emissions." This is inconsistent with the meaning of this term under the NESHAP for Integrated Iron and Steel Manufacturing Facilities, 40 CFR 63 Subpart FFFFF, which only restricts this term to emissions of particulate matter. It is also misleading as it does not distinguish between captured and uncaptured emissions and suggests that capture of these emissions with a baghouse is sufficient to eliminate concerns for the existence of uncaptured emissions.

In this regard, as defined at 40 CFR 63.7852, "*Secondary emissions* mean **particulate matter** emissions (emphasis added) that are not controlled by a primary emissions control system, including emissions that escape from open and closed hoods, lance hole openings, and gaps or tears in the primary emission control system." For secondary emissions, 40 CFR 63 Subpart FFFFF recognizes the existence of both captured or stack emissions and uncaptured emissions, as would occur through a roof monitor. For basic oxygen furnaces, as well as setting emission limits for particulate emissions from primary control systems, this NESHAP also sets separate emission limits for 1) the particulate matter emissions from a control device used for the collection of secondary emissions, and 2) the opacity of secondary emissions that exit any opening in the furnace shop or other building housing a basic oxygen furnace.

> baghouse completed in the 2019-2020 time frame shows an average NOx rate of 0.0075 lb/ton for the BOF Shop Baghouse Stack. USS Granite City added the BOF Shop secondary NOx emission baseline based on the result of the stack test for the BOF Shop Baghouse stack.
>
> 2022 application, Section 6.2.2.6. "BOF Baghouse – Secondary Emissions (New)."

This assumption made by the 2022 application for uncaptured emissions of NOx and VOM of the basic oxygen furnaces, i.e., that all emissions that were formerly uncaptured are now emitted through the baghouse system, is not appropriate. At a fundamental level, the application does not include any support for this assumption. A rigorous analysis for and quantification of the uncaptured emissions of NOx and VOM from these furnaces is warranted as these emissions were overlooked in the original permitting for the Project.[21]

Then, the data for NOx and VOM emissions from the baghouse stack, which is now available from testing of the baghouse, does not support this assumption and, if anything, shows that this assumption is unsound. This is because this testing does not address the level of capture being achieved by the baghouse system. Rather it shows that there are emissions of these pollutants from charging and tapping and, as such, data for the uncaptured emissions of these pollutants is also appropriate. In this regard, the results of emission testing for the NOx and VOM emissions from the new baghouse system on these furnaces, as cited by the application, indicate more than negligible levels of emissions. (2022 application, Appendix B – Emission Calculations, USS Granite City – 1996 Production Increase Project: Revised NOx PSD Net Emissions Increase

[21] In the original permitting of the Project, the uncaptured emissions of NOx and VOM from the basic oxygen furnaces appear to have been considered negligible. This was likely because the emissions of NOx and VOM of the furnaces were all attributed to the refining process, rather than to charging and tapping. During the refining step in a basic oxygen furnace, oxygen is injected into the molten iron charged to a furnace, which removes carbon from the iron by oxidation, converting the iron into steel. The oxidation of the carbon also provides heat to facilitate the melting of the scrap metal that is also charged to the furnace, so molten metal in the appropriate temperature range can be tapped from the furnace.

In 1996, the basic oxygen furnaces were only controlled by the electrostatic precipitator (ESP) system. While the ESP system only reduces or controls emissions of particulate and not emissions of NOx or VOM, the ESP system does capture NOx and VOM from these furnaces. As the capture efficiency for particulate emissions from refining is assumed to be at least 99.9 percent, it was also reasonable to assume that the ESP system also would achieve at least 99 percent capture for NOx and VOM. With these assumptions, i.e., that NOx and VOM are only generated during the refining step and at least 99.9 percent capture of these emissions is achieved by the ESP system, given the limits on emissions of NOx and VOM from the stack of the ESP set by Permit 95010001, i.e., 69.63 and 10.74 tons/year, respectively, the uncaptured emissions of NOx and VOM from these furnaces would have been projected to be no more than 0.07 and 0.01 tons/year, respectively,. (For example, for NOx, 69.63 tons/year ÷ (99.9 ÷ 100.0) x (100.0 – 99.9) ÷ 100.0 = 0.07 tons/year.) For purposes of determining applicability of NSR to the Project. the increases in NOx and VOM emissions of the furnaces with the Project would be less because these calculations for uncaptured emissions address all emissions of the furnaces, both baseline emissions and the increases in emissions from the Project.

Even with the correction to the emission data for the basic oxygen furnaces indicated in the 2022 application, <u>if</u> all NOx and VOM emissions of these furnaces were actually attributable to the refining step, uncaptured NOx and VOM emissions would still be very small. For example, the potential NOx emissions from the stack of the ESP are now shown to be 380.0 tons/year. With capture of at least 99.9 percent of the NOx by the ESP system, the potential uncaptured NOx emissions from these furnaces would still only be an additional 0.38 tons/year.

Analysis and Revised VOM PSD Net Emissions Increase Analysis.) For NOx, the application indicates baseline captured emissions of 179.8 tons/year, of which, based on the measured emissions from the new baghouse system, as much as 5.1 percent, i.e., 9.1 tons/year, would have been uncaptured in 1996; captured VOM emissions are 26.6 tons/year, of which as much as 15.8 percent, i.e., 4.2 tons/year, would have been uncaptured emissions in 1996. However, instead of assuming that all NOx and VOM emissions are now captured, it would not be unreasonable to assume that the new baghouse system improved capture of the emissions from charging and tapping such that the levels of captured emissions from the baghouse stack and the uncaptured emissions through the roof monitor are now identical.[22, 23]

Finally, the assumption that all NOx and VOM emissions of these furnaces is now captured is inconsistent with the approach taken in the 2022 application to the particulate and lead emissions of these furnaces, for which it is assumed that there are uncaptured emissions that still occur through the roof monitor. In particular, the 2022 application requests that the revised permit establish prescribed emission factors for the particulate emissions of the basic oxygen furnaces

[22] It is reasonable to assume that the new baghouse that was installed to improve control of particulate emissions from charging and tapping of the basic oxygen furnaces reduced these emissions to less than half of their previous amounts. For example, the nominal control efficiency for charging and tapping went from 95 percent with only the ESP control system to 97.5 percent with the addition of the baghouse system. With this assumption, the potential NOx and VOM emissions from the baghouse stack from charging and tapping would be estimated to be about the same as the potential uncaptured emissions from charging and tapping that still occur through the roof monitor, with both being about 2.5 percent of the total emissions from the furnaces. The remainder of the NOx and VOM emissions from charging and tapping continue to occur through the ESP stack (95 percent of the total emissions of the furnaces).

[23] With this assumption, the potential NOx emissions of the basic oxygen furnaces with the Project would become 420.4 tons/year, rather than 400.0 tons/year (400.0 tons/year x (100% + 5.1%) ÷ 100% = 420.4 tons/year. The potential VOM emissions of these furnaces with the Project would become 52.1 tons/year, rather than 45.0 tons/year (45.0 tons/year x (100% + 15.8%) ÷ 100% = 52.1 tons/year.

that occur through the roof monitor.[24] For example, for pre-project actual emissions of the roof monitor, Section 5.2.2.7 of the application explains the following, [25]

> Prescribed emissions factors consistent with the approach described in Section 3 [Discussion of Permit Conditions Used to Restrict PTE] are provided herein. USS Granite City is proposing prescribed emission factors for the BOF Shop Roof Monitor for which emissions testing is not feasible.[Footnote 33] For BOF Roof Shop Monitor, use PM emissions factor of 0.0296 lb/ton and filterable PM_{10} emission factor of 0.0198 lb/ton.
>
> Footnote 33: PM and PM_{10} emissions factors are appropriately determined from the results of emission testing per 40 CFR 63 Subpart FFFFF to determine PM and PM_{10} emission rates for the BOF ESP and baghouse, Desulf/Soda Ash and Hot Metal Charging Baghouse, Slag Skimming Baghouse, and Baghouse 2 for Argon Stirring and Ladle Metallurgy.
>
> 2022 application, Section 5.5.2.2. "Prescribed Emission Factors for Certain BOF Shop Operations."

---

[24] The 2022 application requests that Permit 95010001 be revised to set "prescribed emission factors" for the emissions of certain emissions units or their uncaptured emissions (e.g., the uncaptured particulate emissions of the basic oxygen furnaces, which are also referred to as the emissions through the roof monitor of the basic oxygen furnace shop). For those units or emission points, the prescribed emission factors would effectively replace the provisions currently in Permit 95010001 that address emissions in pounds/ton of input or production or in pounds/hour. For convenience, these provisions in the permit are generally referred to as "emission factor limits." The usage of this term extends to the provisions of the permit that address emission of lead that are in pounds per hour. In this regard, in Permit 95010001, Table 2, these limits for lead emissions are listed under the heading of "Emission Factor," along with the limits in pounds per ton of production for emissions of other pollutants.

Unlike the emission factor limits currently in Permit 95010001, which the Illinois EPA considers to be directly enforceable against US Steel, prescribed emissions factors that would be established in a revision to Permit 95010001 would not be enforceable. Instead, prescribed emission factors would be specific values for emission rates that US Steel would have to use for normal operation when determining compliance with the limits on annual emissions set by the revised permit. The appropriateness of the various prescribed emissions factors that are selected would be a matter that would be considered during the processing of the revisions to Permit 95010001. Given the role of prescribed emission factors in determining compliance with annual emission limits set by the permit, it is expected that prescribed emission factors would only be set for units for which emissions testing is not feasible or is not warranted given the low levels of annual emissions predicted by engineering analysis and calculations. It is also expected that, as it is practical to do so, prescribed emission factors would be conservative, reflecting the maximum rates of emissions that could occur during the routine, compliant operation of emissions units.

[25] For pre-project actual emissions of particulate matter of the basic oxygen furnace through the roof monitor, Section 5.2.2.7 of the 2022 application explains the following,

> The BOF roof monitor actual emissions were calculated using the information from AP-42 Chapter 12.5 and AIRS (Aerometric Information Retrieval System) database. For pre-change actual PM and PM_{10} emissions, National Steel used 90% capture efficiency during the charging and tapping steps and 99% capture efficiency during the refining step for BOP operations. A detailed description of the baseline roof monitor PM and PM_{10} emission factors is provided in Appendix C of the 1995 Application. For the BOF operations, per particle size distribution in AP-42 Table 12.5-2, 67% of PM is PM_{10}. No changes are necessary for this emission factor.
>
> 2022 application, Section 5.2.7.7, BOF Roof Monitor Emissions (No Change)

The fact that there are emissions of NOx and VOM from the basic oxygen furnaces that now occur from the stack of the new baghouse system but were previously not captured and were not originally quantified raises concern that similar circumstances are present for emissions of CO. [26] In this regard, the 2022 application requests various revisions to Permit 95010001 to correct issues that are posed for the original permitting of the Project with respect to CO emissions, but the application does not propose any such revisions for the basic oxygen furnaces or explain why such revisions are not needed.[27]

[26] For the basic oxygen furnaces, uncaptured emissions of CO should generally be expected to be much greater than the uncaptured emissions of NOx or VOM because the permitted stack emissions of CO of these furnaces are much greater. In this regard, Permit 95010001 limits the CO emissions from the stack of the ESP system for these furnaces to 16,097 tons/year. (The 2022 application does not request an increase in this limit.) If only 99.9 percent capture of CO is assumed by the ESP system, the potential uncaptured CO emissions of these furnaces would be 16.1 tons/year. (16,097 tons/year ÷ {99.9 ÷ 100.0} x {100.0 – 99.9} ÷ 100.0 = 16.1 tons/year CO.) Of course, the capture efficiency of the ESP system for CO could be higher than the efficiency for NOx or VOM if CO is only formed during the refining step when oxygen is actually being injected into the furnace and not during the entire refining step. However, one approach to the revision of Permit 95010001 would be to conservatively assume that the capture efficiency of the ESP system for CO is the same as its capture efficiency for particulate.

[27] The application also does not suggest that it would be inappropriate for any revised permit to simply limit the stack emissions of CO from the basic oxygen furnaces, addressing the combined stack emissions of the ESP and the new baghouse, to the current limits for the CO emissions of the furnaces in Permit 95010001, which limits currently apply only to emissions from the stack of the ESP.

5. THE EMISSION INVENTORY FOR THE SOURCE USED IN THE AIR QUALITY ANALYSIS FOR CARBON MONOXIDE (CO) OMITS CERTAIN CO EMISSIONS

The results of the analysis of the impacts of the Project on ambient air quality for carbon monoxide (CO) cannot be relied upon because the inventory for the CO emissions of the source with the Project does not address all CO emissions or otherwise explain why the CO emissions of certain units need not be considered. The 2022 application includes an air quality analysis because the Project was originally permitted as a major modification for CO under the Prevention of Significant Deterioration (PSD) program and the application requests revisions to Permit 95010001 to increase the CO emissions for which the Project is permitted.[28] To support this request, an air quality analysis for CO must be part of the application pursuant to Illinois' PSD rules, 35 IAC 204.1130, Air Quality Analysis, since the request involves revisions to the provisions in Permit 95010001 that involve the Project as it is a major modification for CO under the PSD program.

Uncaptured Emissions from the Casthouse on the Blast Furnaces

The air quality analysis in the 2022 application does not address the uncaptured emissions of the casthouse (2022 application, Appendix C – Air Quality Modeling Report, Table for "US Steel Granite City Volume Source Inputs"). The application indicates potential CO emissions of 13.6 tons/year from the roof monitor on the casthouse (2022 application, Section 4.4). These "uncaptured" CO emissions from the casthouse, which are not captured by the baghouse systems on the casthouse, must be addressed in the air quality analysis submitted to support revisions of Permit 95010001 to provide for more CO emissions from the Project.

Uncaptured Emissions from the Basic Oxygen Furnaces

The air quality analysis in the 2022 application does not address uncaptured emissions of the basic oxygen furnaces. (2022 application, Appendix C – Air Quality Modeling Report, Table for "US Steel Granite City Volume Source Inputs.") As discussed earlier, the 2022 application does not address uncaptured emissions from these furnaces. The application also does not explain why uncaptured emissions would not be present as the application does not show 100 percent capture of the emissions of these furnaces by the control systems for emissions of particulate. As there are uncaptured CO emissions from these furnaces, these emissions must also be addressed in the air quality analysis submitted to support revisions of Permit 95010001 to accommodate additional CO emissions from the Project.

By-product Coke Oven Batteries

[28] The 2022 application requests that Permit 95010001 be revised to address an additional 25,334 tons/year of CO. This would include emissions of 320 tons/year of CO from the casthouse on the blast furnaces, for which CO was not addressed in the original permitting for the project (2022 application, Section 4.4, p. 4-4) . This would also include an additional 25,014 ton/year from Project-affected fuel burning units, other than Boilers 1 through 10, which are now retired (2022 application, Sections 4.2 and 4.3, pp. 4-2 and 4-3). For the fuel burning units, US Steel has determined that the emission factors for CO utilized in the original permitting of the Project, particularly the emission factor for blast furnace gas used in the blast furnaces stoves, understated CO emissions.

The 2022 application does not explain why the air quality analysis in the application should not consider the CO emissions of the former by-product coke oven batteries at the source. These batteries were in operation when the Project was originally permitted in 1996 and did not cease operation until 2015. Accordingly, the analysis does not address CO ambient air quality with the Project as would have been predicted by the original air quality analysis for the Project if it had addressed the additional CO emissions now being requested for the Project. On the other hand, the analysis addresses CO emissions of emission units that did not exist in 1996, as this analysis addresses the emissions of the heat recovery coke ovens adjacent to the Granite City Works, which were built and are now operated by Gateway Energy & Coke. [29]

In addition, the air quality analysis in the application uses a value for CO background air quality on an 8-hour average that is based on ambient air quality data collected for a three year period consisting of 2016, 2017 and 2018. As such the value used for background air quality is not necessarily appropriate as a representation of either current ambient air quality or the historic air quality at the time that the Project was originally permitted.[30]

---

[29] The modelling in the air quality analysis did address the CO emissions of the new coke oven batteries adjacent to the Granite City Works that are owned and operated by Gateway Energy & Coke. However, modeling of the CO emissions of new units would only compensate for the CO emissions of existing units if the new batteries were direct, in-kind replacements of the shutdown units, which is not the case. This is not the case. The batteries that were shut down by US Steel were by-product recovery batteries. They recovered chemicals from the off-gas from the coking process (e.g., benzene, toluene and naphthalene, with the gas then used as fuel for heating the coke ovens and in certain other units at the source. Gateway's batteries are heat recovery batteries, in which the off-gas from coking is combusted in the ovens and the heat is used to make steam and generate electricity. Moreover, the new batteries and the old batteries both operated for a period of several years before US Steel shut down its batteries.

[30] Under the PSD program, the air quality analysis for a project whose modelled maximum impact(s) by itself on air quality for a pollutant are above certain specified concentration(s) or "significant impacts levels" under the PSD program must also consider "background air quality." This accounts for the contribution to ambient air quality of mobile sources (e.g., cars, trucks and buses) and of other sources (e.g., residential and commercial heating), which contribution cannot be determined as part of the computerized dispersion modelling for discrete emission units performed as part of the analysis. The air quality analysis in the 2022 application shows that the maximum air quality impact of the Project with the requested increases in CO emissions would continue to be above the significant impact level for CO on an 8-hour average. (In the original air quality analysis, the Project's impacts were significant for CO on both a 1-hour and an 8-hours average.) The value for background in the current air quality analysis is based on data collected at an ambient air monitoring station in East St. Louis operated by the Illinois EPA. If US Steel shows that the air quality analysis for the revision to Permit 95010001 should address current ambient air quality for CO, the value for background air quality in the analysis should be updated. Since the Illinois EPA discontinued ambient monitoring for CO at its East St. Louis monitoring station in 2020, the new value for background would likely need to be based on data collected at an appropriate monitoring station in Missouri operated by the Missouri Department of Natural Resources.

It should be noted that the values for background used in the original air quality analysis were likely conservative, as they were based on data from a now retired monitoring station in Granite City that was less than a third of a mile from the Granite City Works. Given the location of that station, the ambient air quality data collected at that station may have included the contribution to air quality of units for which modelling was also conducted, so that the original analysis effectively counted the impacts of those units twice. Thus, it is reasonable for the current air quality analysis to use value(s) for background air quality based on data collected at a monitoring station other than the one that was originally used.

6. SCOPE OF PROPOSED GROUP EMISSION LIMITS

The application does not show that the proposed collections of emission units for the requested group limits for annual emissions of particulate, NOx and VOM are appropriate.[31, 32] In particular, the application does not propose limits that would only apply to the annual emissions of the casthouse on the blast furnaces and to the annual emissions of the two basic oxygen furnaces. These are principal emission units at this facility. It would be reasonable and appropriate for both the annual emissions of the casthouse and the annual emissions of the two basic oxygen furnaces

[31] For PM, PM_{10}, NOx and VOM (i.e., pollutants other than sulfur dioxide (SO_2), carbon monoxide (CO) and lead), the 2022 application requests that the revised permit not include the provisions in Permit 95010001 that the Illinois EPA considers would limit emissions of individual "processes" in pounds/ton of production or throughput and in tons/year. These provisions were set to ensure that the Project would not be a major modification for purposes of New Source Review (NSR). The removal from Permit 95010001 of the "emission factor limits" which limit emissions of various process operations relative to their production or throughput, would facilitate resolution of two permit appeals filed by US Steel with the Illinois Pollution Control Board (PCB), PCB 2013-53 and PCB 2013-62. Both appeals indirectly address the emission factor limits in Permit 95010001. PCB 2013-53 concerns the revised Clean Air Act Permit Program (CAAPP) permit for the facility (Permit 96030056) issued in 2013. US Steel appealed this permit as it repeats the emission factor limits as originally set by Permit 95010001. PCB 2013-62 concerns the construction permit for the addition of the baghouse system to improve control of particulate emissions from charging and tapping of the BOFs, Permit 11050006, as reissued in 2013. For the BOFs, this permit also repeats the emission factors limits for the BOFs set by Permit 95010001. US Steel appealed the subject emission factor limits in these permits because, prior to issuing the revised CAAPP permit for the facility in 2013, the Illinois EPA had explicitly explained that the provisions in the permit containing emission factors were considered to constitute enforceable limits on emissions. This was done in the Illinois EPA's "Statement of Basis for a Planned Revision of the Clean Air Act Permit Program (CAAPP) Permit for: U. S. Steel Corporation, Granite City Works, 20th and State Streets, Granite City, Illinois," of March 2011, pages 20 through 26. That these provisions set enforceable limits was then recognized by the USEPA in the Administrator's subsequent order of December 3, 2012, "In the Matter of United States Steel Corporation – Granite City Works, CAAPP Permit No. 96030056," Petition Number V-2011-2, pages 7 through 9).

[32] With regard to the current limits for the annual emissions of PM, PM_{10}, NOx and VOM of individual processes, the 2022 application requests "group limits" for the annual emissions of groups of related emission units. For example, the application requests that the revised permit limit the overall emissions of a group of units that includes the casthouse for the blast furnaces and other, ancillary units involved in production of iron. The permit currently sets separate limits for the emissions of the casthouse, the emissions from charging the blast furnaces, and the emissions from slag pit activities. Unlike the current limits for annual emissions, which apply on a calendar year basis, the proposed new limits for annual emissions would be rolled monthly, restricting emissions over each consecutive 12 month period. The requested limits would theoretically be less stringent than the current limits as US Steel could potentially compensate for any "overage" of emissions by unit(s) in a group of units with lower levels of emissions from other units in the group.

Incidentally, in these appeals, US Steel only challenges the emission factor limits for "processes," such as the casthouse, the basic oxygen furnaces, continuous casting operations, and discrete material handling operations. These appeals do not challenge the emission factor limits for fuel burning units affected by the Project. Those limits do not restrict the emissions of individual units or groups of similar units. Instead, they separately restrict the emissions from use of different fuels, i.e., blast furnace gas, natural gas and oil.

to be directly limited separately from the emissions of any other units. The construction permits issued by permitting authorities in other jurisdictions cited in the application as support for emission limits that apply to groups of emission units do not show that the annual emissions of the casthouse and the basic oxygen furnaces should not both continue to be limited individually.[33]

In this regard, the 2022 application points to USEPA policy and practice concerning how the potential emissions of a source may be restricted (2022 application, Section 3, "Discussion of Permit Conditions used to Restrict PTE [Potential to Emit]). The application shows that USEPA has found that construction permits may be issued that restrict potential emissions by means of limits on annual emissions that are practically enforceable. Accordingly, the current provisions in Permit 95010001 that limit emissions of process units in pounds/ton of production of throughput, which apply on a short-term rather than annual or long-term basis, are not essential to restrict potential emissions. In addition, the application points to several construction permits issued outside of Illinois since 2000 for which the permitting authority determined that annual emission limits that apply to groups of emission units that are practically enforceable were determined to be sufficient to restrict potential emissions without need for accompanying limits that address emissions on a short-term basis.[34, 35] However, the 2022 application does not show that the

[33] In light of the construction permits issued by other permit authorities cited by the application as support for group limits, it would seem acceptable for a revised permit to set group limits for the emissions units or operations that do not qualify as principal units. For example, for the production of iron, a revised permit could set limits for the overall emissions from charging the blast furnaces and the slag pits. Alternatively, limits specifically for the emissions of the casthouse for the blast furnaces and the basic oxygen furnaces, i.e., the principal units at the facility for iron and steel production, could be accompanied by group limits for the overall emissions of these principal units and the other, "non-principal" units in these areas of the facility. For example, limits could be set for both emissions of the casthouse and for the emissions of the casthouse, charging of the blast furnaces, and the slag pits.

[34] The 2022 application, Appendix E - "Copies of EPA Determinations," contains two decisions by the USEPA's Environmental Appeals Board (EAB):

- The 2012 decision of the EAB for an Outer Continental Shelf (OCS) Permit to Construct and Title V Air Quality Operating Permit issued by Region 10 of USEPA to Shell Offshore, Inc. (USEPA, EAB, *In Re Shell Offshore, Inc.*, OCS Appeals Nos. 11-05, 11-06 & 11-07, Order Denying Petitions for Review, Decided March 30, 2012).
- The 2018 decision of the EAB for a PSD permit issued by the Department of Environmental Quality for Pima County, Arizona, to Tucson Electric Power (USEPA, EAB, *In Re Tucson Electric Power*, PSD Appeal No. 18-02, Order Denying Review, Decided December 3, 2018).

[35] In a footnote, the 2022 application also refers to the USEPA's order responding to a petition to object to a Title V permit issued for a facility in Middletown, New York proposed by Masada (USEPA, Order, May 2, 2001, *In the Matter of Orange Recycling and Ethanol Production Facility, Pencor-Masada Oxynol, LLC*, Permit ID: 3-3309-00101/00001, Issued by the New York State Department of Environmental Conservation, Petition No.: II-2000-07.) As explained by US Steel in the application, in this order, the USEPA upheld the,

> …use of annual emission caps with a rolling cumulative total methodology and rejected petitioners' "concerns that the permit appears to rely on after-the-fact monitoring, rather than engineering practices, test data or vendor guarantees" to establish restrictions on PTE. U. S. EPA based its findings on the fact that "[i]f the source has no room to operate under the PTE emission limiting cap, it must cease operation or face a violation" and that "all PTE limits rely on after the fact monitoring of some kind."

specific circumstances of the Project are such that the current limits for annual emission of the principal emission units should be replaced with group limits that apply to the combined emissions of principal emission units and other lesser emission units.[36] The circumstances of the Granite City Works are not the same as those presented by the cited permits. US Steel's Granite City Works is a manufacturing facility at which iron is produced from iron ore in blast furnaces and steel is produced from molten iron and scrap metal in basic oxygen furnaces. The processes that generate emissions at the Granite City Works are different than the oil-fired engines that are generally addressed by the permit for Shell Offshore and the natural gas-fired engines addressed by the permit for Tucson Electric. The permit for Shell Offshore, Inc., addresses a marine drilling unit, the "Kulluk," and an associated fleet of support vessels that may be used during July through November of each year to conduct exploratory drilling operations in areas of the Beaufort Sea north of Alaska. The permit for Tucson Electric Power addressed a new peaking electrical generating facility with ten engine-generating units at Tucson Electric's Irvington Station. The utilization of the individual generating units in the new facility would vary from day to day and season to season as the use of the units would be tied to the inability of other electrical generating facilities to meet the demand for electricity.[37]

2022 application, Footnote 11.

[36] For the casthouse on the blast furnaces, Permit 95010001 currently sets separate limits for the emissions of various pollutants from the casthouse baghouse (i.e., the main baghouse for the casthouse), the iron spout baghouse, and the roof monitor (uncaptured emissions). If Permit 95010001 were to be revised, it would be reasonable for each pollutant for which emissions are limited, other than CO, for the permit to restrict the overall emissions of the pollutant from the casthouse, rather than to individually limit the stack emissions of each control system and the uncaptured emissions. The application also does not suggest that it would be inappropriate for any revised permit to simply limit the stack emissions of CO from the BOFs.

For the basic oxygen furnaces, the current permit separately addresses emissions of particulate and lead from the stack of the ESP and the roof monitor (uncaptured emissions.) For these furnaces, it would also be reasonable in a revised permit to set limits for different pollutants for the overall emissions of the pollutant from these furnaces. In particular, the revised permit would not set limits specifically for the emissions of the new baghouse system that was installed to improve control of particulate emissions from charging and tapping of these furnaces. Instead, the revised permit would address emissions that occur from this baghouse with limits for different pollutants for the overall emissions of these furnaces.

[37] At the Shell Off-Shore and Masada facilities, variability of utilization or operation of different emission units was a consideration in the permitting of these facilities. In its response to comments on the draft permit for Shell Offshore, USEPA Region 10 explains,

> The commenters are correct that EPA guidance does express a general preference for shorter time periods rather than 12-month rolling limits. See 1989 PTE Guidance at 9. As the commenter acknowledges, however, EPA has also recognized that longer rolling limits are appropriate for sources with substantial and unpredictable variations in emissions, as well as for those sources that curtail operation during part of a year on a regular seasonal cycle. Id. at 9 – 10. Such is the case here. Shell's planned exploratory operations are atypical as compared to other sources because emission units consist of multiple engines and generators with variable emission on the Kulluk and a fleet of numerous support vessels. Operations will vary from hour-to-hour, day-to-day month-to-month, and season-to-season based on factors such as the number of wells drilled, the activity being undertaken (drilling mud cellar lines, other drilling activity, or activity that does not involve drilling), the depth of wells drilled, whether emergency engines are being run for testing, and ice conditions. Given the variability in operations, and thus emissions expected from the source, and after considering a full

range of options for limiting the source's potential to emit, Region 10 determined that it was appropriate to establish longer-term rolling limits.

USEPA, Region 10, "Response for Comments for Outer Continental Shelf Permit to Construct and Title V Air Quality Operating Permit: Conical Drilling Unit Kulluk," October 2011, p. 26.

In the USEPA's order for Masada of April 8, 2002, USEPA observes that,

Masada's operations will have significant fluctuations due [sic] the variability of the processed waste, making an operating parameter-based PTE limit less appropriate. The emissions-based PTE limit discussed below recognizes this fact and provides Masada with operational flexibility accordingly. Moreover, Masada will be measuring its emissions on a real-time basis using CEMS [continuous emissions monitoring systems], obviating the need to limit and monitor operating parameters as a surrogate for emissions.[Footnote 6] Thus the petitioners have not demonstrated that it was inappropriate for the NYSDEC [New York State Department of Environmental Conservation] to restrict Masada's emissions directly, rather than its operation or production.

Although it is generally preferable that PTE limitations be as short-term as possible (e.g., not to exceed one month), EPA guidance [USEPA, "Guidance on Limiting Potential to Emit in New Source Permitting," June 13, 1989] also allows permits to be written with longer term limits if they are rolled (meaning recalculated periodically with updated data) on a frequent basis (e.g., daily or monthly). The 1989 guidance recognizes that such longer rolling limits may be appropriate for sources with 'substantial and unpredictable annual variation in production." 1989 Guidance at 9.

Footnote 6. This is consistent with prior EPA practice in appropriate circumstances. See e.g., Memorandum entitled "3M Tape Manufacturing Division Plant, St. Paul, Minnesota," from John Rasnic to David Kee, dated July 14, 1992 ("a federally enforceable emission limit may be used …to limit the potential to emit as long as a continuous emissions monitor (CEM) or an acceptable alternative is used."); and Memorandum entitled "Policy Determination on Limiting Potential to Emit for Koch Refining Company Clean Fuels Project," from John Rasnic to David Kee, dated March 13, 1992 ("Use of an emission limit to restrict potential to emit …is acceptable provided that emissions can be and are required to be readily determined or calculated.")

USEPA, Order, April 8, 2002, "*In the Matter of Orange Recycling and Ethanol Production Facility, Pencor-Masada Oxynol, LLC*, Permit ID: 3-3309-00101/00003, Issued by the New York State Department of Environmental Conservation," Petition No.: II-2001-05, p. 6)

7. INADEQUATE JUSTIFICATION FOR ELIMINATION OR REVISION OF CURRENT LIMITS FOR PROJECT-AFFECTED FUEL BURNING UNITS

The justification provided in the 2022 application for revisions to Permit 95010001 to eliminate or revise limits on usage of fuel and, presumably, emissions by Project-affected fuel burning units is not adequate. Although this application indicates that the revised permit should not contain the limits for usage of natural gas and BFG currently set by Permit 95010001, it does not propose any new limits in their place.

> USS Granite City is also requesting revision/elimination of gaseous fuel usage limits for project-affected combustion units. In 2015, USS Granite City shutdown its by-product coke oven batteries. This eliminated the ability to use coke oven gas ("COG") as a fuel at the mill. In addition, ten of the twelve boilers at the time of the Project in 1996 have been retired. These actions have greatly reduced the emissions from fuel combustion in project-affected emissions units and obviate the need to preserve limits to restrict PTE of the remaining units.
>
> 2022 application, Section 2.2.3, p. 2-4.

This rationale is deficient because it does not consider that the 2022 application also requests that the revised permit address an increase in the usage of natural gas at the facility as a consequence of the shutdown of the by-product coke oven batteries. While the limits for fuel usage and emissions currently in Permit 95010001 may no longer be relevant, as generally addressed above,[38] this does not mean that other limits for fuel usage and emissions are not appropriate. In this regard, the 2022 application does not show that new limits for fuel usage and emissions would not now be needed and those limits should address fuel burning units other than the Project-affected units currently addressed by the permit. In this regard, limits for usage of fuels and emissions should not extend to Boilers 1 through 10, as they are no longer in operation, having been shut down a number of years before the coke oven batteries were shutdown. As the four slab reheat furnaces at the facility were affected by the elimination of COG, new limits may be needed that also extend to these furnaces. It may also be appropriate for the cogeneration boiler to be addressed by the new limits as this boiler began operation several years before the by-product coke oven batteries at the facility were shutdown.

[38] It is noteworthy that the 2022 application does not address what an appropriate limit for usage of COG would have been in Permit 95010001 if the permit had originally addressed use of COG by Project-affected fuel burning units. In the absence of such information, it is unclear how the shutdown of the two by-product coke ovens at the facility and elimination of COG led to decreases in NOx emissions relative to the limits for NOx emissions of fuel-burning units set by Permit 95010001.

8. THE APPLICATION DOES NOT SHOW THAT EMISSION FACTORS THAT ARE PROPOSED AS PRESCRIBED FACTORS FOR CERTAIN UNITS WOULD BE REPRESENTATIVE

To calculate baseline emissions of certain emission units for which emission testing is not feasible or practical, the 2022 application necessarily relies on use of emission factors that are not based on source-specific emissions testing. Likewise, for the ongoing determination of the emissions of these units, the application requests that revised Permit 95010001 "prescribe" or specify the emission factors that are to be used. As explained in the 2022 application, where a permit relies on a limit on annual emissions or an "annual emission cap" to restrict potential emissions, USEPA policy and precedent provide that:

> Where the permit prescribes an emission factor to be used in conjunction with operational data in demonstrating compliance [with an annual emission cap], the permitting authority should describe the basis for its determination that the emission factor is representative.
>
> 2022 application, Section 3, p. 3

This summary of relevant USEPA policy in the 2022 application is consistent with the statements made by the EAB and the Administrator of USEPA in various orders responding to petitions that request it object to Title V permits or, in Illinois, CAAPP permits), issued by a permitting authority. In its decision in *Shell Offshore, Inc.*, the EAB also considered the use of prescribed emission factors in the permit that was appealed. The EAB did not object to this practice. It found that the use of prescribed emission factors may be appropriate for a permit to prescribe use of specific emission factors published by USEPA in its *Compilation of Air Pollutant Emission Factors* (AP-42) for certain emission units for the purpose of determining emissions for purposes of compliance with annual emission limits set by the permit.[39]

> The Region explained in the record its rationale, based on the Region's technical expertise and applied in certain limited circumstances, for supplementing source-specific emission factors derived for most of the emission units or groups of emission units with either AP-42 emission factors, or factors derived from source test data Shell submitted to the Region in support of two separate, previously OCS [Outer Continental Shelf] PSD permits authorizing Shell to conduct exploratory activities in the Chukchi and Beaufort Seas using the *Discover* drillship.
>
> USEPA, Environmental Appeals Board, *In Re Shell Offshore, Inc.*, OCS Appeals Nos. 11-05, 11-06 & 11-07, Order Denying Petitions for Review, Decided March 30, 2013.

[39] The EAB did observe that it is preferable that compliance with emission limits set by a permit be determined using source-specific emission factors, as would be developed by emissions testing required by the permit. The EAB did not address prescribed emission factors from sources other than AP-42 since the permit that was appealed only prescribed use of emission factor from AP-42. Given the general nature and limited scope of AP-42, the EAB's decision should not be interpreted to preclude use of emissions factors from source other than AP-42. There are emission units and pollutants for which use of prescribed emissions is appropriate for which emission factors are not present in AP-42 or better emission factors are available from other sources.

For US Steel, Granite City Works, the USEPA specifically addressed the use of emission factors for determining compliance with emission limits in an order of December 3, 2012. Note that relative to prescribed emission factors, the USEPA's finding, as is provided below, might be considered *dicta*. This is because the permit that was the subject of the appeal did not provide for use of prescribed emission factors. In addition, as the order addresses the possibility of using of prescribed emission factors in terms of the actions that the Illinois EPA would need to take when issuing a permit that prescribed emission factors, the order serves to identify the underlying information that a permit applicant must provide in an application if it seeks a permit that would provide for use of prescribed emission factors. The Illinois EPA would then be responsible for assuring that the emission factors that are prescribed would be appropriate and sufficient for compliance or noncompliance with the associated emission limits to be reasonably determined.[40,]

> …IEPA [Illinois EPA] must include in the permit itself the monitoring methodology for determining compliance with these limits [emission factor limits and annual emission limits]. If using emission factors, IEPA must propose the actual emission factors in the permit or supporting permit record, and provide supporting documentation for the accuracy and appropriateness of these emission factors, such as historical source test data or other available information. If source test data are not readily available for a specific emission unit, as IEPA asserts, other sources of emission factors (including published literature and material and energy balances) must be reviewed and cited for acceptable emission factors before issuing the permit.
>
> USEPA, Order Responding to Petitioner's Request that the Administrator Object to Issuance of State Operating Permit, Petition Number V-2011-2, *In the Matter of United States Steel Corporation – Granite City Works, CAAPP Permit No. 96030056*, Petition Number V-2011-2, dated December 3, 2012, p. 12.

<u>Roof Monitor on the Basic Oxygen Furnace Shop – Particulate Emissions:</u>

[40] In an order concerning a Title V permit issued by the Texas Commission on Environmental Quality (TCEQ), the Administrator of USEPA stated the following when addressing the use of emission factors in the permit:

> …Moreover, the justification provided by a permittee in a permit application should not substitute for the judgment of the permitting authority (TCEQ) with responsibility for ensuring that a Title V permit contains sufficient monitoring to ensure compliance. If TCEQ wishes to adopt and incorporate an applicant's technical justification for specific monitoring into the current Title V permit record, it must, at minimum, identify specifically where such a justification is to be found (just as it would be required to do it if [sic]wished to incorporate by reference a requirement located elsewhere.)
>
> USEPA, Administrator, Order Responding to Petition Requesting Objection to the Issuance of Title V Operating Permit, Petition No. VI-2017-6, *In the Matter of BP Amoco Chemical Company, Texas City Chemical Plant, Galveston County, Texas, Permit No. 01513*, dated July 20, 2021, p. 18.

The 2022 application does not include support for the particulate emission factors that are proposed as prescribed factors for the roof monitor on the basic oxygen furnace shop (i.e., the uncaptured emissions from these furnaces). The application does include support for the baseline particulate emission rates for the roof monitor on the basic oxygen furnace shop.[41, 42] However, the permitting of the Project in 1996 relied upon various changes that were made to improve capture and control of emissions of particulate from the basic oxygen furnaces and decrease the uncaptured emissions of particulate. For example, a fourth section was added to the ESP in 1995, increasing the volume of air that it could handle. As such, the baseline particulate emission rates of the Project are not representative of future emissions with the Project. Moreover, the emission factors actually proposed in Section 5.5.2.2 in the 2022 application are lower than emission factor limits now contained in Table 2 of Permit 95010001 for the roof monitor on the basic oxygen furnace shop. For PM, an emission factor of 0.01986 pounds/ton is proposed as a prescribed factor, compared to the current emission factor limit of 0.0987 pounds/ton; for filterable PM_{10}, an emission factor of 0.0296 pounds/ton is proposed, compared to the current emission factor limit of 0.06614 pounds/ton. The 2022 application does not show that the emission factors for the roof monitor on the basic oxygen furnace shop that are proposed as prescribed emission factors in Section 5.5.2.2 of the application are representative.[43]

Caster Mold, Slab Cutoff/Ripping Processes in Continuous Casting:

[41] The baseline emission rates for the roof monitor are based on emissions factors from AP-42 for uncontrolled emission with application of 90 and 99 percent capture efficiencies for the refining process and the charging and tapping processes, respectively, being provided by the ESP control system on the furnaces in the baseline period before 1996 (2022 application, Section 5.5.2.2). While the application cites to Appendix C in the original application for the Project as support for these values for capture efficiency, this appendix only uses these assumed values of capture efficiency when calculating baseline emission rates for the Project. This appendix does not actually provide technical support for these values for capture efficiency being representative of the levels of capture efficiency that were achieved for particulate emissions of the basic oxygen furnaces in the baseline period for the Project. Appendix C also does not provide support for the higher levels of capture efficiency (95% and 99.9%) that it uses for operation and emissions for the basic oxygen furnaces with the Project.

[42] It should generally be noted that the sections of the 2022 application that provide the explanation or basis for the emission factors used in the application are not the sections in which prescribed emission factors are proposed for certain units. The basis for the different emission factors is typically provided earlier in the application in the sections of the application where baseline emission rates are addressed. For example, the particulate emission rates or factors for the roof monitor on the blast furnace casthouse are discussed in Section 5.2.3.3 (2022 application, p. 5-3); the proposed prescribed emission factors for this emission point, which are the same numerically, are provided later in Section 5.5.1.2 without further discussion (2022 application, p. 5-14 and 5-15).

[43] The emission factors that the 2022 application proposes to be prescribed for particulate emissions from the roof monitor on the basic oxygen furnaces may be appropriate at the present time given the installation of a baghouse control system on these furnaces. Nonetheless, for a revised permit to be issued that prescribes emission factors for emission from the roof monitor, the application must show that those factors are representative with the emission control measures that are required by the permit. It must also be recognized that those prescribed factors would not be representative of emissions before the new baghouse system was installed and operation of this system was required. As such, particulate emissions factors that are representative of particulate emissions circa 1996, before installation of the baghouse system on the furnaces, should be used in the revised netting analyses for PM and PM_{10}.

For the caster mold, slab ripping and slab ripping processes on the continuous casting lines, prescribed emission factors are proposed in Section 5.5.3 of the 2022 application that are identical to the baseline particulate emission rates for these emission units as generally discussed in Section 5.2.2.11, 5.2.2.13 and 5.2.2.14 of the application. In these sections, the application explained that these emission factors reflect emission factors from a report prepared by the Illinois EPA in 1991, i.e., "Illinois EPA 1991 EIS PM/PM_{10}." This is not sufficient to show that the emission factors that are proposed as prescribed factors are representative. In this regard, the statement that these factors were taken from a historic report prepared by the Illinois EPA does not show that this report included information showing why these factors should be considered representative and can be prescribed by a revised permit.

Mag-Lime Silo:

For the Mag-Lime Silo, a prescribed emission rate of 0.009 pounds/hour is proposed (2022 application, Section 5.5.4.2). As explained in the application, this unit, which stores the reagent used in desulfurization of iron in the basic oxygen furnace shop, was overlooked in the original permitting of the Project (2022 application, Section 5.4.4 and Footnote 34, p. 5-16 and 5-17). US Steel elected not to address its baseline emissions in the revised netting analyses for PM and PM_{10} because emissions are low, i.e., potential annual emissions less than 0.1 tons. However, the application does not include calculations explaining how US Steel determined that potential particulate emissions of this unit are less than 0.1 tons/year, much less information showing that a prescribed emission rate of D0.009 pounds/hour should be considered representative of the emissions of this unit.[44]

[44] The application also does not explain how US Steel determined that the potential annual particulate emissions of the Mag-Lime Silo are less than 0.1 tons. In this regard, the application does not include calculations that identify any assumptions about operation of this unit or the control of its emissions made by US Steel when calculating the potential emissions of this unit. For example, for particulate matter, was the outlet emission rate of the filter that is part of this unit assumed to be less than the regulatory limit of 0.03 grains per dry standard cubic foot pursuant to 35 IAC 212.308 and 212.313?

9. FOR THE ROOF MONITOR OF THE CASTHOUSE, THE APPLICATION DOES NOT SHOW THAT THE METHODOLOGY THAT IS PROPOSED TO BE PRESCRIBED FOR THE DETERMINATION OF NOx AND VOM EMISSIONS WOULD BE REPRESENTATIVE

For the NOx and VOM emissions of the roof monitor on the casthouse on the blast furnaces (i.e., uncaptured emissions, which do not pass through a control device), the 2022 application proposes a prescribed emission calculation methodology that involves the results of emission testing for the main baghouse for the casthouse and an assumed capture efficiency of 95 percent.[45] For example, for NOx emissions from the roof monitor, the application requests that,

> Prescribed emissions factors consistent with the approach described in Section 3 [Discussion of Permit Conditions Used to Restrict PTE] are provided herein. USS Granite City is proposing a prescribed emissions calculation methodology for NOx emissions from the blast furnace casthouse roof monitor based on application of 95% capture emissions to the NOx stack test result for the blast furnace casthouse baghouse.
>
> 2022 application, Section 6.5.1.2, Prescribed Emission Factors for Blast Furnaces Operations, p 6-9.

The application does not show that the "proposed methodology" would result in NOx and VOM emissions rates for the roof monitor that would be representative. In this regard, the proposed methodology would yield emission rates for the roof monitor that would be related directly to the measured emissions of the main baghouse on the casthouse. However, it would not address the effect of variation in capture efficiency on emissions. That is, with the proposed methodology, if emissions from the baghouse measured by a particular test were "lower," the calculated emission rate of the roof monitor would also be lower. The methodology would not address a situation in which the emissions measured by testing are lower because the capture efficiency of the baghouse system during testing was also lower. In this situation, there would actually be more emissions through the roof monitor. As such, unlike specific emission rates for NOx and VOM that would be prescribed in a revised permit, the "proposed methodology" would not address the NOx and VOM emissions from the roof monitor in a way that can reasonably be considered to be representative on an ongoing basis.[46, 47]

---

[45] With the proposed methodology, the NOx or VOM emission rate for the uncaptured emissions of the casthouse would be derived from the emission rate of the main baghouse measured by periodic testing using the following formula:

[{Measured rate of the baghouse (lbs/ton) ÷ 0.95} x 0.05] = Calculated rate for the monitor (lbs/ton)

[46] This issue would not be present with an appropriate prescribed emission factor. As such, a factor would not change based on the results of periodic testing, the factor could be reviewed when processing the application to confirm that it was conservatively developed so as to be representative on an ongoing basis.

[47] Section 7.5.1.2 of the 2022 application, which addresses the proposed calculation methodology for the VOM emissions from the roof monitor on the casthouse, erroneously refers to the results of emissions testing of the main baghouse system on the casthouse for NOx rather than testing for VOM.

10. THE APPLICATION DOES NOT INCLUDE NECESSARY SUPPORT FOR THE EMISSION FACTORS THAT ARE PROPOSED AS PRESCRIBED FACTORS FOR CERTAIN UNITS.

The 2022 application does not include relevant supporting information for certain emission factors used in the application, as follows. Absent this information the Illinois EPA cannot assess whether the prescribed emission factors proposed for these units should be considered representative.

Blast Furnace Casthouse Roof Monitor:
The prescribed particulate emission factors proposed for the roof monitor on the casthouse (i.e., the uncaptured emissions from the casthouse) are identical to the baseline emission rates. These rates are based on emission factors from AP-42 for uncontrolled emissions with application of a 95 percent capture efficiency for the baghouse control systems on the casthouse. The application only references a single memorandum from 2019 by various USEPA staff and a consultant as support for achievement of 95 percent capture efficiency (2022 application, Section 5.2.3). Further support is needed for a prescribed emission factor based on achievement of 95 percent capture.

Slag Pits:
For particulate emissions from quenching of slag, the 2022 application does not include a copy of the "EPA assessment" that is the basis of the emission factors and material showing how the selected emission factors were derived from this assessment. For emissions from transfer of slag, the application does not include a copy of the calculations by which the emission factors were developed from the formulas provided in AP-42, Section 13.2.4. The application also does not address whether the emission factors rely on control by the application of water or the presence of residual moisture and, if so, the basis for the assumed levels of control efficiency. (2022 application, Section 5.2.2.5, p 5-4).

Iron Pellet Screen:
For the Iron Pellet Screen, the proposed prescribed emission factor for PM and PM_{10} emissions is identical to the baseline emission rates (2022 application, Section 5.2.2.16). While the emission factor for uncontrolled emissions for screening of crushed stone in Table 11-19.2-2 in AP-42 is identified as the basis of this emission rate, a control efficiency of 85 percent is applied, reducing the factor that is actually used to 15 percent of the cited AP-42 factor. The application does not describe the means by which the particulate emissions of this screen are controlled or reduced to show that 85 percent control of particulate emissions is achieved for the Iron Pellet Screen.[48] In addition, AP-42 lists two emission factors for screening of crushed stone, one for PM and one for PM_{10}. The emission factor for PM is about three times the factor for PM_{10} (0.025 pounds/ton ÷ 0.0087 pounds/ton = 2.87, ~ 3). The 2022 application does not show that for screening of iron ore pellets, an emission factor that was developed for PM_{10} is directly transferable to PM emissions.

[48] The CAAPP permit, Condition 7.4.2 indicates that the Iron Pellet Screen is not served by emission control equipment.

11. THE DETERMINATIONS OF PARTICULATE EMISSIONS FROM HANDLING OF COKE, IRON PELLETS AND LIMESTONE ARE NOT SUPPORTED AND CANNOT BE CONFIRMED

With regard to baseline particulate emissions, the determination of baseline emissions from handling of coke, iron pellets and limestone provided in the revised netting analysis cannot be independently confirmed. In this regard, the 2022 application does not provide needed supporting information for the "corrected" determinations of baseline particulate emissions of these operations as it is not accompanied by detailed calculations for the emissions from handling each material. (2022 application, Table 5-5. "Pre-project Actual Emissions and Summary of Proposed Changes to Pre-Project PM Emissions Factors for Affected Emission Units" and Table 5-6, "Pre-project Actual Emissions and Summary of Proposed Changes to Pre-Project PM_{10} Emissions Factors for Affected Emission Units.")[49]

With regard to emissions with the Project, the 2022 application does not include information for particulate emissions from handling of coke, iron pellets and limestone. Since the by-product coke oven batteries were not shut down until 2015, emission information is needed for handling of coal for the period of operation with the Project before the batteries were shut down. Likewise for coke, emission information is needed to address handling of coke before US Steel constructed the conveyor system to receive coke directly from the heat recovery coke production facility built by Gateway.[50]

[49] Tables 5-5 and 5-6 do refer to "Table F-3 of the 1995 application" for these material handling operations. A copy of this table is provided in Appendix B of the 2022 application. However, this table only appears to address PM_{10} emissions, for which it provides annual emissions in tons/year. This table does not include calculations and background information showing how the annual emissions of PM_{10} were determined. Finally, the data for annual emissions of material handling operations appears to rely on the "PM10 SIP" requiring a 90 percent reduction from uncontrolled emissions without providing any support for this assumption.

[50] As this new conveystem was constructed as part of a different project, i.e., the construction of the Gateway facility, rather than the Production Increase Project, US Steel should not address emissions that are specifically associated with this new system.

12. THE REQUESTED CHANGES TO THE GROUPING OF UNITS IN THE PERMIT FOR CONSISTENCY WITH THE GROUPINGS OF UNITS IN THE CAAPP PERMIT WOULD NOT ADDRESS ALL DIFFERENCES IN THE GROUPINGS OF UNITS

As addressed in Section 2.2.2 of the 2022 application, US Steel generally requests changes to the organization of Permit 95010001 because the areas or sections of the CAAPP permit in which certain units are addressed are different than those in Permit 95010001. Most notably, in Permit 95010001, discrete material handling and processing operations are addressed with either the blast furnace operations, operations in the basic oxygen furnace shop or the continuous casting operations, based upon the area with which they were considered to be associated. In the CAAPP permit, these discrete material handling and processing operations are generally addressed in a separate section of the permit, Section 7.1, "Material Handling and Processing Operations." In addition, in the CAAPP permit, the "Argon Stirring Station and Material Handling Tripper" was addressed with units in the basic oxygen furnace shop in Section 7.5 of the CAAPP permit rather than with the continuous casting operations as in Permit 95010001.

While it is reasonable for there to be consistency in the groupings or categorization of emission units in Permit 95010001 and the CAAPP permit, as generally requested by US Steel, several concerns are posed, as discussed below, by the specific changes to Permit 95010001 that have been requested.

Requested Changes for the "Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy)"**:**

As explained in Section 11.1.2 of the 2022 application, US Steel requests that the "Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy)" now be addressed in Permit 950100001 with operations in the Basic Oxygen Furnace Shop. The application also requests that this unit be identified as "Baghouse 2 for Argon Stirring and Ladle Metallurgy Facility." However, the application does not actually identify the specific units that would be addressed by the proposed new term. In this regard, the application is not accompanied by an itemized list of the equipment and activities that would be covered by this new term or a diagram that identifies this equipment and activities. US Steel's request also does not explain how the requested revision to Permit 95010001 would do what has generally been requested as the proposed new term would refer to a "Material Handling Tripper." As the 2022 application requests changes to terminology in Permit 95010001, the changes should act to better identify the emission units that would be addressed, improving the specificity and clarity of the revised permit.[51, 52]

Absence of A Request for Revisions for the "Deslagging Station and Material HS"**:**

[51] For example, the proposed new term would not make clear that the basic oxygen furnace shop actually has two ladle stirring stations and one ladle metallurgy furnace, all served by Baghouse 2.

[52] The requested change to the terminology for these emission unit(s) is also problematic as it would refer to a control device, Baghouse 2, rather than to the equipment or activities that generate emissions. Applied literally, the proposed term would only address captured emissions; it would not address the uncaptured emissions, which elude capture for control by the baghouse.

The 2022 application does not request any revisions to Permit 95010001 with respect to the Deslagging Station and Material HS (Handling System).[53] These emission units are currently addressed in Permit 95010001 with continuous casting operations (Permit 95010001, Condition 20 and Table 3). In the CAAPP permit, a "Steel Deslagging Station" is identified as one of the continuous casting operations (CAAPP permit, Condition 7.6.2(a)).[54] The 2022 application does not explain why this steel deslagging operation should not appropriately be categorized as slag skimming and addressed with the other slag skimming operations in the basic oxygen furnace shop. In this regard, for the argon stirring station, US Steel does explain in Section 11.1.2 of the 2022 application that this station should be addressed with operations in the basic oxygen furnace shop rather than with continuous casting operations. This is because this station is a "BOPF shop ancillary operation" for purpose of the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Integrated Iron and Steel Manufacturing Facilities, 40 CFR 63 Subpart FFFFF (2022 application, Section 11.1.2). US Steel does not explain why the current placement in Permit 95010001 of the steel deslagging station with continuous casting is appropriate and this station should not also be addressed with other BOPF shop ancillary operations. Alternatively, US Steel does not request that this station be addressed with other

[53] For example, in Section 5.2, the 2022 application does not identify any updates or revisions to the pre-project actual emissions of the steel deslagging station and associated material handling system. Likewise, Appendix B – Emission Calculations does not identify any changes from the 1996 netting analyses that involve these units (Appendix B – Emission Calculations, USS Granite City – 1996 Production Increase Project: Revised PM PSD Net Emissions Increase Analysis and Revised PM10 PSD Net Emissions Increase Analysis).

[54] The presence of a deslagging station that is physically located in the continuous casting building is indicated in the pending application for renewal of the CAAPP permit. This application indicates that the particulate emissions of this station are controlled.

> Deslagging Station:
> Molten steel from the BOF is transferred directly from the BOFs to the continuous casting building. The first operation carried out in this building is the skimming of slag from the surface of the molten steel. Slag removed by this operation is skimmed into slag pots for disposal. Baghouse #1 is used to control emissions from this process.
>
> CAAPP Renewal Application, Appendix D: Process Descriptions, Section 7.6 Continuous Casting, Deslagging Station, p. D-56.

BOPF shop ancillary operations.[55] Slag skimming is one of the operations that 40 CFR 63.7852 defines as being "Basic oxygen process furnace shop ancillary operations."[56, 57]

For the "Deslagging Station and Material HS," the 2022 application also does not request revisions to Permit 95010001 as the CAAPP permit currently limits particulate emissions of this operation twice, once as a continuous casting operation and again as a material handling operation. In this regard, the CAAPP permit limits the particulate emissions of a "Deslagging Station and associated Material Handling System (Condition 7.6.6(a). As indicated by a reference in this condition, the CAAPP permit also limits emissions of a "Material HS and Deslagging Station" (Condition 7.1.6(b)(i)) in Section 7.1 of the CAAPP permit, where discrete material handling and processing operations are addressed. The 2022 application does not request revisions to Permit 95010001 to facilitate amendment of the CAAPP permit to appropriately address the emissions of this deslagging station and the associated material handling system. In the absence of such revisions, the current CAAPP permit would suggest that the revised netting analyses for particulate should address the emissions of these units twice, once as deslagging and once as material handling. On the other hand, if Permit 95010001 would address emissions of these units in this way, the consolidated emission limits for continuous casting and discrete material handling operations would be inappropriate as emissions of the deslagging station and the associated material handling system would be accounted for twice.[58]

---

[55] The proper categorization of this steel deslagging station is important when considering US Steel's request for consolidation of the emission limits currently set by Permit 95010001. As a general matter, any new, "consolidated" limits set by a revised permit must be developed to apply to sensible groupings of units. The groupings of units should facilitate identification in the revised permit of the regulatory requirements that apply to various units. This is especially true as the consolidated limits would rely on certain applicable regulatory requirements, e.g., the work practices and operational monitoring requirements under 40 CFR 63 CFR Subpart FFFFF, to assure consistent operation of emission units so as to keep short-term emissions at or below the established emission rates for the units.

[56] For this steel deslagging station, there is a potential compliance issue relative to the NESHAP, 40 CFR 63 Subpart FFFFF. The CAAPP permit indicates that the emissions of this station are not controlled (CAAPP permit, Condition 7.6.2). On the other hand, if its emissions are controlled by Baghouse 2, the direct applicability of the NESHAP to this station becomes a minor matter. This is because Baghouse 2 is directly subject to requirements of 40 CFR 63 Subpart FFFFF as it controls emissions from "ladle metallurgy." Ladle metallurgy is defined by 40 CFR 63.7852 as "… a secondary steelmaking process that is performed typically in a ladle after initial refining in a basic oxygen furnace to adjust or amend the chemical and/or mechanical properties of steel. This definition does not include vacuum degassing."

[57] It is also noteworthy that as the steel deslagging station is identified as a continuous casting operation by Permit 95010001, the permit applies 35 IAC 212.458(b)(8), which sets a limit of 5 percent, 6-minute average, for the opacity of emissions from the various continuous casting operations (Permit 95010001, Condition 19). However, Permit 95010001 omits the introductory language for this standard that provides that it does not apply to fugitive emissions. The introductory language is present in the CAAPP permit, which addresses the standards that apply to both fugitive and non-fugitive emissions of continuous casting operations (Permit 96030056, Conditions 7.6.3((b), (b)(ii) and (c)).

[58] If there was not actually a material handling system associated with the steel deslagging station, this could be readily addressed in the application for revisions of Permit 95010001. The application could acknowledge the error in the original application, as reflected in the permit that was issued, accompanied by an accurate diagram for the deslagging station as it existed in 1995 and as it now exists. In this regard,

For "Ladle Drying/Preheating," Absence of Any Request for Changes**:**
For "Ladle Drying/Preheating," the 2022 application does not request any changes to Permit 95010001 to maintain consistency with the approach to these units in the CAAPP permit. In Permit 95010001, these emission units are addressed with other Project-affected fuel burning units (Permit 95010001, Table 4, Certain Fuel Combustion Units). In the CAAPP permit, these units are addressed in Section 7.5 as "Basic Oxygen Processes" with other units in the Basic Oxygen Furnace Shop, as well as elsewhere in the permit with other Project-affected fuel burning units (e.g., Conditions 5.6.2((ii) and (iii)). In addition, the CAAPP permit sets a limit for the total NOx emissions of the BOF Shop (Condition 7.5.6(b)). In the absence of appropriate changes to the CAAPP permit, since the ladle drying/preheating takes place in the basic oxygen furnace shop, the limit for the NOx emissions of the basic oxygen furnace shop would apply to the sum of the NOx emissions of the basic oxygen furnaces and the ladle dryers/preheaters.

it is perhaps noteworthy that Permit 95010001 does not identify the material(s) that are handled by the material handling operations associated with the steel deslagging station.

13. THE 2022 APPLICATION DOES NOT REQUEST REVISIONS TO PERMIT 95010001 AND, INDIRECTLY, TO THE CAAPP PERMIT THAT WOULD ALSO BE NECESSARY AS THIS APPLICATION REQUESTS THAT THE REVISED PERMIT PRESCRIBE EMISSION FACTORS FOR CERTAIN UNITS

The 2022 application does not request revisions to general provisions in Permit 95010001 that would enable revisions to the CAAPP permit for the Granite City Works, Permit 96030056, to be made by administrative amendment to allow prescribed emission factors to be used to determine ongoing emissions of certain emission units. In this regard, the CAAPP permit currently provides that "appropriate emission factors" shall be used when determining emissions to evaluate compliance with the emission limits for process units set by Permit 95010001. Permit 95010001 does not specify how emissions are to be determined for this purpose, much less specify that, for certain emission units and pollutants, prescribed emission factors are to be used.[59] Accordingly, the procedures to determine compliance with the emission limits set by Permit 95010001 were established in the CAAPP permit for the Granite City Works. This was necessary because the emission limits set by Permit 95010001 are applicable requirements under the CAAPP. The procedures that were established in the current CAAPP permit do not provide for the use of prescribed emission factors. Rather, the CAAPP permit generally requires US Steel to use "appropriate emission factors," i.e., emission factors that do not understate emissions, with the primary responsibility for the appropriateness of the factors that are used placed on US Steel.[60] The CAAPP permit also provides for recordkeeping and reporting by US Steel so that the Illinois EPA and interested parties can know and may review for the emission factors that are being used. However, the 2022 application simply requests revisions to Permit 95010001 to require use of prescribed emission factors for certain units. The application does not address the fact that the CAAPP permit currently does not accommodate the use of prescribed emission factors to calculate emissions but instead requires use of "appropriate emission factors."[61]

[59] Condition 39(a) of Permit 95010001 did require "one-time testing" for various pollutant for certain emission units within 270 days of the date that this permit was initially issued. Additional time was subsequently provided to complete testing for the particulate emissions of a boiler when burning blast furnace gas. Unfortunately, the permit did not require testing of the NOx and VOM emissions of the BOFs. That testing was subsequently required by the CAAPP permit issued for the facility.

[60] This approach is consistent with a basic principle of the Title V permit program, as reflected in the CAAPP, that the responsibility for showing compliance with applicable air pollution control requirements for a facility lies with the source or Permittee for the facility, and not with the permitting authority.

[61] It should also be noted that in PCB 2013-53, the appeal that is pending before the Pollution Control Board for CAAPP permit 96030056, US Steel challenged Condition 5.13, General Procedures for Certain Permit Limits on Emissions. Condition 5.13 is relevant to the requested revisions of Permit 95010001 as it specifies procedures by which compliance is to be generally determined with the emission factor limits and annual emission limits set by Permit 95010001for process units. In addition to not proposing revisions to Permit 95010001 to accommodate use of prescribed emissions factors, the 2022 application does not address related revisions to Condition 5.13 of Permit 96030056 to potentially facilitate resolution of PCB 2013-53 as Condition 5.13 is challenged in this appeal.

14. THE 2022 APPLICATION DOES NOT ADDRESS THE AMENDMENT TO THE CAAPP PERMIT AUTHORIZED BY CONSTRUCTION PERMIT 11050006, AS IS RELEVANT FOR THE REQUESTED INTEGRATED PROCESSING OF THE REVISION TO PERMIT 95010001

The 2022 application does not identify the version of the Clean Air Act Permit Program (CAAPP) permit for the Granite City Works, Permit 96030056, that would be eligible for administrative amendment pursuant to the Integrated Processing of the revisions to Permit 95010001 that are requested. This is relevant because the Illinois EPA has already issued a construction permit with Integrated Processing, i.e., Construction Permit 11050006, issued April 1, 2013. This permit addresses the addition of a baghouse system to improve control of particulate emissions of the basic oxygen furnaces from charging and tapping of the furnaces. With the addition of this new system, the furnaces have three points of emissions, i.e., the new baghouse, the historic ESP, and the roof monitor on the furnace shop.[62] Certain work practices that were required by Permit 95010001 for control of particulate emissions of the furnaces with only an ESP system conflicted with the use of the baghouse system or would no longer be appropriate when emissions were also controlled with the new system. To address the fact that these work practices were also present in the CAAPP permit for the facility, Construction Permit 11050006 was subject to Integrated Processing and allowed certain changes to be made to the CAAPP permit by administrative amendment.[63] This was intended to enable use of the new baghouse system for improved control of particulate emissions in compliance with the CAAPP permit without the need for a subsequent permit proceeding to modify the CAAPP permit. However, US Steel has not initiated action for the Illinois EPA to actually issue an amended CAAPP permit with changes as authorized by Permit 11050006.[64]

Section 39.5(13)(a) of the Illinois Environmental Protection Act provides that "The Agency shall take final action **on a request** for an administrative permit amendment within 60 days after **the**

[62] The new baghouse system required a construction permit because this system would affect the requirements that then existed for control of particulate emissions of the basic oxygen furnaces, including their emissions of lead. For purposes of NSR, the construction permit was issued based on the new baghouse system being a project that would reduce the emissions of particulate and lead from these furnaces rather than increase these emissions. The permit was also based on this new system not increasing the emissions of other pollutants from these furnaces. As such, the construction permit for the new baghouse system, Permit 11050006, did not set limits for emissions from the baghouse system. This permit also did not lower the existing limits for the emissions of the basic oxygen furnaces

[63] To address the changes to the CAAPP permit that would be needed for use of the new baghouse system, Permit 11050006 provides for replacement of Section 7.5 of the CAAPP permit, which addresses the basic oxygen furnace shop, including the basic oxygen furnaces, in its entirety. The new version of Section 7.5 addresses the basic oxygen furnace shop with the new baghouse system. Given the extent of the changes to Section 7.5 that were needed to accommodate addition of a baghouse to the particulate control system for the basic oxygen furnaces, this approach was taken to Permit 11050006 to provide accuracy, clarity and simplicity in the revisions to the CAAPP permit that were being authorized.

[64] The 2022 application does address the addition of the baghouse control system for the basic oxygen furnaces as related to the emission of the furnaces. US Steel does not propose separate limits set for the individual emission points for these furnaces. Instead, the application requests that the revised permit set overall limits for the emissions from the control systems of the basic oxygen furnaces.

receipt of the request." (Emphasis added.) Accordingly, in the absence of a formal request from US Steel to the Illinois EPA to initiate the administrative amendment of the CAAPP permit contemplated by Permit 11050006, the 2022 application can only request Integrated Processing to allow administrative amendments of the current CAAPP permit, as has actually been physically issued by the Illinois EPA.[65, 66]

[65] The timing of the physical issuance of a revised CAAPP permit by the Illinois EPA is critical as a procedural matter because it starts the period within which the Permittee may appeal such action to the Pollution Control Board. Moreover, in PCB 2013-62, US Steel has already appealed certain elements of the changes to the CAAPP permit that are addressed by the administrative amendment to the CAAPP permit authorized pursuant to Permit 11050006.

Given this appeal, the Illinois EPA would not "reinstate" those provisions when issuing the amended CAAPP permit. Instead, it is expected that the amended CAAPP permit would contain notes that explain that the appealed provisions continue to be present in the that existing CAAPP permit as they were appealed. Nevertheless, it is possible that US Steel would appeal those notes in the amended permit as they would acknowledge the continued existence of the appealed provisions.

[66] Concerns are posed by certain conditions in existing Construction Permit 11050006 and the related amendments to CAAPP Permit 96030056 that it authorizes. The 2022 application is not accompanied by a request for changes to Permit 11050006 or a proposal for how to address these concerns so that they would not be perpetuated in the amended CAAPP permit. One concern is that the deadlines in Permit 11050006 for performing emission testing on the new baghouse and completing certain other actions were based on the basic oxygen furnaces being in routine use once the construction of the new baghouse system was completed. The permit did not contemplate the over two yearlong interruption in production that began in December 2015. US Steel undertook this interruption in production in response to the poor markets for domestic steel at that time. As such, although failures to meet certain deadlines in Permit 11050006 likely were reasonable, it is not clear that they would be excused as being due to *force majeur* (i.e., event(s) that could not reasonably be anticipated or controlled by the source).

The other concern with existing Construction Permit 11050006 and the related amendments to CAAPP Permit 96030056 is that they overlook the role of the existing ESP control system in controlling particulate emissions from charging and tapping of the basic oxygen furnaces. Instead, Permit 11050006 incorrectly indicates that the new baghouse system will control emissions from charging and tapping of the furnaces and the existing ESP system will control emissions from the refining process. In fact, the new baghouse system was constructed to improve control of emissions from charging and tapping, with capture hoods to collect particulate emissions that are not captured by the hoods that serve the ESP system. This is perhaps most clearly shown in the 2010 Memorandum of Understanding between US Steel and the Illinois EPA (MOU) as this MOU addresses improvement in the control of emissions from charging of the furnaces. Section 4(d) of the MOU acknowledges the presence of the existing control for charging with the ESP. It also indicates that control of emissions from charging could be improved by ducting either some or all of these emissions to a new baghouse system. In any case, the errors in the description of the new baghouse system for the basic oxygen furnaces in Permit 11050006 should also be corrected so that erroneous information is not perpetuated in the amendments to the CAAPP permit.

15. THE 2022 APPLICATION WOULD NOT CLARIFY THE RELATIONSHIP BETWEEN FUGITIVE DUST CONTROL MEASURES REQUIRED BY PERMIT 95010001 AND MEASURES REQUIRED BY 35 IAC PART 212 SUBPART K

For roadways, parking areas, and open access areas, Conditions 23, 24, 26, 27, 28, 29 and 30 of Permit 95010001 require implementation of control measures for emissions of fugitive dust. The 2022 application does not make clear the relationship between these requirements established by permit and state regulatory requirements for fugitive emissions in 35 IAC Part 212 Subpart K.[67] In particular, Condition 29 requires daily recordkeeping for the implementation of required measures for on-site dust control. However, it does not address the relationship between these permit-mandated records and the recordkeeping required by 35 IAC 212.316(e)(2).[68] At the same time, Permit 95010001 does address one requirement of 35 IAC Part 212 Subpart K as Condition 25 restates the requirement of 35 IAC 212.316(e)(1), which provides that the opacity of fugitive particulate matter emissions from any roadway or parking area at the Granite City Works shall not exceed 5 percent.[69] That Permit 95010001 does not currently deal with regulatory requirements for fugitive dust is an issue as Integrated Processing of a revision of this this permit requires that the compliance procedures in the revised revised be consistent with those required by the CAAPP.

---

[67] Incidentally, the CAAPP permit for the Granite City Works appears to erroneously apply the requirements of 35 IAC Part 212 Subpart K, to the requirements for off-site dust control in Permit 95010001. These regulatory requirements, including that subject sources must be operated under the provisions of an operating program designed to significantly reduce fugitive particulate matter emissions, are applicable to US Steel for sources of fugitive dust at the Granite City Works. However, 35 IAC 212.302 appears to provide that the various emission standards and control requirements in 35 IAC Part 212 Subpart K, other than the general standard for the opacity of fugitive emissions in 35 IAC 212.301, apply for emission units for fugitive dust at certain types of facilities, including manufacturing facilities. Accordingly, these regulatory requirements would not apply to off-site roadways and the compliance procedures for the control measures for off-site roadways should instead be established by permit.

[68] For example, for roadways and parking areas at a steel mill in Granite City (i.e., the Granite City Works), 35 IAC 212.316(g)(2) requires the owner or operator to keep the following detailed records related to the application of control measures for these units:

> 35 IAC 212.316(g)(2) …
>
> D) For each application of water or chemical solution to roadways by truck: the name and location of the roadway controlled, application rate of each truck, frequency of each application, width of each application, identification of each truck used, total quantity of water or chemical used for each application and, for each application of chemical solution, the concentration and identity of the chemical;
> E) For application of physical or chemical control agents: the name of the agent, application rate and frequency, and total quantity of agent, and, if diluted, percent of concentration, used each day;
> F) A log recording incidents when control measures were not used and a statement of explanation.

[69] In Condition 31, Permit 95010001 also refers to 35 IAC Part 212 Subpart U, which also addresses fugitive emissions. For certain facilities, including the Granite City Works, it requires that the owner or operator prepare a contingency measure plan for reductions in particulate emissions that could be implemented in the event of an exceedance of the NAAQS for PM_{10}, 24-hour average. Incidentally, Illinois has never needed to implement the contingency plans required by 35 IAC Part 212 Subpart U.

16. THE 2022 APPLICATION DOES NOT ADDRESS CHANGES TO THE CAAPP PERMIT THAT ARE NEEDED DUE TO REVISIONS TO 40 CFR 63 SUBPART FFFFF, AS COULD BE EXPEDITED BY INTEGRATED PROCESSING OF PERMIT 95010001

The 2022 application does not address revisions to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Integrated Iron and Steel Manufacturing Facilities, 40 CFR 63 Subpart FFFFF, made by USEPA in July 2020. (85 Federal Register, pages 42,074 – 42,130, July 13, 2020). Among other revisions to 40 CFR 63 Subpart FFFFF, USEPA acted to remove exemptions from the emission and opacity limits in this NESHAP for periods of startup, shutdown and malfunction (SSM). Accordingly, effective January 12, 2022, the emission and opacity limits of this NESHAP became applicable at all times. The requirements of this NESHAP that formerly dealt with SSM ceased to be applicable. Notably, subject sources would no longer be required to keep startup, shutdown and malfunction plans detailing the procedures for operating and maintaining subject emission unit(s) during periods of SSM, as had been required by 40 CFR 63 Subpart FFFFF as it had applied 40 CFR 63.6(e)(3) in the general provisions of the NESHAP regulations to subject sources,

These revisions to 40 CFR 63 Subpart FFFFF are relevant for Permit 95010001 and the revisions to this permit requested by the 2022 application. This is because Permit 95010001 relies on the applicable compliance procedures of 40 CFR 63 Subpart FFFFF (i.e., requirements for emission testing, opacity observations operational monitoring and recordkeeping), to verify consistent operation of the casthouse, the basic oxygen furnaces and other NESHAP-subject units and their emission controls, for the purposes of assuring compliance with the emission limits set by this permit for their emissions of particulate. This reliance occurs as the emission limits that are set or would be set by a revised permit would be restated in the CAAPP permit for the Granite City Works, Permit 96030056. The provision currently in CAAPP Permit 96030056 that reflect the exceptions to the requirements of 40 CFR 63 Subpart FFFFF for SSM create a break or interruption in this reliance on the NESHAP for purposes of enforceability of permit limits for emissions, even if the actual nature and effect of this break or interruption is uncertain. Any concern over such interruptions would be eliminated if the former provisions of the NESHAP regulations, which USEPA acted to strike in July 2020, were also no longer present in the CAAPP permit.[70]

[70] From a legal and practical perspective, the continued presence of the former provisions of 40 CFR 63 Subpart FFFFF in the CAAPP permit would be problematic. Would US Steel have to maintain startup, shutdown and malfunction plans as related to particulate emissions of NESHAP-subject units relative to permit limits for particulate emissions? Would the continued presence of these provisions in the CAAPP permit throw Integrated Processing of Permit 95010001 into question as the compliance procedures that would accompany the limits for particulate emissions in revised Permit 95010001 would not be consistent with the procedures required by the CAAPP? Would US Steel and the Illinois EPA have to delineate and then implement a secondary version of the compliance procedures that would deal with emissions of particulate from NESHAP-subject units during SSM events?

17. THE 2022 APPLICATION DOES NOT ADDRESS CHANGES TO THE CAAPP PERMIT THAT HAVE RESULTED FROM SHUTDOWN OF EMISSION UNITS, AS IS RELEVANT FOR THE REQUESTED INTEGRATED PROCESSING OF THE REVISION TO PERMIT 95010001

The 2022 application does not identify changes to the CAAPP permit for the Granite City Works, Permit 96030056, that are a consequence of permanent shut down of emission units, as generally addressed by Condition 9.11 of the CAAPP permit.

> Condition 9.11 Permanent Shutdown
> This permit only covers emission units and control equipment while physically present at the indicated source location(s). Unless this permit specifically provides for equipment relocation, this permit is void for the operation or activity of any item of equipment on the date it is removed from the permitted location(s) or permanently shutdown. …

While the 2022 application acknowledges that the by-product coke ovens at the Granite City Works have been shut down, this application does not separately address the consequences for the current CAAPP permit. The shutdown of these batteries was accompanied by the shutdown of coal and coke handling operations, the coke by-products plant, the handling of coke by-products, and possibly certain wastewater treatment processes.[71, 72] In addition, although not shut down, Boilers 11 and 12, Ladle Dryer/Preheaters and Slab Reheat Furnaces are no longer able to use COG as fuel since COG is no longer produced at the facility. As such, provisions in the CAAPP permit that identify or address the use of COG in these units are no longer necessary.[73] It

---

[71] The elimination of COG also affected the applicability of emission standards to certain units. For example, 35 IAC 212.458(b)(23) is no longer applicable to ladle dryers/preheaters, contrary to what is stated in Condition 7.5.3-1 of the CAAPP permit.

[72] US Steel's current application for renewal of CAAPP Permit 96030056, which was received by the Illinois EPA on December 3, 2013, also does not address shut down of the by-product coke oven batteries and other related operations at the facility. This application only acknowledges that changes to the CAAPP permit will be needed in the future to address the addition of the baghouse to the particulate control system for the basic oxygen furnaces when construction of the baghouse is complete.

> The existing equipment descriptions for the individual processes at GCW (Granite City Works) in the CAAPP permit sections 7.1 to 7.4 and 7.6 to 7.13 are generally accurate. However, the Basic Oxygen Furnace process described in the CAAPP permit condition 7.5 will eventually need to be updated with the new secondary baghouse added as part of the Emission Reduction Project (Construction Permit No. 11050006) once construction is complete.
>
> Application for Renewal of CAAPP Permit 95030056, Section 2.2.2, "Process Changes."

[73] Irrespective of whether certain provisions in the CAAPP permit related to use of COG are still necessary, Condition 5.6 of the CAAPP permit limits the SO_2 emissions of these units from use of COG. (This condition restates limits from Federally Enforceable State Operating Permit 94120017, originally issued December 12, 1994.) The absence of COG does not act to excuse US Steel from required recordkeeping and periodic reporting for emissions of SO_2 and PM_{10} from these units from use of COG (CAAPP permit, Conditions 5.9(e) and 5.10.3). It also does not excuse US Steel from required operational monitoring for the use and sulfur content of COG (CAAPP permit, Conditions 5.6(a) and

would be improper for the revised version of the CAAPP permit authorized by means of the Integrated Processing of a revision to Permit 95010001 to still physically include provisions that should no longer be present in the revised CAAPP permit given the permanent shutdown of the emission units that were subject to those provisions.[74] The responsibility to identify provisions in the CAAPP permit that should not be carried forward initially falls on US Steel as it is the CAAPP Permittee for the Granite City Works.[75] Moreover, as the 2022 application requests Integrated Processing of the requested revisions to Permit 95010001, the subsequent revisions to the CAAPP permit that would be authorized by the revisions to Permit 95010001 must fulfill the requirement that a CAAPP permit issued for a source accurately identify or address the emission units that constitute the source is being permitted.

7.3.9(f)). In this regard, the emission units addressed by CAAPP Condition 5.6, which are addressed by these requirements for operational monitoring, recordkeeping and reporting, have not been shut down.

[74] A fundamental requirement of the CAAPP is that applications for CAAPP permits must be truthful, accurate and complete. In this regard, Section 39.5(5)(e) of the Environmental Protection Act provides that "Each submitted CAAPP application shall be certified for truth, accuracy, and completeness by a responsible official in accordance with applicable regulations." Section 10(a)(i) of the Act provides that one of the standards of issuance for a CAAPP permit by the Illinois EPA is that "… the applicant has submitted a complete and certified application for a permit, permit modification, or permit renewal consistent with subsection 5 and 14 of this Section [Section 39.5 of the Act], as applicable, and applicable regulations." The requirement for an application to be truthful, accurate and complete is applicable to US Steel's current request for revisions to Permit 95010001 as it includes a request for Administrative Amendment to the CAAPP permit for the Granite City Works by means of Integrated Processing under the CAAPP. The scope of this requirement's applicability is not limited to only certain types of CAAPP applications, such as applications for initial CAAPP permits or renewals of CAAPP permits.

[75] As US Steel is the Permittee for a CAAPP source, it must periodically report compliance or noncompliance with each of the requirements set forth in the CAAPP permit. If US Steel believes that it is "in compliance" with regard to certain requirements in the CAAPP permit because those requirements have been affected by Condition 9.11 of the CAAPP Permit, it is appropriate for US Steel to request appropriate changes to the CAAPP permit by means of an appropriate application for amendment or modification of the CAAPP permit. This is especially true as certain requirements in the CAAPP permit that relate to use of COG apply to emission units that have not been shut down.

18. THE EVALUATION OF BEST AVAILABLE CONTROL TECHNOLOGY (BACT) IN THE 2022 APPLICATION FOR CARBON MONOXIDE (CO) IS NOT SUFFICIENT AND DOES NOT ADEQUATELY SUPPORT US STEEL'S PROPOSAL FOR BACT

The evaluation of Best Available Control Technology (BACT) for CO in Section 8 of the 2022 application lacks necessary information to support US Steel's proposal for BACT for CO for the emissions units for which this must be determined or redetermined under the PSD program as a consequence of the requested revisions to Permit 95010001. The evaluation addresses BACT for CO for the casthouse for which BACT must now be determined as it is now recognized that the casthouse emits CO. It also addresses BACT for CO for the blast furnace stoves as the 2022 application requests that the revision of Permit 95010001 allow for more emissions of CO from these units.

The Scope of the Evaluation

As explained in the 2022 application, consistent with the definition of BACT in Section 169(3) of the Clean Air Act (42 US Code Section 7479(3)) and as confirmed by USEPA guidance, a determination of BACT must consider options to control or reduce emissions of an emission unit besides add-on control devices.

> In the BACT analyses herein, the term "available" is used, consistent with U.S. EPA guidance to refer to any control strategy that is potentially applicable to the source type in question (i.e., a technology or control option that has a practical potential for application to the source category in general). These may include fuel cleaning, inherently lower polluting processes, and end of pipe control devices. All identified control strategies that are not inconsistent with the fundamental purpose and basic design of the proposed [sic] facility are listed in this step.
>
> 2022 application, Section 8.2.1.4, "Available Control Options," p. 8-4.

For the casthouse, when identifying control options, the BACT evaluation only identifies end-of-pipe or "add-on control" control options. The evaluation does not identify other process-related control options such as work practices (2022 application, Section 8.2.3.3). In contrast, for the blast furnace stoves, the evaluation identifies both add-on control options and a process-related control option. i.e., "Work Practice Standards, including good combustion practices" (2022 application, Section 8.2.2.3). The evaluation does not explain why process-related control options are not available for the casthouse.[76]

[76] Incidentally, with regard to the blast furnace stoves, the evaluation does not explain why "good combustion practices" are considered to be a type of work practice standard rather than a separate control option. In Section 8.2.2.6 "Step 5 - Establish CO BACT," the evaluation proposes operational monitoring for temperature and oxygen levels to confirm operation of the stoves for efficient combustion of fuel, thereby maintaining CO emissions within the level that is achievable given the nature of the physical and operational design of the stoves. The evaluation also separately proposes the less prescriptive practices that are more often considered to constitute good combustion practices. For example, Section 8.2.2.6 also

Support Provided for the Scope of the BACT Evaluation

For both the casthouse and the blast furnace stoves, the BACT evaluation in the 2022 application is not accompanied by supporting documentation for the investigation that was conducted into available control options. Instead, the evaluation simply states that a review of available control options was conducted. For example, for the casthouse, the evaluation states:

> Based on a review for BACT determinations in U.S. EPA's RBLC (RACT/BACT/LAER Clearinghouse) database and other literature, the control options that are potentially available to control CO emissions from the blast furnace casthouse are:
>
> - Capture system and thermal incineration and
> - Capture system and catalytic incineration.
>
> 2022 application, Section 8.2.3.3, p. 8-8.

When a BACT evaluation is submitted, it may be appropriate or necessary[77] for the application to also include documentary support for the review of available control options that was conducted. In this regard, BACT evaluations commonly include copies of information from the RBLC that is potentially relevant to the determination of BACT that must be made. Further explanation is also provided if some of that information is not considered applicable to the units that are the subject of the BACT determination. Likewise, as there is relevant information in the literature, especially as it is addresses available control options for the subject pollutant, copies of that information should be included in a BACT evaluation. This information enables the Illinois EPA, the USEPA and interested parties to confirm that the review of available control options for a BACT evaluation was thorough and can be relied upon to have reasonably identified potentially available control options for BACT.

Support Provided for Work Practices As BACT for the Blast Furnace Stoves

For the blast furnace stoves, the BACT evaluation for CO in the 2022 application is not accompanied by supporting documentation to support the claim that it is infeasible to measure their CO emissions so that BACT should not be set as a numerical emission standard.[78]

---

proposes to, "Conduct annual adjustment and tune-up to include, **at a minimum**, inspecting, adjusting, cleaning, or replacing instrumentation and operational control system components and inspecting the air-to-fuel ratio control system and adjusting as **appropriate** for **proper** operation." [Emphasis added.] Moreover, this statement of what would constitute "good combustion practices" for the stoves would be problematic as it would not be enforceable given the various qualifications, as highlighted, on the actions that are required actions to be taken.

[77] For the 2022 application, this information is considered necessary. BACT determinations for the CO emissions of casthouses for blast furnaces and blast furnace stoves are uncommon. The Illinois EPA does not have the ability based simply on its own experience and knowledge to confirm that the potential control options for CO BACT were reasonably identified in the BACT evaluations in the application.

[78] The definition of BACT at 35 IAC 204.280 provides that:

> USS Granite City is proposing work practice requirements rather than numeric limits as BACT. Numeric emission limitations are not proposed because direct measurement of emissions --*i.e.*, use of U.S. EPA reference test methods—is not feasible for any of the fuel emissions units subject to the BACT requirements for CO emissions. In particular, for the stack serving the blast furnace A stoves, there is no sampling port,[45] and for the stack serving the blast furnace B stoves there is no sampling port satisfying the location requirement in U.S. EPA Reference Method 1.[46] Each stack is refractory lined and is believed to be approximately one hundred years old.
>
> For the reasons presented above, numeric CO emission standards are not feasible for the blast furnace stoves.
>
> Footnote 45. For the one-time exhaust gas sampling event discussed in footnote 19 of this permit application, USS Granite City inserted a sampling probe into the stack through a pipe used to inject steam into the stack.
> Footnote 46. Appendix A-1 to 40 CFR part 60.
>
> 2022 application, Section 8.2.2.6, "Step 5 – Establish CO BACT," p. 8-7.

Further support is needed for the claim that measurement or testing of emissions of the blast furnace stoves is infeasible. While certain information about the stoves is provided, the application does not directly address the technological issues or costs that would be entailed to install suitable ports for testing on one or both sets of blast furnace stoves. For example, the application does not include diagrams for the existing ductwork of the stoves to address whether the configuration of this ductwork would accommodate installation of test ports at a location that would satisfy USEPA Reference Method 1. The application also does not show how the refractory lining on the stacks or their age, approximately one hundred years old, would present significant technical challenges and costs so that the installation of test ports at a suitable location should be considered infeasible. The application also does not show that there are other challenges that would need to be addressed or issues that should be considered, such as requirements of the Occupational Safety and Health Administration (OSHA), that would affect the technical feasibility and cost of installing suitable test ports on the stoves.

> If the Agency [Illinois EPA] determines that technological or economic limitations on the application of measurement methodology to a particular emission units would make the imposition of an emission standard infeasible, a design, equipment, work practice, operational standard or combination thereof, may be prescribed instead to satisfy the requirement for the application of BACT. Such standard shall, to the degree possible, set further the emission reduction achievable by implementation of such design, equipment, work practice or operation, and shall provide for compliance by means that achieve equivalent results.

19. THE APPLICATION DOES NOT ADDRESS BACT FOR SO_2 AND CO FROM USE OF COKE OVEN GAS (COG) IN THE BLAST FURNACE STOVES

The 2022 application does not demonstrate that Best Available Control Technology (BACT) was utilized as an aspect of the Project for the SO_2 and CO emissions of the blast furnace stoves, as required under the PSD program (e.g., 35 IAC 204.1100(c)). In this regard, unlike the original application, the 2022 application addresses emissions from use of coke oven gas (COG) as fuel in certain Project-affected units. (Refer to the revised netting analyses for the Project for particulate, NOx and VOM and in the 2022 application.) As the 2022 application now addresses emissions of certain pollutants from burning of COG in fuel-burning units, including the blast furnace stoves, this application must also address the related consequence for emissions of SO_2 and CO under the PSD program from burning COG in the stoves. SO_2 and CO are pollutants for which the Project is a major modification subject to PSD. However, the 2022 application does not address BACT for SO_2 and CO as applied to use of COG in the stoves. As such, the 2022 application does not demonstrate that prior to February 2015, when the by-product recovery coke oven batteries at the Granite City Works were shut down and COG ceased to be available, BACT was being utilized for the SO_2 and CO emissions from use of COG in the stoves.

With respect to CO, it is relevant that the BACT demonstration in the 2022 application focuses on CO emissions from burning of fuels other than COG. For fuel burning units, the 2022 application states that "CO emissions of these units result primarily from incomplete combustion during the firing of BFG and natural gas." This ignores the historic contribution of COG to the CO emissions of the stoves prior to February 2015. The 2022 application also does not state that, as of February 2015, it was no longer necessary to address CO emissions from use of COG because COG was no longer produced and available for use.

20. AS RELATED TO SO_2 EMISSIONS FROM USE OF BFG, THE 2022 APPLICATION IS INCONSISTENT WITH A PENDING 2008 APPLICATION

In 2008, US Steel applied for revisions to Permit 95010001 to increase permit limits for the sulfur content of BFG and the SO_2 emissions resulting from the use of BFG. That application (the 2008 application) was received on February 4, 2008. The 2022 application is inconsistent with and conflicts with the 2008 application. As such, these applications, as they currently exist, cannot be processed by the Illinois EPA absent appropriate action by US Steel on one or both of these applications, e.g., changes to the 2022 application so that it requests the same revisions to SO_2 emission limits for use of BFG as the 2008 application. In this regard, the 2022 application "… does not request any changes to the emission limits for SO_2 and lead emissions established in the Construction Permit 95010001." (2022 application, p. 2-2.) The 2008 application does request changes to the provisions of the permit for SO_2 as it is an "Application to modify to correct the emission factors used to develop the original application and permit in light of newly identified information on emissions and emission factors." (October 2008 application, p. 1-1.)

In particular, in the 2008 application:

> …US Steel seeks to revise the Production Increase Permit (95010001) to account for US Steel's revised method for calculating the SO_2 emissions from BFG combustion. This will increase the total allowable SO_2 emissions on an annual basis from combustion of BFG in the Production Increase Permit.
>
> 2008 application, pp. 2-2 and 2-3

The 2008 application specifically requests that the SO_2 emission factor limit for BFG be increased from 6.65 to 16.00 pounds/million cubic feet of gas burned. With the revised emission factor, the permitted SO_2 emissions from use of the 185,030 million cubic feet of BFG per year, as allowed by the permit, would increase from 615.22 to 1480.24 tons/year. However, the 2022 application provides that the limits for SO_2 for use of BFG should be unchanged. As such, the 2022 application indicates that for use of BFG the requested revised permit should continue to limit SO_2 emission to 6.65 pounds/million cubic feet burned and 615.22 tons/year.

Moreover, the existence of the 2008 application suggests that the revisions to SO_2 emission limits that it requested were needed at the time of that application. The 2022 application does not show that this was not the case, as it does not address historic SO_2 emissions from use of BFG to show that an SO_2 emission factor of 6.65 pounds/million cubic feet was appropriate when Permit 95010001 was originally issued in 1996 and that annual SO_2 emissions have never exceeded 615.22 tons/year.

21. AS RELATED TO EMISSION LIMITS FOR SO_2, LEAD AND CO, THE 2022 APPLICATION IS INCONSISTENT WITH PENDING BOARD APPEALS

As already mentioned, the 2022 application does not request any changes to the emissions limits for SO_2 and lead currently set by Permit 95010001. The application states, "This permit application also does not request any changes to the SO_2 and lead emission limits in Construction Permit No. 950100001, so SO_2 and lead emissions will not be discussed further." [2022 application, Section 2.2, "General Description of Requested Permit Revisions." p. 2-2.][79, 80, 81] For CO, the 2022 application does request that the revised permit address emissions of CO from the casthouse and raise the limits for CO emissions of Project-affected fuel burning units.[82]

---

[79] In Section 3 of the application, in which support for elimination of emission factor limits and use of group limits is generally provided, the application only addresses limits for particulate, NOx and VOM. For example, the application states that,

> The approach proposed by USS Granite City with respect to the PM, PM_{10}, NOx and VOM emissions caps to be used in any revised Construction Permit No. 95010001, including the proposed revisions to certain emission limitations, compliance demonstration requirements, and other permit conditions as discussed in detail in Sections 5 through 7 of the permit application ["Proposed Changes to Permit Terms for PM and PM_{10} Emissions Increases Analyses," "Proposed Changes to Permit Terms for NOx Emission Increases Analysis, and "Proposed Changes to Permit Terms for VOM Emission Increases Analyses," respectively] is consistent with policy and precedent and will improve the enforceability of the PTE limitations in Construction Permit No, 95010001. In particular, USS Granite City emphasizes that removal of certain conditions and provisions addressing emissions individual emission units or emission points, including both limits on annual emissions and provisions emission addressing emissions factors will not result in impairment of the enforceability of the PTE limitations.
>
> 2022 application, Section 3, "Discussion of Permit Conditions Used to Restrict PTE [Potential to Emit]," 3-3.]

[80] For process operations, Permit 95010001 currently limits SO_2 emissions from the casthouse and slag pits associated with the blast furnaces in pounds per ton of iron produced and tons per year. For the casthouse, the SO_2 emissions of the main baghouse for the casthouse, the baghouse for the iron spouts at the casthouse, and the uncaptured emissions from the casthouse are limited, respectively, to 0.2006, 0.0073, and 0.0104 pounds per ton of iron produced. The SO_2 emissions of the slag pits are limited to 0.0100 pounds per ton of iron produced. (Permit 95010001, Condition 5 and Table 1.)

Although the emission factor limits for the SO_2 emissions of the casthouse are not identified as Best Available Control Technology (BACT) by Permit 95010001, these limits are considered to be the determination of BACT for SO_2 and should have been identified as such in this permit. BACT is required for the casthouse for SO_2 because the Project was a major modification for SO_2 under the PSD program, as is stated in this permit. Accordingly, as Project included physical changes to the blast furnaces to increase their production capability, BACT is required for the SO_2 emissions of the casthouse.

[81] For operations in the basic oxygen furnace shop, Permit 95010001 currently limits lead emissions in pounds per hour and tons per year. For the basic oxygen furnaces, the lead emissions from the ESP stack and roof monitor are limited to 0.01934 and 0.0129 pounds per hour, respectively. The lead emissions from desulfurization and hot metal transfer are limited to 0.0133 pounds per hour. (Permit 95010001, Condition 18 and Table 2.) The permit does not address the lead emissions of the basic oxygen furnaces that are now captured and controlled by the new baghouse system nor does the 2022 application request any revisions to the permit to address the lead emissions of these furnaces that now occur from the stack of the baghouse.

[82] In the original application for Permit 95010001, the casthouse was not identified as a source of CO and information for CO emissions was not provided. The application also requests certain updates to the

However, the application does not request revisions to the emission limits currently in Permit 95010001 for the CO emissions of the basic oxygen furnaces, i.e., the limits in pounds per ton of steel produced and in tons per year for the CO emissions of these furnaces through the ESP stack.[83,] As such, the application is not consistent with two pending permit appeals before the Board, PCB 0013-53 and PCB 0013-62, as it does not propose revisions to current permit limits for emissions of SO_2, CO and lead. As previously discussed, in these appeals, US Steel challenged all emission factor limits set by Permit 95010001 for individual process operations. US Steel has not amended these appeals so that they only address emission factor limits for PM, PM_{10}, NOx and VOM and no longer address the t emission factor limits that are set for SO_2, CO and lead. In addition, in the 2022 application, US Steel does not explain why the emission factor limits in Permit 95010001 for SO_2, CO and lead that were appealed are no longer considered to be objectionable. That is, US Steel would not again challenge those limits as it has already done in PCB 0013-53 and PCB 0013-62 if a revision to Permit 95010001 were issued that continued to include the current emission factor limits.[84]

With regard to the CO emissions of the basic oxygen furnaces, the 2022 application also does not request revisions to Permit 95010001 as the current permit only addresses CO emissions from the "BOF ESP Stack." The application does not request that these limits be revised so that they address all stack emissions of the basic oxygen furnaces, e.g., CO emissions from both the stack of the new baghouse system and the stack of the ESP system. Moreover, as the 2022 application does not propose such revisions to the current limits for CO emissions of these furnaces, the application effectively requests a relaxation of the current limits. This is because the revised permit would not address the CO emissions of these furnaces that now occur through the baghouse stack. That is, the limits in the revised permit would not account for any CO emissions that are no longer being captured with the ESP system and are instead now being emitted from the baghouse system.[85]

---

limits for CO emissions from use of blast furnace gas and natural gas in Project-affected fuel burning units to reflect new information for the CO emissions from burning these fuels.

[83] Permit 95010001 currently limits CO emissions of the basic oxygen furnaces through the ESP stack to 8.993 pounds per ton of liquid steel produced and 16,097.47 tons/year. (Permit 95010001, Condition 18, Table 2, Section 1, BOF ESP Stack.) The permit does not address CO emissions that are now captured by the new baghouse system and emitted from its stack or any uncaptured CO emissions, which occur through the roof monitor.

[84] If the subject emission factor limits were included in a revised permit, the Illinois EPA could explain that, if these limits in the revised permit were stayed pursuant to an appeal to the Pollution Control Board, the limits would continue to be enforceable pursuant to Permit 95010001 as issued before the revision of the permit and any appeal of the revised permit to the Board.

[85] The 2022 application also does not request revisions to Permit 95010001 to address uncaptured CO emissions of the basic oxygen furnaces or otherwise address the uncaptured CO emissions of these furnaces. This is not consistent with the approach taken for the casthouse on the blast furnaces. For the casthouse, the application requests that the revised permit limit the overall emissions of CO from the stacks on the control systems serving the casthouse. The application also includes information for the overall CO emissions of the casthouse, including other captured emissions and uncaptured emissions.

> As discussed in Section 8.2.3.7 of this permit application [BACT Evaluation for Blast Furnace Casthouse], USS Granite City is proposing a CO BACT emission limit of 70 lb/hr based on total emissions of these two baghouses [main casthouse baghouse and iron spout baghouse], assuming

22. THE 2022 APPLICATION DOES NOT INCLUDE A SIGNED CERTIFICATION FOR THE ACCURACY AND COMPLETENESS OF THE APPLICATION

The 2022 application does not include a signed certification for the truth, accuracy and completeness of this application as it was actually submitted in October 2022, as required by 35 IAC 201.159 and Section 39.5(5)(e) of the Illinois Environmental Protection Act. In its place, the 2022 application includes a photocopy of an earlier certification, dated February 25, 2022, which was submitted with a prior application (2022 application, "Appendix A – Application Forms (Copies of Previously Submitted Versions)"). However, the 2022 application is a revision of the earlier application and US Steel intends the 2022 application to replace the earlier application submitted in March 2020 in its entirety (2022 application, Cover Letter). Accordingly, the 2022 application must include a new certification for its truth, accuracy and completeness.

95% capture efficiency for the capture system associated with the cast baghouse, as discussed in Section 5.2.3 of this permit application {A&B Blast Furnace Casthouse Roof Monitor Emissions PM_{10} Revised], the fugitive CO emissions from the casthouse roof monitor are 3.1 lb/hr. Total CO emissions from the casthouse roof monitor, including both baghouse and fugitive emissions are 73.1 lb/hr and 320 tons per year ("TPY").

2022 application, Section 4.4, "Updated CO Emissions Information for Blast Furnace Casthouse."

Illinois Environmental Protection Agency

Notice of Intent to Deny and Public Comment Period
Application for a Revision to a Construction Permit/PSD Approval
US Steel Corporation in Granite City

United States Steel Corporation (US Steel), 1951 State Street, Granite City, has applied to the Illinois Environmental Protection Agency (Illinois EPA) for a revision to an air pollution control construction permit/PSD (Prevention of Significant Deterioration) approval that was originally issued in 1996 for a production increase project at its steel mill located in southeastern Granite City (the Granite City Works). This facility emits particulate, sulfur dioxide, lead, volatile organic material, nitrogen oxides (NOx), and carbon monoxide (CO). The application requests increases in permitted emissions of CO, which the original application understated. As the application requests increases in permitted CO emissions for which the project originally was a major modification subject to PSD, the current application must address compliance with Illinois' rules for PSD, 35 Illinois Administrative Code Part 204. The application also does not show that the requested increase in NOx emission would not make the project a major modification for NOx. Based on its review of the application, the Illinois EPA has made a preliminary determination that the current application does not comply with the applicable air pollution control regulations. As the application requests revisions to provisions of the permit that would relate to PSD, the Illinois EPA has prepared a draft permit denial letter for public review and comment.

The Illinois EPA is accepting comments prior to making a final decision on this application. **Comments must be postmarked by 11:59 pm, August 21, 2023.** All persons, including the applicant, shall raise all reasonably ascertainable issues and submit all reasonably available arguments supporting their position by the close of the public comment period.

If sufficient interest is expressed in this matter, a hearing or other informational meeting may be held. Comments, questions and requests for information should be directed to Brad Frost, Office of Community Relations, Illinois EPA, PO Box 19506, Springfield, IL 62794-9506, phone 217/782-7027, TDD 866/273-5488, brad.frost@illinois.gov.

Persons wanting more information may view the draft permit denial letter and project summary at https://epa.illinois.gov/public-notices/boa-notices.html The repository for these documents and the application are located at the Illinois EPA's offices at 1101 Eastport Plaza Drive, Suite 100, Collinsville, 618/346-5120 and 1021 N. Grand Ave. East, Springfield, 217/782-7027. (Please call ahead to assure that someone will be available to assist you). Copies of the documents will be made available upon request to the contact listed above.

The facility is located in a potential Environmental Justice area. More information concerning Environmental Justice may be found at https://epa.illinois.gov/topics/environmental-justice.html

Illinois Environmental Protection Agency
Bureau of Air, Permit Section
Springfield, Illinois

July 2023

Project Summary for the Proposed Denial of an Application* from United States Steel Corporation – Granite City Works for Revisions to a Construction Permit/PSD Approval Issued for a Production Increase Project at its Mill in Granite City

Site Identification No.: 119813AAI
Permit/Application No.: 95010001

Illinois EPA Contacts:
Review Engineers: Minesh Patel, Christopher Romaine and Jason Schnepp
Community Relations Coordinator: Brad Frost

Schedule for Public Comment Period:
Comment Period Begins: July 21, 2023
Comment Period Scheduled to Close: August 21, 2023

*. In its application, U. S. Steel asks that the requested revisions of Permit 95010001 be processed by the Illinois EPA with "Integrated Processing," as is allowed by Section 39.5(13)(a) and (c)(v) of the Illinois Environmental Protection Act. Integrated Processing of the revised permit would allow changes to the Clean Air Act Permit Program (CAAPP) permit for the Granite City Works, as would be set forth in the revised permit, to subsequently be made by means of an Administrative Amendment of the CAAPP permit. Integrated Processing would require that the revision of the permit provide for compliance requirements that are substantially equivalent to those that are required in CAAPP permits. The processing of the permit must also be subject to procedural requirements that are substantially equivalent to those that apply for issuance CAAPP permits, including an opportunity for USEPA to review and comment upon a proposed version of the revised permit following completion of a public comment period on the draft of the revised permit.

1. Introduction

United States Steel - Granite City Works (US Steel) has applied to the Illinois EPA for revisions to an air pollution control construction permit (Permit 95010001) for a project at its Granite City Works, the steel mill in Granite City. This project (the "Project") involved increases in the permitted production of iron and steel by this facility. As this facility is a source of emissions, Permit 95010001 provided approval for the Project under both Illinois' construction permit programs for sources of emissions and the Prevention of Significant Deterioration (PSD) program under the federal Clean Air Act. This permit was originally issued in January 1996 to National Steel and was transferred to US Steel after it became the owner of the facility. This proposed denial involves the US Steel's revised application submitted in October 2022 (the "2022 application").

A key reason why revisions to Permit 95010001 are needed is that emission testing conducted in 2014 on the two basic oxygen furnaces (BOFs), in which steel is produced, showed their emissions of nitrogen oxides (NOx), as well as volatile organic material (VOM), are higher than is allowed by this permit. This is because the original application understated the NOx and VOM emissions of the BOFs and the emission limits in this permit were based on information in the original application.

US Steel has worked to prepare an application for revisions to Permit 9501001 that would allow more emissions of NOx and VOM from the BOFs. The 2022 application also addresses other issues that are now posed by the manner in which the Project was originally permitted and subsequent changes that have occurred at the facility. Notably, the emissions of carbon monoxide (CO) of certain units have also been found to be higher than stated in the original application. A baghouse control system has been installed for the BOFs to improve control of particulate emissions from charging and tapping of these furnaces. The byproduct coke oven batteries formerly at the facility were shut down in 2015. A brief description of some of the revisions to Permit 95010001 that US Steel has requested is provided at the back of this document in Appendix 1. The requested revisions do not include increases in the permitted iron and steel production of the facility as allowed by this permit as issued in 1996.

The Illinois EPA has made a preliminary determination that the 2022 application should be denied. The reasons for this are set forth in the draft of the proposed denial that has been prepared. Brief descriptions of the reasons why the Illinois EPA has determined that the 2022 application should be denied are provided in Appendix 2 of this document. For some requested revisions to Permit 95010001, the application should be denied because it does not show that they would comply with the relevant regulatory requirements and USEPA policy that apply to this permit. For other requested revisions, the application does not include the information needed to support those revisions or enable those revisions to be made as a practical matter. In addition, the application should be denied because it would not allow for processing of a revised permit with Integrated Processing, as has been requested. If the Illinois EPA's final decision is to deny this application, it is expected that Permit 95010001 would continue in effect as it now exists until and unless action is taken on a subsequent application.

As required by the PSD program, the Illinois EPA is holding a public comment period on its preliminary determination that the 2022 application should be denied and the draft denial letter that

has been prepared. This will allow for the public to consider and comment on this planned action and the draft of the denial letter that the Illinois EPA has prepared.

2. Background on the Granite City Works

The Granite City Works are an integrated steel mill, making both iron and steel. It has two blast furnaces to make iron from iron ore and an associated casthouse located between them in which tapping of iron and slag from the furnaces take place . Two basic oxygen furnaces (BOFs) are used to process iron from the blast furnaces, together with scrap metal, into steel. Before molten iron from the blast furnaces is charged to a BOF vessel, the iron undergoes "desulfurization" with a reagent to remove sulfur from the iron. Ladles of molten steel produced in the BOFs are transferred to "ladle metallurgy" where with the final additions of alloying materials are made to the molten steel. The two basic oxygen furnaces, the iron desulfurization operation, and the ladle metallurgy operations are all located in the basic oxygen furnace shop (BOF shop). From ladle metallurgy, the ladles of molten steel are transferred to the continuous casters in an adjoining building. The solid steel slabs from continuous casting are processed in rolling mills at the source, which make long, thin strips of steel that are wound in coils. Steel slabs from the casters also go to other plants to be made into finished steel.

Other operations at the Granite City Works include raw material handling and storage, steam boilers, and fuel-burning process equipment. The raw material handling and storage operations handle raw materials, such as iron ore pellets, limestone and other fluxing agents, coke, and alloy materials, for the iron and steel making operations. The steam boilers can burn both natural gas and blast furnace gas (BFG). BFG is a low heat content gaseous byproduct from the blast furnaces. BFG is the principal fuel for the blast furnace stoves in which the blast air supply for these furnaces is heated. Other fuel-burning process equipment at the source burns natural gas. Vehicle traffic on roads and parking lots at the Granite City Works also is a source of emissions of fugitive dust.

The Granite City Works formerly included two by-product recovery coke oven batteries and associated by-product processing plant. These operations were permanently shut down in February 2015. The primary source for coke used in the blast furnaces is now two heat recovery coke oven batteries in Granite City that are operated by Gateway Energy. With the shutdown of the by-product recovery coke oven batteries, coke oven gas is no longer produced and available for use in the blast furnace stoves, boilers and other fuel-burning equipment at the Granite City Works that previously used coke oven gas to provide a portion of their fuel.

Granite City is located in Madison County, which is part of the S. Louis Major Metropolitan Area. Madison County is designated nonattainment under the federal Clean Air Act for the National Ambient Air Quality Standard (NAAQS) for ozone.[1] For other pollutants for which there are NAAQS, i.e., carbon monoxide (CO), lead, nitrogen dioxide (NO_2), particulate matter$_{10}$ (PM_{10}), particulate matter$_{2.5}$ ($PM_{2.5}$) and sulfur dioxide (SO_2), Madison County is designated attainment or unclassifiable. USEPA maintains information about current ambient air quality for ozone and particulate on the internet at AirNow (airnow.gov). The Illinois EPA prepares annual reports for

[1] Air quality designations are adopted by USEPA. The designations for Illinois are found at 40 Code of Federal Regulations (CFR) 81.314.

ambient air quality as measured by its network of air monitoring stations around the states. These reports are also available on the internet (epa.illinois.gov/topics/air-quality-reports).

The Granite City Works are in an area that is of concern for Environmental Justice. As such, any proposed permit actions involving this facility are subject to the Illinois EPA's "Environmental Justice Policy." As addressed in this policy, the Illinois EPA is committed to protecting the environment and the health of the residents of Illinois, and to promoting equity in the administration of its environmental programs.

3. The Production Increase Project or the "Project"

In January 1996, National Steel, the former owner of the Granite City Works was issued Construction Permit 95010001 for increases in the allowable production of iron and steel by the Granite City Works, also referred to as the "Production Increase Project" or the "Project." As explained at that time, the increases in production would in part involve continuing improvements in the operation and maintenance of equipment, which is something that normally occur over the course of time. These would involve things such as the availability and use of ore pellets with higher yield, the availability and use of better refractories linings for furnaces, and ongoing improvements in maintenance practices that would reduce the frequency and duration of furnace outages for maintenance. However, the Project also involved certain physical changes to emission units to enable increased production of iron, i.e., changes to the blast furnace stove blowers to increase their air flow capacity. As such, the Project entailed a modification to the Granite City Works for which an air pollution control construction permit was needed.

National Steel's application for a construction permit for the Project addressed its implications for emissions of the iron and steel making operations and other operations at the Granite City Works that would be affected. The application showed that the increases in emissions from the Project would be significant so that the Project was a major modification for sulfur dioxide (SO_2)and carbon monoxide (CO) under the federal rules for Prevention of Significant Deterioration (PSD), 40 CFR 52.21, as governed in 1996.[2] In this regard, in 1996, Granite City was located in areas that were designated attainment for the NAAQS for SO_2 and CO. The application submitted by National Steel addressed the substantive requirements of the PSD rules, as they applied to the Project for SO_2 and CO. For example, the application addressed the use of Best Available Control Technology (BACT) for the casthouse at the blast furnaces as it was identified as emitting SO_2 and the blast furnace stoves as they were identified as emitting SO_2 and CO. The Illinois EPA found that emissions of these pollutants from these units would be appropriately controlled with measures that reflected BACT.

National Steel's application showed that Project was not a major modification for other pollutants. For lead, the application showed that the increase in lead emissions would not be significant. For

[2] In 1996, the Illinois EPA administered the USEPA's PSD rules at 40 CFR 52.21 under a delegation agreement with USEPA. The Illinois EPA now implements the PSD program through states regulation at 35 IAC Part 204, which have been approved by USEPA as part of Illinois' State Implementation Plan.

particulate matter (PM),[3] particulate matter$_{10}$,[4] nitrogen oxides (NOx) and volatile organic material (VOM), the application showed that the net increases in emissions from the Project, considering contemporaneous decreases and increases in emissions, would not be significant. For example, the shutdown of ingot casting and the associated blooming mill at the Granite City Works provided emission decreases that were contemporaneous with the emission increases from the Project. Accordingly, for lead, PM, PM_{10}, NOx and VOM, the permitting of the Project did not address the substantive requirements of PSD or Illinois's rules for Major Stationary Sources Construction and Modification (MSSCAM), 35 IAC Part 203 (more generally referred to as Nonattainment New Source Review or "NaNSR").

In this regard, in 1996, Granite City was located in areas that were attainment for PM and NO_2.[5] National City's application showed that the net increases in emissions of these pollutant from the Project (i.e., the increases in emissions after considering contemporaneous increases and decreases in emissions) would be below the rates that would be considered to be significant under PSD (25 and 40 tons/year for PM and NOx , respectively). In 1996, Granite City was located in areas that were designated nonattainment for NAAQS for ozone and PM_{10}. Madison County was and continues to be nonattainment for ozone. The part of Madison County that was nonattainment for PM_{10} included Granite City. For VOM and NOx, as they are regulated as precursors to ozone in the atmosphere, National City's application showed that the net increases in emissions from the Project would be below the rates that would be significant under MSSCAM (40 tons/year for both VOM and NOx). For PM_{10},the application showed that the net increase in PM_{10} emissions from the project would also be below the rate that would be significant under MSSCAM (15 tons/year).

When issuing Permit 95010001 for the Project in 1996, the Illinois EPA included various limits to hold National Steel to the representations made in the application and make those representations enforceable. The future annual production of iron by the blast furnaces and steel by the BOFs were limited to the maximum production levels requested by National Steel in the application. The future annual emissions of different pollutants from the various process units affected by the Project were limited. For the BOFs, whose particulate emissions were only controlled by an electrostatic precipitator (ESP) add-on control system in 1996, separate emission limits were set for the emissions from ESP and the uncaptured emissions from open roof monitor above the BOFs. For fuel-burning units, e.g., the blast furnace stoves and boilers, emissions limits for different pollutants were set collectively for the group of such units, rather than individually. However, separate limits

[3] Particulate matter (PM), as addressed by the application and relevant USEPA and Illinois rules, only includes filterable particulate and not condensable particulate. Relevant rules provide that measurements of PM emissions are to be made by test methods that are designed to only measure filterable particulate.

[4] For particulate matter$_{10}$, the application only addressed filterable emissions and not condensable emissions. As subsequently addressed in USEPA rules, emissions of condensable particulate were not regulated as a constituent of particulate matter$_{10}$ before January 1, 2011 [40 CFR 51 Appendix S, Emission Offset Interpretative Ruling, Part II, (A)(31)(ii)(*a*)].

In Illinois' rules, filterable particulate matter$_{10}$ is referred to as "PM-10;" condensable particulate as "condensible PM-10." This usage is confirmed in 35 IAC 212.108(a) and (b) by the methods that are specified for emissions testing.

[5] For purposes of PSD and MSSCAM, NOx was initially regulated as a precursor to the formation of nitrogen dioxide (NO_2) in the atmosphere. As addressed in the Clean Air Act as amended in 1990, NOx also became also regulated as a precursor to the formation of ozone. Finally, NOx is now also regulated as it is a precursor to $PM_{2.5}$.

were set for the emissions from burning BFG, natural gas and fuel oil.[6] The annual emission limits for different pollutant were accompanied by "emission factor limits" that addressed emissions in pounds per ton of iron or steel produced or handled, or for the fuel-burning units, emissions in pounds per volume of fuel burned. The permit required emission testing to be conducted for certain units following issuance of the permit to verify compliance with the requirements of the permit. [7, 8]

The Illinois EPA also included certain requirements in Permit 95010001 for the BOFs that were more stringent than those that had previously applied.[9] The opacity of emissions from the roof monitor was limited to 20 percent on a 3-minute average, from 30 percent on a 6-minute average. Specific practices that were required to be used to reduce particulate emissions of the BOFs. For example, use of flame suppression was required during tapping of a BOF, when molten steel and slag are poured from a BOF into a ladle. Minimum values were set for the air flow through the hoods that capture the particulate emissions of the BOFs for control by the ESP, with different values set for the charging, refining, and tapping steps in the operation of a BOF. A housekeeping program was required for the area below the ESP where collected particulate is transferred from hoppers on the bottom of the ESP into fabric containers for transport off-site. For roadways at the Granite City Works, the permit set specific requirements for the frequency of treatment of different road segment to reduce emissions of fugitive dust due to vehicle traffic on the roadway. These

---

[6] For fuel burning units, the permit did not set limits for emissions from the burning of coke oven gas (COG). The operation of the by-product coke oven batteries at the Granite City Works and the associated production of COG was considered to be unaffected by the increased production of iron by the blast furnaces. As a matter of good practice, coke oven batteries are operated at a stable production rate that is consistent with the design and conditions of the batteries. To the extent that the amount of coke produced at a source is more or less than is needed by the source, surplus coke can readily be shipped to other sources, or the deficit made up with coke shipped in from other sources.

[7] For the blast furnaces, emission testing was required for the baghouse that controls particulate emissions of the casthouse, i.e., the structure that encloses the area where molten iron and slag are periodically tapped from the bottoms of the blast furnaces, with testing required PM, VOM, SO_2 and NOx, as well as for opacity. For the BOFs, testing was required for the ESP control system for emissions of PM, CO and lead, as well as for opacity. Testing for emissions of PM was also required for the baghouse that control iron molten iron desulfurization operation that precedes the BOFs and from a representative steam boiler while burning BFG.

[8] The permit stated that the BACT requirement of the PSD rules would be met for SO_2 and CO. However, the permit did not identify specific emission limits or practices that were determined to be BACT for the BACT-subject units. For CO, the specific limits or practice that would be considered to be BACT would be addressed with the proposed revisions to this permit. For CO. US Steel has identified the existence of emissions and higher levels of emissions from the blast furnace casthouse and stoves, respectively. As such, for these unit, BACT for CO must be reevaluated. For SO_2, US Steel has not requested increases in permitted annual emissions. Therefore, BACT for SO_2 does not need to be reevaluated. It would nevertheless be reasonable in the revised permit to identify requirements that are considered to be BACT for SO_2.

[9] The PM-10 emissions of the Granite City Works with the Project were of singular concern to the Illinois EPA. In 1996, an area that included Granite City was designated as nonattainment for PM_{10} air quality. The Illinois EPA performed computerized dispersion modeling for the future PM_{10} air quality of the Granite City area with the Project. The modeling analysis showed that the National Ambient Air Quality Standards (NAAQS) for PM_{10} would be met with PM-10 emissions from the Project-affected units at the Granite City Works at the maximum rates in reflected by the application. In May of 1998, the USEPA redesignated the area in which Granite City is located to attainment for PM_{10}.

Incidentally, the Granite City area is now also designated attainment for the NAAQS for $PM_{2.5,}$ The NAAQS for $PM_{2.5}$ were initially adopted by USEPA in 2006, with the NAAQS on an annual average subsequently being lowered in 2012. The ambient air monitoring stations conducted in Granite City by the Illinois EPA continue to show attainment of the NAAQS for PM_{10} and $PM_{2.5}$.

requirements were accompanied by requirements for daily recordkeeping for the treatment of roadways and the implementation of the cleaning program for these roads. The permit also required periodic treatment of certain public roads that serve the source to their reduce emissions.

4. Improved Control of Particulate Emissions of the BOFs (the New Baghouse)

The version of Permit 95010001 that is the subject of US Steel's 2022 application is the revised permit issued on December 17, 2012. In this regard, in 2010, US Steel agreed to install a baghouse control system with fabric filter that would operate along with the existing ESP system to improve control of particulate emissions of the BOFs from charging and tapping. The commitment to the additional control system was made in an agreement between US Steel and the Illinois EPA[10] for several measures to reduce particulate emissions from steelmaking.[11] For the BOFs, installation of a baghouse system was required to improve control of emissions from tapping, when steel and slag are poured from a BOF vessel into a ladle. US Steel was also required to evaluate whether the new baghouse system could be designed to also improve the control of emissions from charging, when iron and scrap metal are poured and unloaded into a BOF vessel. US Steel determined that the new baghouse system could be designed to improve control of emissions from both charging and tapping. As such, once the new baghouse system began operation, the existing ESP system continued to control emissions for the BOFs from refining; the emissions from charging and tapping began to be controlled by a combination of the ESP system and the new baghouse system.

The new baghouse system for the BOFs was initially addressed by Construction Permit 11050006, as issued on August 31, 2011. For purposes of PSD and MSSCAM, this permit was based on the new system being a project that would reduce the emissions of particulate and lead from these furnaces AND NOT increase any emissions. US Steel subsequently applied for a revision of this permit, which was issued on April 1, 2013. In the application for revision of this permit, US Steel formally requested Integrated Processing so as to allow certain related changes to the CAAPP permit for the Granite City Works, Permit 96030056, to be made by means of an administrative amendment. This would assure that the baghouse system could be used in compliance with requirements in the CAAPP permit, which did not address the possibility that a baghouse might be added for the BOFs. For example, for tapping of a BOF, flame suppression was required by the

[10] "United States Steel Corporation Granite City Works and IEPA Memorandum of Understanding," signed by US Steel on June 30, 2010, and by the Illinois EPA on July 1, 2010 (the Agreement).

[11] In addition to the new baghouse system for the BOFs, the Agreement also provided for use of "steam rings." In a BOF, oxygen is used during the refining step to remove carbon and silica from the molten iron by oxidation. The oxygen lances are inserted into the BOF through openings in the hood over the BOF. Steam rings inject steam in the annular areas between the lances and the openings for the lances. This interferes with outward flow through the openings in the hood improving capture of particulate. by the hood.
The Agreement also provided for limits for emissions of particulate matter, in grains per dry standard cubic foot (gr/dscf), that were more stringent than the emission standards that were applicable under state rules. and 40 CFR 63 Subpart FFFFF:

Baghouses for iron desulfurization, slag skimming and ladle metallurgy: 0.005 gr/dscf (compared to 0.01 gr/dscf)
ESP for the BOFs: 0.01 gr/dscf (compared to 0.02 gr/dscf)
New baghouse for the BOFs: 0.005 gr/dscf (compared to 0.01 gr/dscf).

CAAPP permit reduce particulate emissions. However, this would not be appropriate with the new baghouse system.[12]

It was not possible to simply revise Permit 11050006 with Integrated Processing to enable the revisions to the CAAPP permit that were needed to facilitate the installation and use of this system. It was first necessary to revise Permit 95010001, the permit that is now the subject of the 2022 application.[13] This is because the requirements in the CAAPP permit that were impediments to moving forward with the baghouse system were actually established by Permit 95010001.[14] For example, Condition 11 of Permit 95010001 required the use of flame suppression for tapping; the CAAPP permit merely restated this requirement. Accordingly, Permit 95010001 was revised to provide that this requirement, as well as similar operational requirements that would be inconsistent with the use of the new baghouse system would cease to apply when the new system began to be operated.[15] In their place, US Steel was broadly required to operate and maintain the BOFs and associated emissions capture and control systems in accordance with the applicable requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Integrated Iron and Steel Facilities, 40 CFR 63 Subpart FFFFF.[16]

In the revision to Permit 95010001, operational requirements for the BOFs and the ESP system that were considered to be obsolete or outdated with the new requirements of the NESHAP, 40 CFR 63 Subpart FFFFF, were also removed. The operational requirements of this NESHAP were determined to better address proper operation of emission control systems for BOFs. For example, as related to capture of secondary emissions,[17] the NESHAP addresses the operation of the capture

[12] In flame suppression, the use of natural gas burners reduces generation of particulate by depleting the amount of oxygen in the air that comes in contact with molten metal. To improve control of emissions from tapping, the new baghouse system includes local hoods specifically to capture emissions from tapping, as well as local hoods to capture emissions from charging. With local capture hoods for tapping, the continued use of flame suppression would be unsafe, posing hazards both to personnel and equipment, as well as being of uncertain effectiveness to reduce emissions. The high levels of draft provided by the local capture hoods are incompatible with flame suppression as they can act to interfere with the stability and orientation of the flame and pose risks of blowing out the flame.

[13] The revision of Permit 95010001 was completed several months before the revision of Permit 11050006, the permit for the baghouse system. As a PSD permit issued pursuant to 40 CFR 52.21, the revision to Permit 95010001 did not take effect on December 13, 2012, when it was issued. It became effective later in January 2013 after the date for filing an appeal of the revised permit with USEPA's Environmental Appeals Board had passed without any appeal. With the effectiveness of revised Permit 95010001, the revision to Permit 11050006 with Integrated Processing could then be completed.

[14] If Permit 95010001 had not been revised to remove operational requirements that precluded the use of the new baghouse system, these requirements could not have been removed from the CAAPP permit by means of Integrated Processing of a revision to Permit 11050006. These operational requirements would still have been applicable since these requirements would have continued to be present in Permit 95010001.

[15] To address the period before the new baghouse system was operational, the revision to Permit 95010001 provided that the use of flame suppression for tapping and other measures that would obstruct the use of the new baghouse system cease to apply when US Steel began operation of the new system. [Revised Permit 95010001, Condition 11(b).]

[16] US Steel became subject to the requirements of this NESHAP, which applies to the BOFs and certain other operations at the Granite City Works, beginning May 22, 2006. This is because the facility is considered an existing source under 40 CFR 63 Subpart FFFFF.

[17] In common usage, the particulate emissions of BOFs from refining are often referred to as the "primary emissions;" the emissions from charging and tapping are referred to as "secondary emissions." However, in

hoods and the air flow entering the control device(s), rather than the aggregate air flow at the stack of the control device(s).[18] Likewise, the compliance procedures of the NESHAP (e.g., requirements for emission testing and operational monitoring) were determined to be more appropriate for the BOFs and their control systems than the requirements in Permit 95010001.[19]

In summary, the previous revisions to Permit 95010001 were narrowly focused on enabling the installation of the new baghouse system. This was done by removing specific requirements that were inconsistent with the use of this system and, more generally, by removing requirements that were no longer appropriate because of applicable requirements in 40 CFR 63 Subpart FFFFF. The revisions to Permit 95010001 did not extend to other requirements, such as the emissions limits set by this permit for the BOFs. Likewise, the changes to the CAAPP permit that were authorized by means of the Integrated Processing of the revision of Permit 11050006 were focused on enabling the future operation of new baghouse system, including the related changes that had been made in the December 2012 revision to Permit 95010001.[20] The changes authorized to the CAAPP permit also included relevant requirements for the ongoing operation of the baghouse system that were actually set in Permit 11050006 and would appropriately be restated in the CAAPP permit. However, changes were not authorized to the emissions limits in the CAAPP permit for the BOFs and various other emission units as those limits were still present in Permit 95010001.[21]

---

the NESHAP, 40 CFR 63.7852, the primary particulate emissions of a BOF are defined as the emissions that are captured for control by the primary emission control system; the secondary emissions are the emissions that are not captured for control by the primary emission control system. As such, the Granite City Works, the ESP control system is the primary control device for the BOFs under the NESHAP. All emissions that are captured by this system, including emissions from charging, refining and tapping, are primary emissions.

[18] The NESHAP also places the burden for establishing the specific measures that will be implemented to ensure proper operation of the capture systems and control devices for BOFs on the source rather than on the permitting authority. The measures that are required to be used are the ones that were present when performance testing for particulate matter emissions shows compliance with the applicable standard.

In light of the applicable requirements of the NESHAP, the operating procedures and requirements in Attachment A, as formerly addressed by Condition 10, were also considered overly prescriptive. For example, Attachment A set out actions that were to be to be taken by employees, e.g., the emission control foreman and operator, rather than practices that the Permittee was required to implement.

[19] A practical concern also existed because certain operational requirements of Permit 95010001 were similar to but different than those of the NESHAP. Given the requirements of the NESHAP, which were newer and developed through rulemaking, the continuing implementation and oversight of the older requirements in Permit 95010001 was not considered to be an appropriate or effective use of resources.

[20] The 2012 revision of Permit 11050056 provided that the changes to the CAAPP permit for the facility that were authorized by means of Integrated Processing could only happen or take effect after the new baghouse system for the BOFs began operation (Permit 11050056, issued April 1, 2013, page 16). US Steel has not yet applied to the Illinois EPA to initiate issuance of an administrative amendment to the CAAPP permit that would reflect the changes to this permit authorized by Permit 11050056.

[21] US Steel filed an appeal of revised Permit 11050056 with the Illinois Pollution Control Board (Board), PCB 13-62. Similar to the appeal of CAAPP permit for the facility (PCD-53), Permit 11050056 was appealed because it also provided for the emission limits for the BOFs and other units in the BOF shop set by Permit 95010001 to again be restated in the CAAPP permit. In this regard, to address the changes to the CAAPP permit that would be needed for use of the new baghouse system, Permit 11050006 provides for the complete replacement of Section 7.5 of the CAAPP permit, which addresses the basic oxygen furnace shop, including the basic oxygen furnaces, with a new, revised Section that addresses the basic oxygen furnace shop with the new baghouse system. As an appeal was filed, the provision of Permit 11050056 that would have restated those limits have been stayed pending resolution of the appeal.

5. US Steel's Current Application for Revisions to Permit 95010001

US Steel's current application (the "2022 application" or "application") requests a number of revisions to Permit 95010001. A key reason why revisions to Permit 95010001 are needed is that emission testing for the two basic oxygen furnaces (BOFs) shows their emissions of nitrogen oxides (NOx), as well as their emissions of volatile organic material (VOM), are higher than is allowed by this permit.[22] This is because the original application understated the NOx and VOM emissions of the BOFs and the emission limits in this permit reflected information in the application. US Steel has also determined that emissions of carbon monoxide (CO) of the casthouse on the blast furnaces and certain Projected-affected fuel burning units are higher than are addressed by the permit. This is because original application did not address CO emissions from the casthouse and understated CO emissions from Project-affected fuel burning units

Accordingly, the 2022 application requests revisions to Permit 9501001 to allow more emissions of NOx and VOM from the BOFs, which the original application understated. In particular, the application requests that the permitted NOx emissions of the casthouse and the BOFs be increased by 19.4 and 220.2 tons/year, respectively. To support these increases in emissions, the application includes revised netting analyses that attempt to show that the Project would not be a major modification for purposes of either PSD or MSSCAM with the requested increases in emissions.

US Steel also requests that the revised permit address CO emissions from the casthouse and allow more CO emissions from fuel burning units.[23] For CO, the application attempts to show that the Project would still comply with the substantive requirements of PSD, which are applicable as the Project originally was a major modification for CO under the PSD program. The application includes an evaluation of BACT for CO for the casthouse and blast furnace stoves, i.e., the units that are or would become subject to the BACT requirement of the PSD program.[24] The application also includes a new air quality impact analysis for CO that would address the Project with the increases in CO emissions as are requested.

This 2022 application also addresses other issues that are now posed by the manner in which the Project was originally permitted. For PM, PM_{10}, NOx and VOM (i.e., pollutants other than CO, sulfur dioxide (SO_2),and lead), the application requests that the revised permit not include the provisions in Permit 95010001 that would address emissions of individual "processes" in pounds/ton of production or throughput. (For convenience, these provisions in the permit that

[22] This emissions testing of the BOFs for NOx and VOM was first conducted in 2014, with further testing conducted in 2018 and 2021.

[23] The 2022 application requests that Permit 95010001 be revised to address an additional 25,334 tons/year of CO. This would include emissions of 320 tons/year of CO from the casthouse, for which CO emissions were not identified and addressed in the original permitting for the project. This would also include an additional 25,014 ton/year from Project-affected fuel burning units, other than ten boilers that are now retired. For the fuel burning units, US Steel has determined that the emission factors for CO utilized in the original permitting of the Project, particularly the emission factor for blast furnace gas (BFG) used in the blast furnaces stoves, understated CO emissions.

[24] The BOFs were not physically modified as part of the Project. Accordingly, they would not become subject to requirements for BACT or LAER even if the Project were a major modification for a pollutant.

address emissions in pounds/ton of production or throughput or, for lead, in pounds per hour, are generally referred to by the Illinois EPA as "emission factor limits." The Illinois EPA set the emission factor limits and limits on annual emissions in Permit 95010001to ensure that the Project would not be a major modification for purposes of PSD or MSSCAM.[25] With regard to the current limits for the annual emissions of PM, PM_{10}, NOx and VOM of individual processes or emission points, the application requests "group limits" for the annual emissions of groups of related emission units.[26] For emission units for which routine emission testing is feasible, the emissions contributed by units towards the group limits would be determined using emissions rates that reflect the results of emission testing. For certain emissions units or their uncaptured emissions (e.g., the uncaptured particulate emissions of the BOFs), for which routine emission testing is not feasible, the application requests that the revised permit set "prescribed emission factors." For these units or emission points, the prescribed emission factors would effectively replace the provisions currently in Permit 95010001 for process units that currently restrict emissions in pounds/ton of input or production or in pounds/hour.[27]

Lastly, the application also recognizes subsequent changes at the facility, which occurred after the Project, that were not contemplated in 1996 and not provided for when Permit 95010001 was originally issued. The changes at the facility include the addition of a baghouse control system for the BOFs to improve control of their particulate emissions. The changes also include the shutdown of the by-product coke oven batteries that were formerly at the facility, which eliminated emissions from these operations. In this regard, the application requests revisions to Permit 95010001 to provide for increased use of natural gas by Project-affected fuel burning units. The application explains that this is necessary with the shutdown of the by-product coke oven batteries because COG is no longer available and more natural gas may need to be used.

---

[25] The removal from Permit 95010001 of the "emission factor limits" would facilitate resolution of two permit appeals filed by US Steel with the Illinois Pollution Control Board (PCB), PCB 2013-53 and PCB 2013-62, as these appeals address PM, PM_{10} and NOx and VOM emissions. Both appeals indirectly address the emission factor limits in Permit 95010001. PCB 2013-53 concerns the revised Clean Air Act Permit Program (CAAPP) permit for the facility (Permit 96030056) issued in 2013. US Steel appealed this permit as it repeats the emission factor limits as originally set by Permit 95010001. PCB 2013-62 concerns the construction permit for the addition of the baghouse system to improve control of particulate emissions from charging and tapping of the BOFs, Permit 11050006, as reissued in 2013. For the BOFs, this permit also repeats the emission factors limits for the BOFs set by Permit 95010001. US Steel appealed the subject emission factor limits in these permits because, before issuing the revised CAAPP permit for the facility in 2013, the Illinois EPA had explicitly explained that the provisions in the permit containing "emission factors" were considered to constitute enforceable limits on emissions.

[26] For example, the application requests that the revised permit limit the overall emissions of a group of units that includes the casthouse for the blast furnaces and other, ancillary units involved in production of iron. The permit currently sets separate limits for the emissions of the casthouse, the emissions from charging the blast furnaces, and the emissions from slag pit activities. Unlike the current limits for annual emissions, which apply on a calendar year basis, the proposed new limits for annual emissions would be rolled monthly, restricting emissions over each consecutive 12 month period.

[27] Unlike the emission factor limits in Permit 95010001, which the Illinois EPA considers to be directly enforceable against US Steel, prescribed emissions factors established in a revision to Permit 95010001 would instead be specific values for emission rates that US Steel would have to use for normal operation when determining compliance with the limits on annual emissions set by the revised permit.

The Illinois EPA has reviewed the 2022 application to determine whether the application shows compliance with applicable regulatory requirements and would support issuance of a revision to Permit 95010001 as requested by US Steel. The Illinois EPA has also considered whether the application would support issuance of such a revised permit with Integrated Processing, as has also been requested, so that related revisions to the CAAPP permit for the Granite City Works may be made by administrative amendment. The Illinois EPA has made a preliminary determination that the 2022 application should be denied. The reasons for this determination are set forth in the draft of the proposed denial letter that has been prepared.[28] As discussed in further detail below, for some of the revisions requested to Permit 95010001, the application does not show that they would comply with the relevant regulatory requirements and USEPA policy that apply for this permit. For other requested revisions, the application does not include the information needed to support those revisions or enable those revisions to be made as a practical matter. In addition, the application would not allow for processing of a revised permit with Integrated Processing, as has been requested. If the Illinois EPA's final decision is to deny this application, it is expected that Permit 95010001 would continue in effect as it now exists until and unless action is taken on a subsequent application.

6. Discussion of Key Reasons for the Planned Denial of the Application

6.1. The Revised Netting Analysis for the Project for NOx

A. Overview

The revised netting analysis for NOx submitted for the Project with additional NOx emissions as requested does not show that the Project would not become a major modification for NOx. Accordingly, a revised permit cannot be issued as requested because, for emissions of NOx, the 2022 application does not address or show fulfillment of the substantive requirements of the rules for Prevention of Significant Deterioration (PSD) and Major Stationary Sources Construction and Modification related to impacts on air quality, i.e., air quality analysis for impacts on NO_2 air quality per 35 IAC 204.1130 and emission offsets for NOx per 35 IAC 203.302. For the blast furnaces and blast furnace stoves, i.e., the emission units that underwent physical modifications with the Project, the application also does not show fulfillment of the BACT and LAER requirements, respectively of PSD (35 IAC 204.1100) and MSSCAM (35 IAC 203.301) for NOx. This showing is necessary because Permit 95010001 is currently based on the net increase in NOx emissions from the Project not being significant so that the Project is not a major modification for NOx. The application requests that the Project be permitted for additional NOx emissions but does not show that the Project would still not be a major modification for NOx if the permit were revised as requested. As the Project would become a major modification for NOx with the requested revisions to Permit 95010001, the application must show for NOx that the relevant substantive requirements of PSD and MSSCAM are fulfilled for the Project. It would not be appropriate for a revised permit to be issued with increases in permitted NOx emissions as requested by the current application if this application does not also show that the applicable substantive requirements of PSD and MSSCAM would be met for the Project for NOx.

[28] Brief descriptions of the reasons why the Illinois EPA's preliminary determination for this application is that it should be denied are provided in Appendix 2 of this document.

The revised netting analysis for the Project for NOx in the 2022 application suggests that this increase would be accompanied by decreases in the NOx emissions of certain other units. With these accompanying decreases, the net increase in NOx emissions from the Project with the requested revised permit would continue to not be significant.[29] However, the application does not identify the specific decreases in NOx emissions that occurred at different groups of Project-affected fuel burning units. Instead, the application simply indicates that the future NOx emissions of the Project-affected fuel burning units, overall, would be such that the Project would not be a major modification for NOx.

This netting analysis for NOx in the 2022 application cannot be relied upon for issuance of a revised permit for the Project as requested by US Steel. The application does not include relevant information showing that additional decreases in NOx emissions that would now be proposed to be relied upon would be contemporaneous and creditable for permitting of the Project. For emission decreases to be relied on for a netting analysis, 35 IAC 204.550 and 203.208 provide that the decreases must be contemporaneous and creditable. This necessitates information for how the additional decreases in NOx emissions addressed in the revised netting analysis for NOx were created and how the amounts of the decrease were quantified. Most significantly, the application does not show that certain decreases in NOx emissions that it would rely upon should be considered contemporaneous with the Project. A revised permit cannot be issued for the Project that relies upon "post-project" emissions decreases, which occurred after the Project, to show that the Project with the requested increases in NOx emissions of the furnaces, should still not be considered a major modification. This is critical because changes that are unrelated to the Project have occurred at certain fuel burning units after the initial issuance of Permit 95010001. The application proposes to rely upon the decreases in NOx emissions due to these changes, which were not and could not have been relied upon by the original permit for the Project. These decreases in emissions would be relied upon by the revised netting analysis as it does not account for and exclude the emissions decreases from these changes from the analysis. (In addition, as will be addressed below, the application does not include appropriate support for certain units for the quantification of NOx emissions in the revised netting analysis.)

B. <u>The Analysis Relies on Emission Decreases That Are Not Contemporaneous</u>

As related to the requirement of the NSR rules that decreases in emissions relied upon for netting be contemporaneous, the 2022 application relies on decreases in emissions that occurred long after 1996. This includes decreases from the shutdown of ten of the twelve boilers at the facility that were originally addressed by Permit 95010001 in 1996. The shutdown of Boilers 1 through 10 was required by Construction Permit 06070023, which was originally issued in July 2006 for construction of a cogeneration boiler that would burn blast furnace gas (BFG) and natural gas. The application does not show that NOx emissions of these ten boilers, as existed in the period prior to

[29] When a netting analysis that showed a project would not be a major modification is found to have understated emissions of certain new or modified emission units, the next step is usually to examine whether the project should still not be considered a major modification. The revised netting analysis for this purpose may consider adjustments such as reductions in the permitted emissions of other new or modified units involved in the project. It may also consider additional emission decreases that were not relied upon by the original netting analysis but could have been as they are contemporaneous and creditable. As this reexamination of a project shows that it still would not be considered a major modification with appropriate adjustments to the netting analysis, an appropriately revised construction permit may be issued that is based on the project continuing to not be a major modification.

2009, were considered in the "future" NOx emissions with the Project from the Project-affected fuel burning units. In addition, with regard to the two remaining old boilers at the facility, Boilers 11 and 12, that continue in operation, flue gas recirculation systems have been installed pursuant to Construction Permit 10080022, issued in January 2011. These systems were installed to reduce NOx emissions to facilitate compliance with 35 IAC 217.164. The application does not show that the revised netting analysis for NOx does not rely on the lower NOx emissions from these boilers that are now being achieved with the new systems, rather than the NOx emissions as previously existed with the Project in the period before these systems were installed.

The application also indicates baseline NOx emissions from use of coke oven gas (COG) in the blast furnace stoves and Boilers 11 and 12. In 2015, US Steel shut down the two by-product recovery coke oven batteries at the Granite City Works. COG ceased to be available for use in the stoves or Boilers 11 and 12. However, COG was available for use in the stoves and these boilers in 1996. As related to the Project, the application does not show that the revised netting analysis for NOx would not rely upon decreases in the NOx emissions of the stoves and boilers due to the elimination of COG, which did not occur until 2015.[30]

In summary, for purposes of applicability of NSR, the NOx emissions allowed from the Project in 1996 that would be permitted with the requested revisions to the permit could be substantially higher than indicated in the 2022 application. This application does not show that this would not be the case such that the Project would not become a major modification for NOx with the requested increases in the permitted emissions of the blast furnaces and the BOFs. The timing of actions that have resulted in decreases in NOx emissions of fuel burning units after 1996 is critical when considering applicability of NSR to the Project with the requested revisions to Permit 95010001. As the decreases in NOx emissions from certain actions cannot be considered or would be smaller, the net increase in NOx emissions of the Project would be greater. In this regard, it must be assumed that the "future NOx emissions" indicated in the application reflect maximum actual NOx emissions beginning in 2023, with the requested revisions to Permit 95010001. The application does not suggest that these future NOx emissions are the emissions that should have been allowed by the permit back in 1996 when the permit was issued and the Project commenced.[31]

C. Insufficient Information to Independently Confirm the Revised Baseline NOx Emissions

The revised determination of baseline NOx emissions of Project-affected fuel burning units that is part of the revised netting analysis is not accompanied by information that would allow it to be independently verified. In this regard, the application does not show that all Project-affected fuel burning units have been addressed. For units that are addressed, the application does not show that

[30] The revised netting analysis does address increased use of natural gas by Project-affected fuel burning units because COG is no longer available and more natural gas may need to be used to make up for this.

[31] Indeed, with the requested revisions of Permit 95010001, it is unclear how the "future NOx emissions" of affected fuel burning units indicated in the application are emissions that could have been allowed by this permit in 1996. The future NOx emissions of these units indicated in the application are less than their baseline NOx emissions. As the Project did not include any elements that would lower the NOx emissions of fuel burning units, the production of more iron and steel would have been accompanied by increased utilization of the blast furnace stoves and boilers so that in 1996 the NOx emissions of fuel burning units allowed by Permit 95010001 must necessarily be more than the baseline emissions. (Use of COG was not expected to be affected by the Project because production of COG was constrained by the design and operation of the existing coke oven batteries, which were not being modified as part of the Project.).

appropriate emission factors and operating data have been used to estimate emissions. As specific concerns exist with the determination of baseline NOx emissions for certain emission units, concerns exist with the determination of the overall baseline NOx emissions for the Project. In particular, this application does not include supporting documentation or explanation for the baseline usage of COG utilized in the revised netting analysis. The application utilizes a NOx emission factor for Boilers 11 and 12 for use of COG that the application states is based on emission testing conducted on the stack for underfiring of one of the coke batteries, rather than testing on one of these boilers or other similar boiler. For burning of natural gas, the application does not show the emission factor that is utilized for boilers would also be appropriate for ladle preheaters and casting operations.

D. Supporting Date Is Not Provided For Future NOx Emissions of Fuel-Burning Units

The 2022 application proposes a future amount for the NOx emissions of Project-affected fuel burning units of 706 tons/year. The application does not explain why actual NOx emissions of the subject units would not exceed this amount going forward if the permit were revised, much less demonstrate that actual emissions have not exceeded this amount historically. The application does not include a demonstration that the actual NOx emissions of Project-affected fuel burning units would not have exceeded the "future amount" or post-project emissions indicated in the revised netting analysis for the Project for NOx since Construction Permit 95010001 was issued if the production of iron and steel by the source was at the levels allowed by this permit.

6.2. The Application Does Not Address the Potential for Uncaptured Emissions of NOx, VOM and CO Through the Roof Monitor of the BOF Shop

The application is deficient in its approach to the uncaptured emissions of NOx, VOM and CO emissions of the BOFs. For the BOFs, consistent with the original permitting of the Project, the application only quantifies stack emissions of NOx, VOM and CO. Moreover, the revised netting analyses for NOx and VOM assume that all emissions of these pollutants from the BOFs are now captured. That is, with the new baghouse system to improve control of particulate emissions, all NOx and VOM emissions of the BOFs that originally were not captured and were emitted through the roof monitor are now captured and emitted through the stack on the baghouse system.

This assumption is not appropriate. At a fundamental level, the application does not include any support for this assumption. A rigorous analysis for and quantification of the uncaptured emissions of NOx and VOM from these furnaces is warranted as these emissions were not addressed in the original permitting for the Project, likely because they were considered negligible. Then, the data for NOx and VOM emissions from the baghouse stack, which is now available from testing of the baghouse, does not support this assumption and, if anything, shows that this assumption is unsound. This is because this testing shows that there are emissions of these pollutants from charging and tapping and, as such, data for the uncaptured emissions of these pollutants is also appropriate. In this regard, the results of emission testing for the NOx and VOM emissions from the new baghouse system on these furnaces, as cited by the application, indicate more than negligible levels of emissions. Finally, the assumption that all NOx and VOM emissions of these furnaces is now captured is inconsistent with the approach taken in the application to the particulate and lead emissions of these furnaces, which assumes that there are uncaptured emissions that still occur through the roof monitor. By way of contrast, the 2022 application requests that the revised permit

establish prescribed emission factors for the particulate emissions of the BOFs that occur through the roof monitor.

The fact that there are emissions of NOx and VOM from the BOFs that now occur from the stack of the new baghouse system but were previously not captured and were not originally quantified raises concern that similar circumstances are present for emissions of CO. In this regard, the application requests various revisions to Permit 95010001 to correct issues that are posed for the original permitting of the Project with respect to CO emissions. However, the application does not propose any such revisions for the BOFs or explain why such revisions are not needed. For example, the application also does not explain why it would not be inappropriate for any revised permit to set a limit for the annual emissions of CO from the BOFs through the stacks of the control systems, with associated requirements for periodic emission testing.

6.3. The Inventory Used in the Air Quality Analysis for CO Omits Certain Emissions

The results of the analysis of the impacts of the Project on ambient air quality for CO cannot be relied upon because the inventory for the CO emissions of the facility with the Project does not address all CO emissions or otherwise explain why the CO emissions of certain units need not be considered. The application includes an air quality analysis for CO because the Project was originally permitted as a major modification for CO under the PSD program and the application requests revisions to Permit 95010001 to increase the CO emissions for which the Project is permitted. To support this request, an air quality analysis for CO must be part of the application pursuant to 35 IAC 204.1130, since this request involves revisions to the provisions in Permit 95010001 that involve the Project as it is a major modification for CO under the PSD program. In this regard, the air quality analysis in the 2022 application does not address uncaptured CO emissions of the casthouse. As discussed earlier, the application does not address uncaptured emissions from these furnaces or does not explain why uncaptured emissions would not be present. In this regard, the application does not show 100 percent capture of the particulate emissions of these furnaces by the control systems for particulate. The application also does not explain why the air quality analysis in the application should not consider the CO emissions of the former by-product coke oven batteries at the facility. These batteries were in operation when the Project was originally permitted in 1996 and did not cease operation until 2015. Accordingly, the analysis does not address CO ambient air quality with the Project as would have been predicted by the original air quality analysis for the Project if it had addressed the additional CO emissions now being requested for the Project. In addition, the air quality analysis uses a value for CO background air quality on an 8-hour average that is based on ambient air quality data collected for a three year period consisting of 2016, 2017 and 2018. As such the value used for background air quality is not necessarily appropriate as a representation of either current ambient air quality or the historic air quality at the time that the Project was originally permitted.

6.4. The Proposed Scope of Proposed Group Emission Limits Is Overly Broad

The application does not show that the proposed collections of emission units for the requested group limits for annual emissions of particulate, NOx and VOM are appropriate. In particular, the application does not propose limits that would only apply to the annual emissions of the casthouse on the blast furnaces and to the annual emissions of the two BOFs. These are principal emission units at

this facility. It would be reasonable and appropriate for both the annual emissions of the casthouse and the annual emissions of the two BOFs to be directly limited separately from the emissions of any other units. The construction permits issued by permitting authorities in other jurisdictions cited in the application as support for emission limits that apply to groups of emission units do not show that the annual emissions of the casthouse and the BOFs should not both continue to be limited individually.

In this regard, the application points to USEPA policy and practice concerning how the potential emissions of a source may be restricted. The application shows that USEPA has found that construction permits may be issued that restrict potential emissions by means of limits on annual emissions that are practically enforceable. Accordingly, the current provisions in Permit 95010001 that limit emissions of process units in pounds/ton of production of throughput, which apply on a short-term rather than annual or long-term basis, are not essential to restrict potential emissions. In addition, the application points to several construction permits issued outside of Illinois since 2000 for which the permitting authority determined that annual emission limits that apply to groups of emission units that are practically enforceable were determined to be sufficient to restrict potential emissions without need for accompanying limits that address emissions on a short-term basis.[32] However, the application does not show that the specific circumstances of the Project are such that the current limits for annual emissions of the principal emission units should be replaced with group limits that apply to the combined emissions of the principal emission units and other lesser emission units.[33] The circumstances of the Granite City Works are not the same as those presented by the cited permits. The Granite City Works are a manufacturing facility at which iron is produced from iron ore and then converted into steel in BOFs. The processes that generate emissions at the Granite City Works are different than the oil-fired engines that are generally addressed by the permit for Shell Offshore and the natural gas-fired engines addressed by the permit for Tucson Electric. The permit for Shell Offshore, Inc., addresses a marine drilling unit, the "Kulluk," and an associated fleet of support vessels that may be used during July through November of each year to conduct exploratory drilling operations in areas of the Beaufort Sea north of Alaska. The permit for Tucson Electric Power addressed a new peaking electrical generating facility with ten engine-generating units at Tucson Electric's Irvington Station.

---

[32] The application cites two decisions by the USEPA's Environmental Appeals Board (EAB):

- The 2012 decision of the EAB for an Outer Continental Shelf (OCS) Permit to Construct and Title V Air Quality Operating Permit issued by Region 10 of USEPA to Shell Offshore, Inc. (USEPA, EAB, *In Re Shell Offshore, Inc.*, OCS Appeals Nos. 11-05, 11-06 & 11-07, Order Denying Petitions for Review, Decided March 30, 2012).
- The 2018 decision of the EAB for a PSD permit issued by the Department of Environmental Quality for Pima County, Arizona, to Tucson Electric Power (USEPA, EAB, *In Re Tucson Electric Power*, PSD Appeal No. 18-02, Order Denying Review, Decided December 3, 2018).

[33] For the casthouse, Permit 95010001 currently sets separate limits for the emissions of various pollutants from the main baghouse for the casthouse, the iron spout baghouse, and the roof monitor (uncaptured emissions). If Permit 95010001 were to be revised, it would be reasonable for each pollutant for which emissions are limited for the permit to restrict the overall emissions of pollutants other than CO from the casthouse, rather than to individually limit the stack emissions of each control system and the uncaptured emissions. (As the Project is subject to BACT for CO, the limit could only apply to stack emissions.)
The circumstances of the BOF are similar, as the current permit separately addresses emissions of particulate and lead from the ESP stack and the roof monitor. It would also be reasonable in a revised permit to set limits for different pollutants for the overall emissions of each pollutant from the BOFs.

6.5. Inadequate Justification for Elimination of Current Limits for Project-Affected Fuel Burning Units

The justification provided in the application for revisions to Permit 95010001 to eliminate limits on usage of fuel and, presumably, emission by Project-affected fuel burning units is not adequate. Although this application indicates that the revised permit should not contain the limits for usage of natural gas and blast furnace gas currently set by Permit 95010001, it does not propose any new limits in their place. This rationale is deficient because it does not consider that the application also requests that the revised permit address an increase in the usage of natural gas at the facility as a consequence of the shutdown of the by-product coke oven batteries. While the limits for fuel usage and emissions currently in Permit 95010001 may no longer be relevant, as generally addressed above, this does not mean that other limits for fuel usage and emissions are not appropriate. In this regard, the application does not show that new limits for fuel usage would not now be needed and those limits should address fuel burning units other than the Project-affected units currently addressed by the permit. In this regard, limits for usage of fuels should not extend to Boilers 1 through 10, as they are no longer in operation, having been shut down a number of years before the coke oven batteries were shut down. As the four slab reheat furnaces at the facility were affected by the elimination of COG, new limits may be needed that also extend to these furnaces. It may also be appropriate for the cogeneration boiler to be addressed by the new limits as this boiler began operation several years before the by-product coke oven batteries at the facility were shutdown.

6.6. The Application Does Not Show That the Emission Factors Proposed As Prescribed Factors for Certain Units Would Be Representative

A. Introduction

To calculate baseline emissions for certain emission units for which emission testing is not feasible or practical, the 2022 application necessarily relies on use of emission factors that are not based on source-specific emissions testing. Likewise, for the ongoing determination of the emissions of these units, the application requests that revised Permit 95010001 "prescribe" or specify the emission factors that are to be used. As explained in the application, where a permit relies on a limit on annual emissions or an "annual emission cap" to restrict potential emissions, USEPA policy and precedent provide that:

> Where the permit prescribes an emission factor to be used in conjunction with operational data in demonstrating compliance [with an annual emission cap], the permitting authority should describe the basis for its determination that the emission factor is representative.
>
> 2022 application, Section 3, p. 3.

For the Granite City Works, the USEPA specifically addressed the use of emission factors for determining compliance with emission limits in an order of December 3, 2012. Relative to prescribing emission factors, the USEPA's finding, as is provided below, should be considered *dicta* since the permit that was the subject of the appeal did not actually provide for use of prescribed emission factors. As the order addresses the possibility of using prescribed emission factors in terms of the actions that the Illinois EPA would need to take when issuing a permit that prescribed emission factors, the order serves to identify the underlying information that a permit

applicant must provide in an application if it seeks a permit that would provide for use of prescribed emission factors. The Illinois EPA would then be responsible for assuring that the emission factors that are prescribed would be appropriate and sufficient for compliance or noncompliance with the associated emission limits to be reasonably determined.

> …IEPA [Illinois EPA] must include in the permit itself the monitoring methodology for determining compliance with these limits [emission factor limits and annual emission limits]. If using emission factors, IEPA must propose the actual emission factors in the permit or supporting permit record, and provide supporting documentation for the accuracy and appropriateness of these emission factors, such as historical source test data or other available information. If source test data are not readily available for a specific emission unit, as IEPA asserts, other sources of emission factors (including published literature and material and energy balances) must be reviewed and cited for acceptable emission factors before issuing the permit.
>
> USEPA, Order Responding to Petitioner's Request that the Administrator Object to Issuance of State Operating Permit, Petition Number V-2011-2, *In the Matter of United States Steel Corporation – Granite City Works, CAAPP Permit No. 96030056*, Petition Number V-2011-2, dated December 3, 2012, p. 12.

B. Particulate Emissions of the BOFs Through the Roof Monitor

The application does not include support for the particulate emission factors that are proposed as prescribed factors for the roof monitor on the BOF shop (i.e., the uncaptured emissions from the BOFs). In this regard, the permitting of the Project in 1996 relied upon various changes that were made to improve capture and control of emissions of particulate from the BOFs. As capture and control for particulate improved, the factor for future uncaptured emissions would be different and lower (better) than the factor for baseline uncaptured emissions.

C. Continuous Casting Lines

For the caster mold, slab ripping and slab ripping processes on the continuous casting lines, prescribed emission factors that are proposed reflect emission factors from a report prepared by the Illinois EPA in 1991, i.e., "Illinois EPA 1991 EIS PM/PM_{10}." This is not sufficient to show that the emission factors that are proposed as prescribed factors are representative.

D. Particulate Emissions of the Casthouse Through the Roof Monitor

For the casthouse roof monitor (uncaptured emissions particulate emissions of the casthouse), the application only references a single memorandum from 2019 by various USEPA staff and a consultant as support for achievement of 95 percent capture efficiency. Further support is needed for a prescribed emission factor for uncaptured emissions of the casthouse that is based on achievement of this level of capture.

E. Emissions of the Slag Pits and Iron Pellet Screen

For the slag pits and the iron pellet screen, the application does not provide support for the background information or inputs that were used to adjust the published factors for the operating conditions or circumstances of these units at the facility. Absent this information, the Illinois EPA cannot assess whether the prescribed emission factors proposed for these units should be considered representative.

F. Current Provisions of the CAAPP Permit Requiring Use of Appropriate Emission Factors

The application is also deficient as it simply requests revisions to Permit 95010001 to require use of prescribed emission factors for certain units. The application does not address the fact that the CAAPP permit currently does not accommodate the use of prescribed emission factors to calculate emissions but instead requires use of "appropriate emission factors." To facilitate the use of prescribed emission factors, the application also needs to propose or request revisions to general provisions in Permit 95010001 so as to also enable subsequent revisions to be made by administrative amendment to the CAAPP permit for the facility, Permit 96030056, to allow prescribed emission factors to actually be used to determine ongoing emissions of certain units.[34]

6.7. Requested Changes for Consistency with the Grouping of Units in the CAAPP Permit

In the 2022 application, US Steel generally requests changes to the organization of Permit 95010001 because the areas or sections of the CAAPP permit in which certain units are addressed are different than those in Permit 95010001. Most notably, in Permit 95010001, discrete material handling and processing operations are addressed with either the blast furnace operations, operations in the basic oxygen furnace shop or the continuous casting operations, based upon the area with which they were considered to be associated. In the CAAPP permit, these discrete material handling and processing operations are generally addressed in a separate section of the permit, Section 7.1, "Material Handling and Processing Operations." In addition, in the CAAPP permit, the "Argon Stirring Station and Material Handling Tripper" was addressed with units in the basic oxygen furnace shop in Section 7.5 of the CAAPP permit rather than with the continuous casting operations as in Permit 95010001.

While it is reasonable for there to be consistency in the groupings or categorization of emission units in Permit 95010001 and the CAAPP permit, as generally requested by US Steel, several concerns are posed by the specific changes to Permit 95010001 that have been requested. For example, US Steel requests that the "Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy)" now be addressed in Permit 95010001 with operations in the Basic Oxygen Furnace Shop and be identified as "Baghouse 2 for Argon Stirring and Ladle Metallurgy Facility." However, the application does not actually identify the specific units that would be addressed by the proposed new term.

On the other hand, the application does not request any revisions to Permit 95010001 with respect to the Deslagging Station and Material HS (Handling System). These emission units are currently addressed in Permit 95010001 with continuous casting operations. In the CAAPP permit, a "Steel Deslagging Station" is identified as one of the continuous casting operations. The application does

[34] The CAAPP permit currently provides that "appropriate emission factors" shall be used when determining emissions to evaluate compliance with the emission limits for process units set by Permit 95010001. These procedures do not provide for the use of prescribed emission factors. Rather, US Steel is generally required to use "appropriate emission factors," i.e., factors that do not understate emissions, with the primary responsibility for the appropriateness of the factors that being are used resting on US Steel. The CAAPP permit also provides for recordkeeping and reporting by US Steel so that information about the factors that are being used is publicly available and the Illinois EPA, the USEPA and interested parties can review the factors that are in use.

not explain why this steel deslagging operation should not appropriately be categorized as slag skimming and addressed with the other slag skimming operations in the basic oxygen furnace shop as it would constitute a "BOPF {basic oxygen process furnace] shop ancillary operation" for purpose of 40 CFR 63 Subpart FFFFF. US Steel does not explain why the current placement in Permit 95010001 of the steel deslagging station with continuous casting is appropriate and this station should not also be addressed with other BOPF shop ancillary operations.[35]

6.8 The Application Does Not Address the Amendment to the CAAPP Permit Previously Authorized Pursuant to Construction Permit 11050006

The 2022 application does not identify the version of the CAAPP permit for the Granite City Works, Permit 96030056, that would be eligible for administrative amendment pursuant to the Integrated Processing of the revisions to Permit 95010001 that are requested. This is relevant because the Illinois EPA has already issued a construction permit with Integrated Processing, i.e., Permit 11050006, issued April 1, 2013, for the addition of a baghouse system to improve control of particulate emissions of the BOFs. However, US Steel has not initiated action for the Illinois EPA to actually issue an amended CAAPP permit with changes as authorized by Permit 11050006.[36] Accordingly, in the absence of a formal request from US Steel to the Illinois EPA to initiate the administrative amendment of the CAAPP permit contemplated by Permit 11050006, the application can only request Integrated Processing to allow administrative amendments of the current CAAPP permit, as has actually been physically issued by the Illinois EPA.[37]

6.9. The Application Does Not Address Changes to the CAAPP Permit That Are Needed Due to Revisions To 40 CFR 63 Subpart FFFFF

The application does not address revisions to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Integrated Iron and Steel Manufacturing Facilities, 40 CFR 63 Subpart FFFFF, made by USEPA in July 2020. Among other revisions to 40 CFR 63 Subpart FFFFF, USEPA acted to remove exemptions from the emission and opacity limits in this NESHAP for periods of startup, shutdown and malfunction (SSM). Accordingly, effective January 12, 2022, the

[35] For Ladle Drying/Preheating, the application also does not request any changes to Permit 95010001 to maintain consistency with the approach taken in the CAAPP permit. In Permit 95010001, these emission units are addressed with other Project-affected fuel burning units. In the CAAPP permit, these units are addressed in Section 7.5 as "Basic Oxygen Processes" with other units in the BOF Shop, as well as elsewhere in the permit with other Project-affected fuel burning units. In addition, the CAAPP permit sets a limit for the total NOx emissions of the BOF Shop.

[36] The 2022 application does address the addition of the baghouse control system for the BOFs as related to the emission of the furnaces. US Steel does not propose separate limits set for the individual emission points for these furnaces. Instead, the application requests that the revised permit set overall limits for the emissions from the control systems of the BOFs.

[37] Concerns are posed by certain conditions in existing Permit 11050006 and the related amendments to CAAPP Permit 96030056 that it authorizes. The application is not accompanied by a request for changes to Permit 11050006 or a proposal for how to address these concerns so that they would not be perpetuated in the amended CAAPP permit.

emission and opacity limits of this NESHAP became applicable at all times. The requirements of this NESHAP that formerly dealt with SSM ceased to be applicable. Notably, subject sources would no longer be required to keep startup, shutdown and malfunction plans detailing the procedures for operating and maintaining subject emission unit(s) during periods of SSM, as had been required by 40 CFR 63 Subpart FFFFF as it had applied 40 CFR 63.6(e)(3) in the general provisions of the NESHAP regulations to subject sources. These revisions to 40 CFR 63 Subpart FFFFF are relevant for Permit 95010001 and the revisions to this permit requested by the application. This is because Permit 95010001 relies on the applicable compliance procedures of 40 CFR 63 Subpart FFFFF (i.e., requirements for emission testing, opacity observations operational monitoring and recordkeeping), to verify consistent operation of the casthouse, the BOFs and other NESHAP-subject units and their emission controls, for the purposes of assuring compliance with the emission limits set by this permit for their emissions of particulate.

6.10. Changes to the CAAPP Permit That Have Resulted from Shutdown of Emission Units

The application is deficient as it does not identify changes to the CAAPP permit for the Granite City Works, Permit 96030056, that are a consequence of permanent shut down of emission units, as generally addressed by Condition 9.11 of the CAAPP permit.

> Condition 9.11 Permanent Shutdown
> This permit only covers emission units and control equipment while physically present at the indicated source location(s). Unless this permit specifically provides for equipment relocation, this permit is void for the operation or activity of any item of equipment on the date it is removed from the permitted location(s) or permanently shutdown. …

While the 2022 application acknowledges that the by-product coke ovens at the Granite City Works have been shut down, this application does not separately address the consequences for the current CAAPP permit. The shutdown of these batteries was accompanied by the shutdown of coal and coke handling operations, the coke by-products plant, the handling of coke by-products, and possibly certain wastewater treatment processes. In addition, although not shut down, Boilers 11 and 12, Ladle Dryer/Preheaters and Slab Reheat Furnaces are no longer able to use COG as fuel since COG is no longer produced at the facility. As such, provisions in the CAAPP permit that identify or address the use of COG in these units are no longer necessary. It would be improper for the revised version of the CAAPP permit authorized by means of the Integrated Processing of a revision to Permit 95010001 to still physically include provisions that should no longer be present in the revised CAAPP permit given the permanent shutdown of the emission units that were subject to those provisions.

6.11. The Evaluation of BACT for CO in the Application Is Not Sufficient

The evaluation of BACT for CO in the application lacks necessary information to support US Steel's proposal for BACT for CO for the emissions units for which this must be determined or redetermined under the PSD program as a consequence of the requested revisions to Permit 95010001. The evaluation addresses BACT for CO for the casthouse for which BACT must now be determined as it is now recognized that the casthouse emits CO. It also addresses BACT for CO for the blast furnace stoves as the application requests that the revision of Permit 95010001 allows for more emissions of CO from these units.

A. The Scope of the Evaluation of Available Control Options

As provided in the definition of BACT in Section 169(3) of the Clean Air Act and as confirmed by USEPA guidance, a determination of BACT must consider options to control or reduce emissions of an emission unit besides add-on control devices. For the casthouse, when identifying control options, the BACT evaluation only identifies end-of-pipe or "add-on control" control options. The evaluation does not identify other process-related control options such as work practices. In contrast, for the blast furnace stoves, the evaluation identifies both add-on control options and a process-related control option. i.e., "Work Practice Standards, including good combustion practices." The evaluation does not explain why process-related control options are not available for the casthouse.

B. Documentations for the Investigation into Available Control Options

For both the casthouse and the blast furnace stoves, the BACT evaluation in the application is not accompanied by supporting documentation for the investigation that was conducted into available control options. Instead, the evaluation simply states that a review of available control options was conducted. This is not sufficient for the Illinois EPA, the USEPA and interested parties to confirm that the review of available control options for the BACT evaluation was thorough and can be relied upon to have reasonably identified potentially available control options for BACT.

C. Support for Not Setting Numerical BACT Limits for the Blast Furnace Stoves

For the blast furnace stoves, the BACT evaluation for CO in the application is not accompanied by supporting documentation to support the claim that it is infeasible to measure their CO emissions so that BACT should not be set as a numerical emission standard. Further support is needed for the claim that measurement or testing of emissions of the blast furnace stoves is infeasible. While certain information about the stoves is provided, the application does not directly address the technological issues or costs that would be entailed to install suitable ports for testing on one or both sets of blast furnace stoves. The application also does not show that there are other challenges that would need to be addressed or issues that should be considered, such as requirements of the Occupational Safety and Health Administration (OSHA), that would affect the technical feasibility and cost of installing suitable test ports on the stoves.

6.12. Inconsistency of the Application with a Pending 2008 Application & Pending Appeals

A. Pending 2008 Application

On February 4, 2008,[38] the Illinois EPA received an application from US Steel applied for revisions to Permit 95010001 to increase permit limits for the sulfur content of blast furnace gas (BFG) and

[38] Several things interfered with work on the 2008 application. These include the amount of effort needed by the Illinois EPA to issue the initial CAAPP permit for the Granite City Works. The first two CAAPP permits issued for this facility had to be enhanced and reissued to address certain deficiencies identified by USEPA in Orders responding to petitions requesting the USEPA object to the permits that had been issued. Then, additional revisions to Permit 95010001, as US Steel has tried to address with the 2022 application, were found to be necessary because the NOx and VOM emissions of the basic oxygen furnaces exceed or may exceed the limits established in this permit. Work on the current application for revisions to this permit was also disrupted by an interruption in the iron and steel production of the facility that began in December 2015. This interruption, which ultimately lasted for over two years, meant that it was uncertain that the facility would resume production of iron and steel.

the SO_2 emissions resulting from the combustion of BFG. The 2022 application is inconsistent with and conflicts with that prior application (the "2008 application"). As such, these two applications, as they currently exist, cannot be processed by the Illinois EPA absent appropriate action by US Steel on one or both of these applications, e.g., changes to the 2022 application so that it requests the same revisions to SO_2 emission limits for use of BFG as the 2008 application. In this regard, the 2022 application "… does not request any changes to the emission limits for SO_2 and lead emissions established in the Construction Permit 95010001." The 2008 application does request changes to the provisions of the permit for SO_2, as it is an "Application to modify to correct the emission factors used to develop the original application and permit in light of newly identified information on emissions and emission factors."

B. Pending Board Appeals

The application does not request any changes to the emissions limits for SO_2 and lead currently set by Permit 95010001. For CO, the application does request that the revised permit address emissions of CO from the casthouse and raise the limits for CO emissions of Project-affected fuel burning units.[39] However, the application does not request revisions to the emission limits currently in Permit 95010001 for the CO emissions of the BOFs, i.e., the limits in pounds per ton of steel produced and in tons per year for the CO emissions of these furnaces through the ESP stack. As such, the application is not consistent with two pending permit appeals before the Board, PCB 0013-53 and PCB 0013-62, as it does not propose revisions to current permit limits for emissions of SO_2, CO and lead. In these appeals, US Steel challenged all emission factor limits set by Permit 95010001 for individual process operations. US Steel has not amended these appeals so that they only address emission factor limits for PM, PM_{10}, NOx and VOM and no longer address the emission factor limits that are set for SO_2, CO and lead. In addition, in the application, US Steel does not explain why the emission factor limits in Permit 95010001 for SO_2, CO and lead that were appealed are no longer considered to be objectionable. That is, US Steel would not again challenge those limits as it has already done in PCB 0013-53 and PCB 0013-62 if a revision to Permit 95010001 were issued that continued to include the current emission factor limits.

With regard to the CO emissions of the BOFs, the application also does not request revisions to Permit 95010001 as the current permit only addresses CO emissions from the "BOF ESP Stack." The application does not request that these limits be revised so that they address all stack emissions of the BOFs, e.g., CO emissions from both the stack of the new baghouse system and the stack of the ESP system.

6.13. Other Deficiencies in the Application

There are also a number of other lesser reasons why the Illinois EPA determined that the application should be denied, as are set forth in the draft of the denial letter. For example, this application does not include a signed certification for its truth, accuracy and completeness. While this deficiency could be remedied with a supplement to the application that provides both this certification and corrections to the errors in the application that have been noted, this would not be sufficient for a

[39] As already discussed, in the original application for Permit 95010001, the casthouse was not identified as a source of CO and information for CO emissions was not provided. The application also requests updates to the limits for CO emissions from use of BFG and natural gas in Project-affected fuel burning units to reflect new information for the CO emissions from burning these fuels.

revised permit to be issued given more substantial deficiencies in the application that have been identified..

7. Request for Comments

It is the Illinois EPA's preliminary determination that US Steel's 2022 application for revisions to Permit 95010001 should be denied. The Illinois EPA has prepared a draft of the denial letter that it proposes to issue for the 2022 application. The draft denial letter details the reasons why the Illinois EPA has determined that this application should be denied.

The Illinois EPA is providing the public with an opportunity to review and comment on this proposed denial of this application and the reasons for such action identified by the Illinois EPA as set forth in the draft of the denial letter.

Appendix 1

Brief Descriptions of the Revisions to Permit 95010001 Requested By US Steel

- Raise permitted NOx and VOM emissions of the basic oxygen furnaces (steel production) to correct for data in the original application that understated emissions. This revision would facilitate resolution of two appeals to Illinois' Pollution Control Board (PCB), PCB 2013-053 and PCB 2013-062 as they address NOx and VOM emissions of the BOFs. The first appeal addresses the Clean Air Act Permit Program (CAAPP) permit for the facility (Permit 96030056) as issued in 2013 as it repeats emission limits set by Permit 95010001. The second appeal addresses Construction Permit 11050006, a construction permit issued in 2013 for improvements to the particulate control for the BOFs, as this permit also refers to emission limits set by Permit 95010001.

- Eliminate limits set by the permit for individual process operations for emissions of particulate matter and particulate matter$_{10}$ (collectively particulate), NOx and VOM. These limits, which are in pounds/ton of throughput and tons/year, were set for purposes of New Source Review (NSR). In place of these limits, set "group limits" for the annual emissions of groups of related operations, e.g., limits for the overall emissions of the casthouse for the blast furnaces and other units involved in production of iron. This would also facilitate resolution of the two appeals to the PCB as they both challenge the limits in pounds/ton of throughput. These requested revisions would make the permit less stringent. Any "overage" of emissions by certain unit(s) in a group could potentially be balanced by lower levels of emissions by other units in the group. Group limits have been allowed by USEPA for purposes of PSD in certain construction permits issued outside of Illinois.

- Address the CO emissions of the casthouse for the blast furnaces, which were not identified in the original application and are not currently addressed by the permit.

- Provide for an increase in usage of natural gas by Project-affected fuel burning units because coke oven gas is no longer available with the shutdown in 2015 of the byproduct coke oven batteries at the facility.

- Update the construction permit to be consistent with the grouping of units in the CAAPP permit for the facility, including addressing discrete material handling operations as a group of units.

- Process the revised construction permit with "Integrated Processing" so that appropriate revisions can be made to the CAAPP permit for the facility by Administrative Amendment rather than by a separate proceeding for a major modification of the CAAPP permit.

- Update Permit 95010001 with a number of minor revisions as requested to US Steel.

Appendix 2:

Brief Descriptions of Deficiencies in the Application Identified in the Draft Denial Letter

- The revised netting analysis for the Production Increase Project (the "Project") for NOx in the 2022 application attempts to show that the Project would still not be a major modification for purposes of Prevention of Significant Deterioration (PSD) or Major Stationary Source Construction and Modification (MSSCAM) with higher permitted emissions of nitrogen oxides (NOx) from the basic oxygen furnaces, as are being requested. However, the revised netting analysis for NOx does not fulfill relevant requirements of the rules governing netting analyses. As a result, the revised analysis does not show that the Project would still not be a major modification for purposes of PSD and MSSCAM with the requested increases in NOx emissions to correct erroneous data in the original application. In addition, for NOx, the application does not address applicable requirements of the PSD and MSSCAM programs that would become applicable as the Project would now be a major modification. As related to the effect of the Project on air quality, these include an air quality impact analysis for nitrogen dioxide (NO_2) under the PSD program and emission offsets for NOx under MSSCAM. As related to control of NOx emissions, this entails use of appropriate control measures for the NOx emissions of the casthouse on the blast furnaces and the stoves associated with the blast furnaces. This is because the Project included physical modifications to the blast furnaces so that the control measures for NOx must reflect Best Available Control Technology (BACT) under PSD and the Lowest Achievable Emission Rate (LAER) under MSSCAM.

  In particular, the application relies on decreases in NOx emissions due to actions at the facility that occurred after 1996, i.e., the shutdown of ten older boilers in 2010 and the shutdown of the by-product coke oven batteries in 2015. These actions are not contemporaneous with the Project, which occurred in 1996. As such, the accompanying decreases in NOx emissions cannot be relied upon to show that the Project should still be considered non-major.

- Certain emissions data underlying the revised netting analysis cannot be independently confirmed by the Illinois EPA.

- The application lacks detailed supporting information for the contribution of various Project-affected fuel burning units to the actual annual NOx emissions under the requested revised permit.

- The application does not show that the proposed groups of operations for the requested "group limits" for annual emissions are appropriate. In this regard, the 2022 application requests that emission limits currently set by Permit 95010001 that apply to emissions of various pollutants from individual emission units or points of emissions from the casthouse on the blast furnaces and the BOFs, which have both captured/controlled emissions and uncaptured emissions, be replaced with limits that apply to the emissions of groups of related emission units. This would not provide for emission limits that only apply to the blast furnaces casthouse and the two BOFs. These are principal emission units at this facility and their emissions should be directly limited separate from the emissions of other units. The construction permits issued by other jurisdictions cited in the application as support for setting group limits do not eliminate the need

for the Illinois EPA to exercise its technical judgment when deciding whether and to what extent to set group limits.

- The 2022 application does not show that certain emission factors that the application requests be prescribed by the revised permit should be considered representative and acceptable. In this regard, the application requests that for certain emission units, the revised permit specify or prescribe the emission factors that are to be used on an ongoing basis for purposes of assessing compliance with limits on emissions set by the permit.

- As related to sulfur dioxide (SO_2) emissions from burning blast furnace gas, a fuel byproduct from the blast furnaces, the 2022 application is inconsistent with an earlier application for revisions to Permit 95010001. This earlier application was submitted in 2008 pursuant to a state consent decree (*People of the State of Illinois v. US Steel Corporation, Inc.*, Madison County Circuit Court No. 05-CH-750 (December 18, 2007)). This earlier application is still pending. It requests revisions to Permit 95010001 to allow more emissions of SO_2 from burning blast furnace gas, both in pounds of SO_2 per million cubic feet of gas burned and in tons per year. However, the current application does not request any such changes and instead states that the limits for SO_2 emissions from blast furnace gas should not be changed.

- The application does not include information to facilitate Integrated Processing of a revised permit, as requested by US Steel. Most significantly, the application does not provide information to support removal of provisions in the CAAPP permit for the now shutdown coke oven batteries and for use of coke oven gas that should not be included in any amended CAAPP permit.

- US Steel has not taken necessary action to enable Integrated Processing of the requested revised permit. This is because it has not initiated the amendment of the CAAPP permit authorized by Permit 11050006, as issued in 2013, which is an earlier construction permit that was subject to Integrated Processing. That permit addresses the addition of the baghouse control system to the BOFs to improve control of particulate emissions from charging and tapping of these furnaces. Prior to installation of the baghouse system, the particulate emissions from charging and tapping were only controlled with the electrostatic precipitator (ESP) control system.

- There are also a number of other lesser deficiencies in the 2022 application that also warrant the denial of this application.

Granite City Works
United States Steel
20th & State Street
Granite City, IL 62040
(618) 451-3456

October 3, 2022

Bill Marr
Manager, Permit Section
Bureau of Air
Illinois Environmental Protection Agency
1021 North Grand Avenue
PO Box 19276
Springfield, IL 62794

RE: United States Steel Corporation - Granite City Works
Facility I.D. No. 119813AAI
Construction Permit No. 95010001

Dear Mr. Marr:

In March of 2020, United States Steel Corporation - Granite City Works ("U. S. Steel") submitted an application to revise Construction Permit No. 95010001. U. S. Steel and Illinois EPA have been in discussions regarding this application. U. S. Steel has updated the permit application to reflect those discussions. Due to the nature of revisions throughout the application, the Illinois EPA should refer to this application revision for permit processing.

U. S. Steel appreciates Illinois EPA's attention to this matter. If you should have any questions about this, please contact Chris Hardin at cwhardin@uss.com, or (412) 433-5904.

Sincerely,

Michael Patton
General Manager
Granite City Works

Application for Revisions to the Construction Permit / Prevention of Significant Deterioration (PSD) Approval for The 1996 Expansion of the Granite City Works Permit Number 95010001

Submitted to:

Division of Air Pollution Control
Illinois Environmental Protection Agency
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794

Prepared by:

RTP Environmental Associates, Inc.
304-A West Millbrook Rd.
Raleigh, NC 27609

Submitted by:

U. S. Steel Corporation
Granite City Works
20th and State Streets
Granite City, Illinois 62040

February 2020
Revised October 2022

TABLE OF CONTENTS

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

LIST OF TABLES

APPENDICES

Appendix A	**Application Forms (Copies of Previously Submitted Versions)**
Appendix B	**Emissions Calculations (Including Calculations from the 1995 Application)**
Appendix C	**Air Quality Modeling Report**
Appendix D1	**Copy of the Current Construction Permit No. 95010001 Issued in 2012**
Appendix D2	**Copy of the Original Construction Permit No. 95010001 Issued in 1996**
Appendix E	**Copies of EPA Determinations**
Appendix F	**Cost Spreadsheets for Control Technology Analysis**

1. Introduction

United States Steel Corporation Granite City ("USS Granite City") owns and operates an integrated iron and steel manufacturing facility in Granite City, Madison County, Illinois ("Granite City Works," ID # 119813AAI). The prior owner of this facility was National Steel Corporation. U.S. Steel acquired the assets of the National Steel Granite City facility on May 20, 2003. On January 25, 1996, prior to U.S. Steel acquiring these assets of National Steel Corporation, the Illinois Environmental Protection Agency ("Illinois EPA") issued Construction Permit No. 95010001, which also serves as a Prevention of Significant Deterioration ("PSD") approval, to National Steel Corporation. Construction Permit No. 95010001 authorized increases in the allowable production rate of iron and steel at the Granite City facility (the "1996 Project" or "Project"). This permit has been revised several times. The most recent revision was made on December 17, 2012, when the permit was revised to accommodate a proposed improvement to the air pollution control systems serving the Basic Oxygen Furnace ("BOF") Shop Operations at the facility, *i.e.*, the addition of a fabric filter baghouse and associated capture system to improve control of particulate matter emissions from charging and tapping the BOFs.[1]

Requirements of Construction Permit No. 95010001 are also incorporated in the Clean Air Act Permit Program ("CAAPP") (Permit Number 96030056 or "CAAPP Permit") for the facility that was issued on March 4, 2013. USS Granite City timely appealed some of the terms of the CAAPP Permit.[2]

This application requests several revisions to Construction Permit No. 95010001 to address correction of emission data for several emissions units involved in the 1996 Project. Most significantly, this application requests that the Illinois EPA revise certain permit conditions relating to emissions of carbon monoxide ("CO") and arising under the PSD permitting regulations at 35 Illinois Administrative Code ("IAC") Part 204.[3] The application includes updated control technology analyses and impact analyses in support of those requested revisions.

In 1996, at the time of Construction Permit No. 95010001 was initially issued, the Granite City area was designated nonattainment for ozone and particulate matter with aerodynamic diameter of 10 micrometer or less ("PM_{10}") national ambient air quality standards ("NAAQS"). The area was designated attainment or unclassifiable for all other regulated New Source Review ("NSR") pollutants. The permit included limitations on emissions sufficient to ensure that the Project did not trigger applicability of the Illinois Nonattainment New Source Review ("NNSR") program codified at 35 IAC Part 203 for oxides of nitrogen ("NO_X") and volatile organic matter ("VOM") (both as precursors for ozone) and PM_{10} and did not trigger PSD permitting requirements for

[1] The improvements to the BOF Shop were authorized under Construction Permit No. 11050006, issued by Illinois EPA on August 31, 2011.
[2] CAAPP Permit Appeal IPCB No. 2013-053, pending before the Illinois Pollution Control Board ("Board").
[3] The 1996 Construction Permit is a PSD permit with respect to increases in emissions of two pollutants – CO and sulfur dioxide ("SO_2"). The PSD permit was issued pursuant to the federal PSD regulation at 40 CFR § 52.21, which Illinois EPA was then implementing under a delegation of authority from U.S. EPA. The federal PSD rule is no longer applicable, as the Illinois PSD regulation was approved by U.S. EPA in 2021 as a part of the Illinois State Implementation Plan ("SIP"), and the authority to administer and enforce federal PSD permits was fully transferred to Illinois EPA. See, 86 Fed. Reg. 50459 at 50464 (Sept. 9, 2021). This permit application does not request any changes relating to the PSD approval for SO_2 emissions from the Project.

particulate matter ("PM"), nitrogen dioxide ("NO_2"), or lead. Certain emission limits in Construction Permit No. 95010001 that were considered by Illinois EPA in making NNSR and PSD non-applicability determinations for the 1996 Project are the subject of revisions requested by USS Granite City in this application. The revisions requested by USS Granite City in this application are designed to ensure the continued non-applicability of the NNSR program for ozone precursors and PM_{10}, and the continued non-applicability of the PSD program for emissions of PM and NO_2, to the Project.[4] The application includes revised Project emission increase calculations, updated net emissions increase analyses, and discussion of compliance requirements in support of those non-applicability determinations.

The requested changes will resolve the issues raised in the CAAPP permit appeal filed by USS Granite City.

USS Granite City also requests that Illinois EPA process the revisions to Construction Permit No. 95010001 in accordance with the integrated processing procedures and issue the revised permit utilizing procedures and compliance requirements that are substantially equivalent to those utilized for issuance of a CAAPP permit, including a public notice period for the revised permit. See 35 IAC 270.302(e). USS Granite City understands that the CAAPP permit would be modified by means of the administrative amendment process to address the revisions that have been made to the applicable requirements in Construction Permit No. 95010001.[5]

No physical changes are proposed in conjunction with the requested revisions to Construction Permit No. 95010001.

1.1 Description of Facility

The Granite City Works is an integrated steel mill employing raw material handling, processing, and preparation; iron production; steel production; steel finishing; and boilers and other ancillary operations. In 1996, at the time of the Project, National Steel Corporation, owner of the Granite City Works produced metallurgical coke in a by-product coke plant. The by-product coke plant was among the assets acquired by USS Granite City in 2003 and continued to operate until 2015 at which time it was permanently idled. Coke is now obtained from the heat recovery coke batteries located adjacent to the steel mill, which are owned and operated by Gateway Energy and Coke Company, and from other sources.

1.2 Application Organization

This application contains the following analyses and supporting information for requested updates and revisions of Construction Permit No. 95010001.

---

[4] Madison County is currently designated attainment for all criteria pollutants except ozone. For the 2015 ozone standard, the County is designated marginal nonattainment. Alton Township in Madison County is designated nonattainment for SO_2. However, USS Granite City is outside the Alton Township.

[5] A similar process was followed for the issuance of Construction Permit No. 11050006, for the emission reduction project serving the BOF Shop Operations, in 2011.

- Section 2 presents an overview of the requested permit revisions.
- Section 31 presents a discussion of permit conditions used to restrict potential to emit ("PTE") and the consideration of such conditions in determining applicability of the PSD and NNSR programs.
- Section 4 presents a discussion of proposed changes pertaining to carbon monoxide (CO) emissions. The demonstrations and analyses required under the PSD regulations in conjunction with these proposed changes are addressed in Sections 8, 9, and 10.
- Section 5 provides details of requested changes to permit terms for PM and PM_{10} emissions and updated emissions increase analyses.
- Section 6 addresses requested changes to permit terms for NO_X emissions and updated emissions increase analysis.
- Section 7 addresses requested changes to permit terms relating to the VOM emissions and updated emissions increase analysis.
- Section 8 contains a best available control technology (BACT) demonstration for CO for the emissions units for which BACT is required.
- Section 9 summarizes the source impacts analyses, including air dispersion modeling, for CO.
- Section 10 provides analyses of additional impacts, including impacts of the Project's CO emissions on soils, vegetation, and visibility.
- Section 11 summarizes pertinent regulatory applicability and changes thereto.

2. Overview of Requested Permit Revisions

2.1 Background on Construction Permit No. 95010001

National Steel Corporation submitted an application on January 3, 1995 for a construction permit for a proposed increase in production at the Granite City Works ("1995 Application"). Illinois EPA issued Construction Permit and PSD Approval No. 95010001 on January 25, 1996. The permit authorized National Steel Corporation to increase throughput and fuel use at the Granite City Works as follows:

(a) The limits on production of hot metal (*i.e.*, iron) from the two blast furnaces were increased to 9,849 net tons per day, calendar month average, and 3,165,000 net tons per calendar year. [Permit Conditions 2(a) and (b).]

(b) The limits on production of liquid steel from the two BOFs were increased to 11,000 net tons per day, calendar month average, and 3,580,000 net tons per calendar year. [Permit Conditions 6(a) and (b).]

(c) The limits on use of blast furnace gas ("BFG") at the units in which BFG was burned (*i.e.*, boilers #1 through #12, blast furnace stoves, BFG flare #1, and ladle drying preheaters) were increased to 30,800 million cubic feet (MMcf) per calendar month and 185,030 MMcf per calendar year. [Permit Condition 21(b).]

(d) Construction Permit No. 95010001 also includes limits on use of natural gas at the project-affected units in which natural gas could be burned (*i.e.*, boilers #1 through #12, blast furnace stoves, BFG flare #1, and ladle drying preheaters.[6,7] The limits in the original Construction Permit No. 95010001 issued in 1996 were 190 MMcf per calendar month and 1,145 MMcf per calendar year. [Permit Condition 21(a).] These limits did not represent increases, as the same limits had previously been in effect in Construction Permit No. 95090167. As most recently revised in 2012, the natural gas consumption limits in Construction Permit No. 95010001 are 225 MMcf per calendar month and 1,346 MMcf per calendar year. [Permit Condition 21(a).]

These increases in permitted production and fuel usage resulted in increases in emissions from the various project-affected emissions units. The net emissions increase analysis for the Project as summarized in Construction Permit No. 95010001 are presented in Table 2-1 below.

For PM, PM_{10}, NO_X, and VOM, the net emissions increases, including contemporaneous changes, were below the applicable significant emission rates for these pollutants. For lead, the

[6] Construction Permit No. 95010001 also includes limits on use of fuel oil in the units in which fuel oil could be burned. Fuel oil is no longer burned at Granite City Works. .With this application, USS Granite City is requesting that Construction Permit No. 95010001 be revised to remove all permit conditions relating to the use of fuel oil in the project-affected combustion units.

[7] Construction Permit No. 95010001 did not address the use of coke oven gas or the emissions resulting from burning that gas as fuel in boilers #1 through #12 and in the blast furnace stoves. (Coke oven gas is a by-product fuel produced in by-product coke oven batteries.)

project emissions increase was below the significant emission rate. Finally, for SO_2 and CO, the project resulted in net emissions increases that were greater than the significant emission rates. As the 1996 Project was a major modification for SO_2 and CO, the PSD review requirements for these pollutants were addressed by National Steel Corporation in the 1995 Application and by Illinois EPA in Construction Permit No. 95010001.

Table 2-1. Summary of Net Emissions Increase Analysis for the Project

	Emissions (tons/year)						
	PM	PM_{10}	**NOx**	**SO_2**	**CO**	**VOM**	**Lead**
Project Emissions Increases	-52.0	51.6	238.8	476.0	5,685.0	59.3	0.54
Contemporaneous Decreases	-58.0	-58.0	-226.5	-0.38	-23.31	-32.8	n/a
Contemporaneous Increases	20.3	20.7	26.0	0.25	11.8	1.6	n/a
Net Emissions Increases	**-89.2**	**14.3**	**38.3**	**475.9**	**5,673**	**28.1**	**0.54**
Significant Emission Rate	25.0	15.0	40.0	40.0	100.0	40.0	0.6

2.2 General Description of Requested Permit Revisions

This application proposes five categories of changes as described in Sections 2.2.1 through 2.2.5 below. USS Granite City is requesting neither authorization for changes to emissions units nor increases in the limits on hot metal production rate and liquid steel production rate. This permit application also does not request any changes to the SO_2 and lead emission limits established in Construction Permit No. 95010001, so SO_2 and lead emissions will not be discussed further.

2.2.1 Requested Changes Relating to CO Emissions

The Project was a major modification for CO and was subject to PSD review for this regulated NSR pollutant. USS Granite City is requesting revisions to Construction Permit No. 95010001 associated with the PSD review and approval. These changes are briefly summarized below and are discussed in detail in Section 4 of this permit application.

The primary changes requested by USS Granite City relating to CO emissions are (1) requested increases in the permitted emissions from burning of BFG and natural gas and (2) provisions to address CO emissions from the blast furnace casthouse. The emission limits established in Construction Permit No. 95010001 were based upon information in the 1995 Application submitted by National Steel Corporation, which in turn was based on published emission factors and other literature information. However, actual emissions testing data generated since the original PSD application was submitted and updated literature information indicate that corrections to the emission factors and corresponding limits are necessary and appropriate. Because these revisions are not necessitated by or associated with any changes to emissions units subsequent to the Project, these changes would be revisions to the original PSD permit based upon better emissions information; accordingly, updates to the substantive PSD reviews presented in the 1995 Application are provided in Sections 8, 9 and 10 herein. In addition, revisions are requested with respect to certain other permit terms to clarify compliance demonstration requirements and to improve operational flexibility .

2.2.2 Cleanup of Labeling & Organization of Individual Units (Independent of Emissions)

USS Granite City is requesting changes to the names of certain emissions units and control devices in Construction Permit No. 95010001 to reflect more accurately their functions within the process. In addition, USS Granite City is requesting changes to the groupings of emissions units. The requested organizational changes with respect to material handling operations are generally consistent with the approach that Illinois EPA used when issuing the CAAPP permit for the facility, to address material handling operations separately from the iron- and steelmaking operations and continuous casting operations as discussed in Section 5.3 of this permit application. Other organizational changes are requested in order to ensure the BOF Shop Operations grouping is consistent with federal emission standards for those operations as discussed in Section 11.1.2 herein.

2.2.3 Requested Changes Relating to PM, PM_{10}, NO_X, and VOM Emissions from Project-Affected Emissions Units

Construction Permit No. 95010001 includes a number of emission limitations and other permit conditions that are not explicitly required by any regulation. These emission limitations and permit conditions were included in the permit in order to restrict the PTE of certain operations at the Granite City Works and thereby memorialize non-applicability determinations under the PSD and NNSR permitting programs with respect to net emissions increases of PM, PM_{10}, NO_X, and VOM resulting from the Project. USS Granite City is requesting that certain permit conditions addressing individual emissions units or points, including both limits on annual emissions and provisions addressing emission factors, be removed or revised.

In this regard, the annual emission limitations for the various processes and activities at the Granite City facility listed in Table 5 of Construction Permit No. 95010001, referred to herein as "emissions caps," can address the PTE and serve to limit the net emissions increases of PM, PM_{10}, NO_X, and VOM to less than the corresponding significant emission rates under the PSD and NNSR permitting programs. The support for these revisions is provided in Section 1 of this permit application. USS Granite City anticipates that these revisions will enable settlement of the permit appeals currently before the Board because they involve provisions of the permit addressing emission factors.

For PM and PM_{10}, USS Granite City is requesting minor revisions to the emissions caps both to accommodate the revised grouping of material handling operations as discussed in Section 2.2.2 above and to reflect updated emissions information. The specific requested changes to permit terms relating to PM and PM_{10} emissions, accompanied by demonstrations that the net emissions increase for these pollutants remain below the corresponding significant emission rates, are discussed in Section 5 herein.

For NO_X and VOM, USS Granite City is requesting increases in permitted emissions from the BOF Shop Operations based upon updated emissions information and not related to any post-1996 changes at the source. The specific requested changes to permit terms relating to NO_X and VOM emissions, respectively, accompanied by demonstrations that the net emissions increase for these pollutants remain below the corresponding significant emission rates, are discussed in Sections 6 and 7 herein.

USS Granite City is also requesting revision/elimination of gaseous fuel usage limits for project-affected combustion units. In 2015, USS Granite City shut down its by-product coke oven batteries. This eliminated the ability to use coke oven gas ("COG") as a fuel at the mill. In addition, ten of the twelve boilers that existed at the mill at the time of the Project in 1996 have been retired. These actions have greatly reduced the emissions from fuel combustion in project-affected emissions units and obviate the need to preserve limits to restrict PTE of the remaining units.

2.2.4 New Net Emissions Increase Calculations Pursuant to "Source Obligation" Provisions of PSD and NNSR Rules

The emissions caps for PM, PM_{10}, NO_X, and VOM in Construction Permit No. 95010001 and certain other permit terms, and the resultant restrictions on PTE, appear to have been deemed by Illinois EPA to be necessary to prevent the Project from being a major modification.[8] Because the requested revisions to Construction Permit No. 95010001 include increases in certain emissions caps and other changes to permit terms that could allow increases in emissions of these four pollutants, the following "source obligation" provisions of the PSD and NNSR regulations are pertinent to this permit application:

> At such time that a particular source or modification becomes a major stationary source or major modification solely by virtue of a relaxation in, or expiration of, any enforceable limitation which was established after August 7, 1980, on the capacity of the source or modification otherwise to emit a pollutant, such as a restriction on hours of operation, then the requirements of this Part shall apply as though construction had not yet commenced on the source or modification. 35 IAC 203.210(b).

> At such time that a particular source or modification becomes a major stationary source or major modification solely by virtue of a relaxation in any enforceable limitation, established after August 7, 1980, on the capacity of the source or modification otherwise to emit a pollutant, such as a restriction on hours of operation, then the requirements of Sections 204.810, 204.820, 204.830, 204.840, 204.850, 204.1100, 204.1110, 204.1120, 204.1130, 204.1140, 204.1200, and 204.1400 shall apply to the source or modification as though construction had not yet commenced on the source or modification. 35 IAC 204.850.

In Sections 5 through 7 of this permit application and in Appendix B of this permit application, USS Granite City presents updated net emissions increase calculations for PM, PM_{10}, NO_X, and VOM. Unlike the calculations in the 1995 Application submitted by National Steel Corporation, these calculations address all emissions from fuel burning units affected by the Project, including emissions from the burning of COG. (See Sections 5.2.2.15, 6.2.2.1, and 7.2.2.1.) These updated calculations demonstrate that the changes to permit terms requested by USS Granite City will not

[8] USS Granite City does not agree with this interpretation. The definitions of "major modification" and related provisions in the PSD and NNSR rules in effect in 1996 were based on increases in actual emissions, except in the narrow circumstances where the emissions unit at issue had not begun normal operations at the time of the project. *See, e.g.,* 56 *Fed. Reg.* 27630 (June 14, 1991). Nonetheless, for purposes of this permit application, USS Granite City has demonstrated that the Project, as it would be addressed by the revised construction permit that is requested herein, is not a major modification even under use of what Illinois EPA and U.S. EPA refer to as the "actual-to-potential" test.

trigger after-the-fact PSD or NNSR permitting for emissions of PM, PM_{10}, NO_X, or VOM under the "source obligation" provisions because the Project will not become a major modification for these pollutants by virtue of those changes to permit terms.

2.2.5 Requested Removal of Requirements for Roads at the Former South Plant at the Granite City Works

Construction Permit No. 95010001 includes requirements for control of fugitive dust emissions from roads at Granite City Works. These requirements extend to certain road segments at the site of what was formerly the South Plant of Granite City Works during the period when the mill was owned and operated by National Steel Corporation. Specifically, Permit Condition 26a requires periodic application of chemical dust suppressant to road segments B and C and Permit Condition 27a requires periodic sweeping and flushing of road segment A.[9] Because the South Plant property, including these road segments, is not under the control of USS Granite City, or any person under common control with USS Granite City, pollutant-emitting activities at these properties are not a part of the Granite City Works stationary source.[10] Accordingly, requirements relating to these road segments should not be included in the revised construction permit issued to USS Granite City. USS Granite City requests that Attachment B of the construction permit be revised to omit the diagram for the South Plant and that Permit Conditions 26a and 27b be revised so that they no longer address road segments A, B, and C.

[9] Attachment B of the permit shows that these road segments are at the site of what was formerly the South Plant.
[10] The South Plant property, which comprises three parcels, was not among the assets acquired by U.S. Steel in 2003 or at any time thereafter. Based on information from the Madison County Chief Assessment Office (https://gis.co.madison.il.us/madco/viewer/index.html, last accessed June 24, 2022), the parcels at issue are currently owned by Cara Metals Illinois LLC and R W T Holdings LLC.

3. Discussion of Permit Conditions Used to Restrict PTE

As noted in Section 2.2 above, USS Granite City is proposing to retain, with no changes, the currently effective limits on hot metal production rate and liquid steel production rate in Construction Permit No. 95010001. As discussed in greater detail in Sections 5 through 7 of this permit application, USS Granite City also is proposing that the revised construction permit continue to include annual emissions caps, with certain revisions to reflect updated emissions information, and that the Illinois EPA include appropriate testing, operational monitoring, and recordkeeping requirements in the revised permit to ensure that the emission caps would be legally and practicable enforceable. Collectively, under the following provisions in the pertinent definitions in the PSD and NNSR rules, these proposed limitations and permit terms will restrict the PTE of the affected emissions units:

> Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design only if the limitation or the effect it would have on emissions is federally enforceable. 35 IAC 203.128.
>
> Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable or legally and practicably enforceable by a state or local air pollution control agency. 35 IAC 204.560.

Under the provisions above, what is required for restricting PTE is that the limits be enforceable as a practical matter.[11] Practical enforceability is a matter of technical judgment of the permitting authority – Illinois EPA – but there is a substantial body of policy and precedent regarding preferred forms for emissions caps that are enforceable as a practical matter. These policies can be summarized as follows:

- If not used to restrict emissions over a period shorter than one year, emissions caps should be expressed in terms of tons per year on a 12-month rolling sum basis or on a more frequent basis.
- If the emissions cap will cover multiple activities or emissions units, the permit should require at least monthly emissions calculation and recordkeeping.

[11] *See, e.g.*, Administrative Order, *In the Matter of Orange Recycling and Ethanol Production Facility, Pencor-Masada Oxynol, LLC*, Petition No.: II-2000-07, C.T. Whitman, U.S. EPA Administrator, May 2, 2001, upholding use of annual emission caps with a rolling cumulative total methodology and rejecting petitioners' "concern that the permit appears to rely on after-the-fact monitoring, rather than engineering practices, test data, or vendor guarantees" to establish restrictions on PTE. U.S. EPA based its findings on the fact that "[i]f the source has no room to operate under the PTE limiting emissions cap, it must cease operation or face a violation" and that "all PTE limits rely on after the fact monitoring of some kind."

- The permit should prescribe methods of calculating actual emissions for each unit and each pollutant and should prescribe how monitoring and recordkeeping of relevant parameters will be used in those calculations.
- Where the permit prescribes an emission factor to be used in conjunction with operational data in demonstrating compliance, the permitting authority should describe the basis for its determination that the emission factor is representative.
- Where the permit requires development and use of a site-specific emission factor to be used in conjunction with operational data in demonstrating compliance, the permit should prescribe the method by which the emission factor will be developed, such as through performance testing with a specified frequency.

Two recent and significant examples of these policies are U.S. EPA's final agency actions in issuing the permits for construction of a drilling operation in the Beaufort Sea off the North Coast of Alaska in March 2012 and installation of new stationary reciprocating internal combustion engines at an existing power plant in Arizona in December 2018.[12,13] The Alaska permit, issued by U.S. EPA Region 10, includes annual emissions caps for NO_X and CO, with compliance determined on a 365-day rolling sum basis, and annual emissions caps for SO_2 and greenhouse gases, with compliance determined on a 12-month rolling sum basis. The Arizona permit, issued by the Pima County Department of Environmental Quality pursuant to a delegation of authority from U.S. EPA, includes an annual NO_X emissions cap with compliance determined on a 12-month rolling sum basis. Copies of the Alaska and Arizona documents referred here are provided in Appendix E.

Each of these permits includes some emissions units for which the emission factor used to quantify that unit's contribution to the emissions cap over a particular time period is directly prescribed in the permit and also some emissions units for which the permit prescribes the method by which the emission factor will be developed. In each instance where the emission factor is directly prescribed in the permit, this approach was used because the permitting authority determined the emission factor to be sufficiently representative of actual emissions, provided that required monitoring of operating parameters shows the process and control device to be operating within ranges or conditions established during the permitting process. (For example, in the Alaska permit, the NO_X and CO emission factors for periods when the control devices are operating assume control efficiencies of 90 percent and 80 percent, respectively; in the Arizona permit, the NO_X emission factor for engine startup events, during which the air pollution control equipment does not operate, is based on the estimate provided by the engine manufacturer.) In each instance where emission factors are developed through site-specific testing subsequent to permit issuance, the permit carefully prescribes the testing conditions that will be followed, the frequency of that testing, and the calculations to be used to derive the emission factor.

---

[12] *In re: Shell Offshore, Inc., OCS Permit No. R10 OCS030000*, OCS Appeal Nos. 11-05, 11-06 & 11-07. Mar. 30, 2012. Docket available on the U.S. EPA internet web site at https://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/77355bee1a56a5aa8525711400542d23/f24b9734e6894b9385257958006dad34!OpenDocument (last accessed May 9, 2022).

[13] *In re: Tucson Electric Power, PSD Permit No. 1052*, PSD Appeal No. 18-02. Dec. 3, 2018. Docket available on the U.S. EPA internet web site at https://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/77355bee1a56a5aa8525711400542d23/64a784010e968b9b852583050073ebe5!OpenDocument (last accessed May 9, 2022).

The approach proposed by USS Granite City with respect to the PM, PM_{10}, NO_X, and VOM emissions caps to be used in any revised Construction Permit No. 95010001, including the proposed revisions to certain emissions limitations, compliance demonstration requirements, and other permit conditions as discussed in detail in Sections 5 through 7 of this permit application, is consistent with this policy and precedent and will improve the enforceability of the PTE limitations in Construction Permit No. 95010001. In particular, USS Granite City emphasizes that removal or revision of certain permit conditions addressing individual emissions units or points, including both limits on annual emissions and provisions addressing emission factors, will not result in impairment of the enforceability of the PTE limitations.

4. Changes to Provisions for CO Emissions

This section of the permit application describes the changes to Construction Permit No. 95010001 requested by USS Granite City pertaining to CO emissions from fuel burning emissions units and from the blast furnace casthouse. These requested changes are not based upon any post-1996 Project changes but are based on updated information regarding CO emissions.

Construction Permit No. 95010001 also set a CO emissions limitation for the BOF electrostatic precipitator ("ESP") Stack. No changes are being proposed to this CO emission limitation in Table 2 of the permit.

The Project was permitted in 1996 as a major modification for CO and was subjected to PSD review by Illinois EPA; with the proposed changes, the project continues to be subject to PSD review with respect to CO emissions.

4.1 Process Background and Project

4.1.1 Blast Furnace Casthouse

The blast furnaces produce molten iron from iron ore pellets through a reduction reaction with metallurgical coke. In this reaction, carbon monoxide (CO) is formed along with hydrogen and other gases as a byproduct. The tapping of the blast furnaces, which takes place within a structure known as the casthouse, results in emissions of CO. These emissions are a consequence of the relatively small amount of BFG that leaves the furnaces with the molten metal and slag during the tapping process.

The Project involved increases in the production rate for the blast furnaces as outlined in subsection 2.1. The Project is also presumed by USS Granite City to have resulted in increases in CO emissions from the casthouse.

4.1.2 Fuel Combustion

Most of the gas that is formed in the blast furnace rises to the top of the furnace. At the top of the blast furnace, the BFG generated in the furnace is collected and routed to a BFG pretreatment system. BFG has a relatively low heating value (80-110 Btu/scf) and is preferentially used as fuel in the stoves that heat the blast air for the blast furnace. Each blast furnace at the Granite City Works has a set of three stoves. BFG is also used as a fuel in the boilers used to produce steam for use at the Granite City Works, including steam to power the turboblowers that supply blast air to the blast furnaces. Any excess BFG is flared.

The configuration of the Granite City Works in 1996, at the time of the Project, as it relates to fuel combustion in the Project-affected units differed considerably from the current configuration. In 1996, the mill had twelve boilers, all of which used BFG as fuel. Only two of these boilers – Boiler 11 and Boiler 12 – remain in existence. One flare, now known as BFG

flare #1, was used for flaring of excess BFG.[14] In 1996, the boilers used BFG, COG, natural gas, and fuel oil; currently, Boiler 11 and Boiler 12 use only BFG and natural gas. In 1996, the stoves used COG as supplemental fuel; currently, they use natural gas as supplemental fuel.

The 1996 Project involved increases in BFG generation and usage as outlined in subsection 2.1. The CO net emissions increase from the 1996 Project was significant and the project was subject to PSD review for CO emissions. The BACT-affected fuel burning emissions units identified and addressed in the 1995 Application were the blast furnace stoves, the ladle drying preheaters, and miscellaneous ancillary natural gas burning units in the BOF shop and at the continuous casters. In the 1995 Application, on page 1-3, National Steel Corporation stated that the boilers were not undergoing any changes as part of the project. Pursuant to 40 CFR § 52.21(j)(3) and 35 IAC 204.1100(c), because these emissions units were not changed as part of the project, they are not subject to BACT requirements.

4.2 Provisions of the Construction Permit Relating to CO Emissions from Fuel Combustion

Table 4 of Construction Permit No. 95010001 contains CO emission factors and emission limitations for the fuel burning emissions units affected by the Project. Table 4-1 below presents information from Table 4 of the permit pertaining to the CO emissions limitations from 'certain fuel burning emissions units,' *i.e.*, Boilers #1 through #12, Blast Furnace Flare 1, Blast Furnace Stoves, ladle drying preheaters, and continuous casters.[15] Copies of the original and current versions of the construction permit are provided in Appendices D1 and D2 of this permit application.

Table 4-1. Table 4 of Construction Permit – CO Emissions

Fuel Used for Boilers, Stoves, Flare, Ladle Drying Preheaters, and Ancillary Natural Gas Burning Units[16]	CO Emission Factor	Maximum CO Emissions (tons/year)	
		Original (1996) Permit	Current (2012) Permit
Natural Gas	40 lb/MMcf	22.90	26.92
Blast Furnace Gas	13.7 lb/MMcf	1,267.46	1,267.46
Fuel Oil[17]	5.0 lb/10^3 gal	0.91	0.91

[14] Granite City Works currently includes a second BFG flare, known as BFG flare #2, and a cogeneration boiler used to produce electricity and process steam. Construction of the boiler and flare was authorized under Construction Permit No. 06070023 issued in January 2008.
[15] The Construction Permit omits the ancillary fuel burning units at the continuous caster under Table 4. However, emissions from fuel combustion at these units are appropriately accounted for in the natural gas combustion rates.
[16] As discussed in Section 2.2.3 of this permit application, although the boilers and stoves burned COG, Construction Permit No. 95010001 did not include any terms relating to combustion of this byproduct fuel. As it pertains to CO emissions, this omission is now moot because the shutdown of the by-product coke oven batteries in 2015 eliminated the ability to use COG as a fuel. The current and future CO emissions from burning of COG in Project-affected combustion units are zero and are not addressed further in this permit application.
[17] As indicated in footnote 6, fuel oil is no longer used as fuel at Granite City Works.

4.3 Updated CO Emissions Information for Fuel Combustion

For natural gas combustion, the CO emission factor included in Construction Permit No. 95010001 was from Chapter 1.4 AP-42 as updated in August 1982. The U.S. EPA revised Chapter 1.4 of AP-42 in July 1998 and updated the CO emission factor for natural gas combustion to 84 lb per million cubic feet. For natural gas combustion in Boiler 11, Boiler 12, blast furnace stoves, ladle drying preheaters, and ancillary fuel burning units at the continuous casters, the updated CO emission factor has been used to calculate the CO emission rates in this permit application, including in the dispersion modeling analysis provided in Appendix C of this permit application.[18]

As previously explained, BFG is combusted as fuel in the boilers and blast furnace stoves at the site and excess BFG is flared. The CO emission factor for BFG burning in the 1995 Application and in Construction Permit No. 95010001 was from the U.S. EPA's AIRS 1990 database (WebFIRE). However, based on recent performance tests for boilers burning BFG, engineering evaluations of BFG burning in blast furnace stoves, and updates to AP-42 Section 13.5, this factor is not representative. Updated CO emission factors for BFG burning in the blast furnace stoves, Boiler 11, Boiler 12, and BFG flares are being proposed for purposes of this revision to the CO emission rates. The proposed CO emission rates are as follows:

- Based on the information regarding CO emission rates from another blast furnace stove, and engineering evaluations of BFG burning in the blast furnace stoves at Granite City Works, the CO emission factor for burning of BFG in the blast furnace stoves is 322 pounds per million cubic feet.[19]
- Based on CO stack testing performed at Boiler 11 and Boiler 12, the emission factor for burning of blast furnace gas in these boilers is 32.2 pounds per million cubic feet.[20]
- The CO emission factor for BFG flaring is calculated using a CO concentration of 24 percent in BFG and a destruction efficiency of 96 percent.[21, 22] This results in a CO emission factor of 698 pounds per million cubic feet.

Table 4-2 presents the updated maximum annual CO emissions from burning of fuel in the blast furnace stoves, Boiler 11, Boiler 12, Blast Furnace Flare 1, ladle drying preheaters, and ancillary

---

[18] Boilers #1 through #10, which were Project-affected emissions units, have been permanently shut down. The current and future CO emissions from these boilers are zero and are not addressed further in this permit application.
[19] CO emission factor for AK Steel Dearborn / Severstal Dearborn Michigan permit for C Blast Furnace Stoves in the PTI 182-05C was specified as 328.9 lb/MMcf of BFG. See https://www.deq.state.mi.us/aps/downloads/permits/finpticon/2005/182-05C.pdf (accessed on August 17, 2022). In addition, USS Granite City evaluated CO emissions from the blast furnace stove stacks using non-reference method to compare against data from other furnaces. The Granite City Works blast furnace stoves stack configuration did not allow for application of a reference method for measuring CO emissions. Therefore, as part of an engineering evaluation, USS used a non-reference method to collect CO concentration in the stove stack exhaust.
[20] Boiler 11 tests were conducted in July 2011. Boiler 12 tests were conducted in May 2011.
[21] Data from the quarterly BFG component analyses for 2019 for USS Granite City shows CO concentration in BFG ranging from 20% to 22%.
[22] U.S. EPA's *Compilation of Air Pollutant Emission Factors, AP-42, Volume 1: Stationary Point and Area Sources*, Section 13.5, April 2015 ("Properly operated flares achieve at least 98 percent destruction efficiency in the flare plume").

fuel burning units at the continuous casters. Emissions calculations for CO from fuel combustion are provided in Appendix B of this permit application.

Table 4-2. Updated CO Emissions from Burning of Gaseous Fuels

Unit/Fuel	Future Throughput		Emission Factor		Emissions (TPY)
BFG in stoves	68,755	MMcf/year	321.83	lb/MMcf	11,064
BFG in boilers	76,327	MMcf/year	32.19	lb/MMcf	1,228
Natural gas in boilers	1,640	MMcf/year	84.0	lb/MMcf	69
BFG in BFG flare	39,947	MMcf/year	697.6	lb/MMcf	13,934
Natural gas in ladle preheaters	340	MMcf/year	84.0	lb/MMcf	14

4.4 Updated CO Emissions Information for Blast Furnace Casthouse

National Steel Corporation did not identify the blast furnace casthouse as a source of CO emissions in the 1995 Application, and Illinois EPA did not address those emissions in Construction Permit No. 95010001. Subsequent testing at Granite City Works and other integrated iron and steel mills indicates there are CO emissions from blast furnace casthouse operations. CO emissions measured during testing performed at the casthouse baghouse and the iron spout baghouse at Granite City Works in 2012 were 0.10 lb per ton of hot metal and 0.01 lb per ton of hot metal, respectively. As discussed in Section 8.2.3.7 of this permit application, USS Granite City is proposing a CO BACT emission limit of 70 lb/hr based on total emissions from these two baghouses. Assuming 95% capture efficiency for the capture system associated with the casthouse baghouse, as discussed in Section 5.2.2.3 of this permit application, the fugitive CO emissions from the casthouse roof monitor are 3.1 lb/hr. Total CO emissions from the blast furnace casthouse, including both baghouses and fugitive emissions, are 73.1 lb/hr and 320 tons per year (“TPY”).

4.5 CO PSD Review Requirements

As previously explained, the 1996 Project was subject to PSD review for CO because the CO net emissions increase was greater than the significant emission rate of 100 tons per year. Sections 8 through 10 of this permit application address the requested changes to Construction Permit No. 95010001 relating to CO emissions under the PSD review requirements of 35 IAC 204.1100 through 204.1140, as applicable for the blast furnace casthouse and certain fuel burning emissions units.

5. Proposed Changes to Permit Terms for PM and PM_{10} Emissions Increases Analyses

This section describes the proposed changes to Construction Permit No. 95010001 requested by USS Granite City related to PM and PM_{10} emissions. It also provides a demonstration that, even with the requested revisions, the Project would still not be a major modification under the PSD program at 35 IAC Part 204 with respect to emissions of PM and under the NNSR program at 35 IAC Part 203 with respect to emissions of PM_{10}. The net emissions increase calculations for PM and PM_{10} from the 1995 Application submitted by National Steel Corporation are reproduced in Appendix B of this permit application.

5.1 Construction Permit No. 95010001 Applicability and Requirements

Table 5-1 summarizes the provisions from Construction Permit No. 95010001 pertaining to PM and PM_{10} emissions limitations from the project-affected emissions units. Copies of the relevant permits are provided in Appendices D1 and D2 of this application.

Table 5-1. Construction Permit Conditions Addressing PM and PM_{10}

Permit Condition	Requirements
5	Emissions from Blast Furnace operations shall not exceed the limits in attached Tables 1 and 5.
18	Emissions from the BOF Shop operations shall not exceed the limits in attached Tables 2 and 5.
20	Emissions from the continuous casting operations shall not exceed the limits in Tables 3 and 5
22	Emissions from the listed fuel combustion units shall not exceed the limits in Tables 4 and 5.

The annual PM and PM_{10} emissions caps listed in Table 5 of Construction Permit No. 95010001 are presented in Table 5-2 below. These annual PM and PM_{10} emissions caps cover all emissions units affected by the Project. These emissions units are grouped into four main processes or activities (as listed in Table 5-1). Each emissions cap is calculated as the sum of the unit-specific emissions limitations in Tables 1 through 3 and fuel specific limitations in Table 4 of the permit. Table 5 also includes limitations for PM and PM10 emissions from roadways and material handling activities at the facility.

Table 5-2. PM and PM_{10} Emissions Information from Table 5 of Construction Permit No. 95010001

Processes and Activities	Emissions Caps (tons/year)	
	PM	PM_{10}
Blast Furnace Operations	218	194
BOF Shop Operations	510	451
Continuous Casting Operations	71	71
Certain Fuel Combustion Units	273	273
Roadways	27	27
Material Handling	2	2
Total	1,101	1,018

The PM and PM_{10} emissions caps restricted the PTE of the project affected-emissions units. The project emissions increases for PM and PM_{10} were calculated by subtracting pre-project actual emissions (August 1992 to July 1994, 24-month period) from the PTE as restricted by the limitations in the permit. Table 6 of Construction Permit No. 95010001 summarized the net emissions increases from the project and summarized Illinois EPA's determination that the project was not a major modification with respect to PM or PM_{10} emissions. Because the net emissions increases for PM and PM_{10} were below the applicable significant emission rates, these pollutants were not subject to PSD or NNSR review.

5.2 Pre-Project Actual Emissions for 1996 Project

This section presents the pre-project actual emissions and USS Granite City's updates/revisions to some of the PM and PM_{10} emission factors and emission estimates. Corrections to the emissions factors are the result of updated information available regarding some of the operations affected by the project as discussed in Section 5.2.2 below.

5.2.1 Historical Throughput Rates

The PM and PM_{10} net emissions increase calculations presented in Table 6 of Construction Permit No. 95010001 were based on the calculations provided by National Steel Corporation in Tables 3-4, 3-5, and 3-7 of the 1995 Application. Those tables from the prior permit application are reproduced in Appendix B to this permit application.

The pre-project annual emissions were recalculated in this permit application using the same production and operating rates as the 1995 Application as shown in Table 5-3 below.

Table 5-3. Pre-Project Production and Operating Rates for PM and PM_{10}

Parameters	Units	1995 Application
Blast Furnace Production	Net tons of hot metal/year	2,059,557
Blast Furnace Charging	Charge Material tons/year	2,803,241
BOF Shop	Molten steel tons/year	2,413,406
Combined BFG Combustion	MMcf/year	121,039
Combined NG Combustion	MMcf/year	1,145
Combined Fuel Oil Combustion	Mgal/year	16

5.2.2 PM and PM_{10} Emission Factors Basis and Revisions

USS Granite City has reviewed the PM and PM_{10} emission factors used to calculate pre-project actual emissions from the project-affected emissions units based on stack testing and updated literature-based information. As a result of this review, emission factors for two operations were revised as described below. The updated pre-project actual emissions for PM and PM_{10} for the project are presented in Table 5-5 and Table 5-6 of this permit application, respectively; explanations are provided in the following paragraphs.

5.2.2.1 A&B Blast Furnace Charging Fugitive Emissions (PM_{10} Revised)

The Blast Furnace charging fugitive PM emissions were calculated using the emission factor of 0.0024 lb/ton from the U.S. EPA's AIRS 1990 database (WebFIRE). For PM_{10}, the 1995 Application assumed PM_{10} was the same as PM. However, based on particle size distribution data in AP-42 Table 12.5-2, which indicates 51% of PM is PM_{10}, the PM_{10} emission factor for this operation was lowered. The new PM_{10} emission factor is 0.0012 lb/ton.

5.2.2.2 A&B Blast Furnace Casthouse Stack (Baghouse) Emissions (No Change)

The pre-project actual emissions for the A and B Blast Furnaces Casthouse (baghouse) stack as presented by National Steel Corporation in the 1995 Application were calculated using the design outlet concentration of 0.010 grains per dry standard cubic foot in the baghouse exhaust gas and an exhaust gas flow factor of 49,000 dry standard cubic feet per ton of hot metal. PM_{10} was assumed to be same as PM. No changes are necessary for this emission factor.

5.2.2.3 A&B Blast Furnace Casthouse Roof Monitor Emissions (PM_{10} Revised)

The Blast Furnace Casthouse roof monitor actual emissions were calculated using the AP-42 Section 12.5 Table 12.5-1 PM emission factor of 0.6 lb per ton for the uncontrolled casthouse. A 95% capture efficiency, which has been recognized by U.S. EPA as representative for this source type,[23] was applied for the A&B Blast Furnace Casthouse capture systems. The PM emission factor for this operation was revised from 0.031 lb/ton to 0.030 lb/ton. Based on the particle size distribution in AP-42 Table 12.5-2, 51% of PM was assumed to be PM_{10}. The new PM_{10} emission factor is 0.0153 lb/ton vs 0.0155 lb/ton in the 1995 Application.

5.2.2.4 A&B Blast Furnace Iron Spout Baghouse Emissions (No Change)

The pre-project actual emissions for the A and B Blast Furnaces Iron Spout baghouse stack as presented by National Steel Corporation in the 1995 Application were based on an emission factor of 0.02548 lb per ton of hot metal. All PM was assumed to be PM_{10}. This emission factor appears to have been developed based on the results of stack testing conducted in 1992. No changes are necessary for this emission factor.

[23] See, for example, "Technology Review for the Integrated Iron and Steel NESHAP," memorandum from D.L. Jones, U.S. EPA, *et al.*, to the Integrated Iron and Steel (II&S) Residual Risk and Technology Review (RTR) Project File, May 1, 2019. Available in the electronic docket at www.regulations.gov/document?D=EPA-HQ-OAR-2002-0083-0964.

5.2.2.5 Blast Furnace Slag Pits Emissions (No Change)

The pre-project actual emissions for the A and B Blast Furnaces slag pits as presented by National Steel Corporation in the 1995 Application were calculated using an emission factor of 0.00417 lb per ton of hot metal. This emission factor is the sum of PM and PM_{10} emissions rate of 0.0026 lb per ton for slag quenching (derived from EPA assessment) for slag quenching and 0.00157 for slag transfers (using AP-42 Section 13.2.4 equation for aggregate handling). For purposes of emissions calculations, PM was assumed to be same as PM_{10}. No changes are necessary for this emission factor.

5.2.2.6 BOF ESP Stack (BOF 2 Vessels) Emissions (No Change)

The pre-project actual emissions for the BOF ESP stack as presented by National Steel Corporation in the 1995 Application were calculated using data from the stack tests conducted during 1989 to 1993 timeframe on the BOF ESP exhaust. PM and PM_{10} was assumed to be identical for this operation. No changes are necessary for this emission factor.

5.2.2.7 BOF Roof Monitor Emissions (No Change)

The BOF roof monitor actual emissions were calculated using the information from AP-42 Chapter 12.5 and AIRS database. For pre-change actual PM and PM_{10} emissions, National Steel used 90% capture efficiency during the charging and tapping steps and 99% capture efficiency during the refining step for the BOF operations. A detailed description of the baseline roof monitor PM and PM_{10} emission factors is provided in Appendix C of the 1995 Application. For the BOF operations, per particle size distribution in AP-42 Table 12.5-2, 67% of PM is PM_{10}. No changes are necessary for this emission factor.

5.2.2.8 Desulfurization Station & Transfer Pit Baghouse Stack Emissions (No Change)

The pre-project actual emissions for the Desulfurization Station and Transfer Pit Baghouse stack as presented by National Steel Corporation in the 1995 Application were calculated using an emission factor of 0.03721 lb per ton of hot metal. No new information is available that would require any revisions to this emission factor.

5.2.2.9 Hot Metal Charging and Ladle Skimming Stack Emissions (No Change)

The pre-project actual emissions for the Hot Metal Charging and Ladle Skimming Baghouse stack as presented by National Steel Corporation in the 1995 Application were calculated using an emission factor of 0.005 lb per ton of hot metal. No new information is available that would require any revisions to this emission factor.

5.2.2.10 Baghouse 2 for Argon Stirring and Ladle Metallurgy Emissions (No Change)

The pre-project actual emissions for Baghouse 2 for Argon Stirring and Ladle Metallurgy Facility (previously known as “Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy)”) as presented by National Steel Corporation in the 1995 Application were calculated using an emission factor of 0.00715 lb per ton of steel. No new information is available that would require any revisions to this emission factor. It is now included with the BOF shop .

5.2.2.11 Caster Mold Process Emissions (No Change)

The pre-project actual emissions for the Caster Mold as presented by National Steel Corporation in the 1995 Application were calculated using the emission factor from the Illinois EPA 1991 EIS PM/PM_{10} report. No changes are necessary for this emission factor.

5.2.2.12 Continuous Caster Spray Chamber Emissions (No Change)

The pre-project actual emissions for the Continuous Caster Spray Chamber as presented by National Steel Corporation in the 1995 Application were calculated using the emission factor from a stack test in the 1980s. PM and PM_{10} emissions are assumed to be identical. No changes are necessary for this emission factor.

5.2.2.13 Slab Cut Off Casters Emissions (No Change)

The pre-project actual emissions for the Slab Cut Off Casters as presented by National Steel Corporation in the 1995 Application were calculated using the emission factor from the Illinois EPA 1991 EIS PM/PM_{10} report. No changes are necessary for this emission factor.

5.2.2.14 Slab Ripping Casters Emissions (No Change)

The pre-project actual emissions for the Slab Ripping Casters as presented by National Steel Corporation in the 1995 Application were calculated using the emission factor from the Illinois EPA 1991 EIS PM/PM_{10} report. No changes are necessary for this emission factor.

5.2.2.15 Fuel Burning Emissions Units Emissions (Revised)

The pre-project actual emission for various fuels used in certain fuel burning emissions units affected by the project were calculated using the emission factors presented in Table 5-4.

Table 5-4. PM and PM_{10} Emission Factors for Fuel Burning

Fuel	Emission Factor and Units	Basis
Blast Furnace Gas	2.9 lb/MMcf	AIRS 1990
Natural Gas	1.9 lb/MMcf *(revised)*	AP-42 Table 1.4-2 (Based on updated AP-42 information)
Coke Oven Gas (added)	16.56 lb/MMcf in stoves and 43.13 lb/MMcf in boilers *(both added)*	Stoves – Stack test (date unknown) Boilers – "A" battery stack test 1989
Fuel Oil (*Shown for historical purposes. USS Granite City no longer uses fuel oil.*)	9.72 lb/1000 gallon	AP-42 Page 1.3-2

In addition to the emission factors changes noted here, the emission calculations for each pollutant have been updated to reflect all emissions from boilers #1 through #12and from the blast furnace stoves, both pre-project and post-project. (The emission calculations performed by National Steel Corporation and included in the 1995 Application had improperly excluded the emissions from the boilers and stoves resulting from COG use; as a result, as noted in Section 2.1 of this permit application, Construction Permit No. 95010001 did not address the use of coke oven gas or the emissions resulting from burning that gas in the project-affected units.) For the pre-project emissions, the updated calculations include emissions from combustion of 2,584 MMcf of COG in these units during the baseline period; for the post-project emissions, the updated calculations reflect zero COG use.

5.2.2.16 Iron Pellet Screen Emissions (Revised)

The pre-project actual emissions for the Iron Pellet Screen were revised to be based on AP-42 Chapter 11.19.2 for crushed stone screening under Table 11.19.2-2. A control efficiency of 85% was applied for this operation.[24]

5.2.2.17 BOF Hopper Baghouse Emissions (No Change)

The pre-project actual emissions for the BOF Hopper baghouse stack were based on transfer point calculations using AP-42 Chapter 13.2.4 for aggregate handling. A control efficiency of 99.9% was applied for the baghouse used in this operation. No changes are necessary for this emission factor.[25]

5.2.2.18 Flux Conv and Transfer Points Baghouse Emissions (No Change)

The pre-project actual emissions for the Flux Conv and Transfer Points baghouse stack were based on transfer point calculations using AP-42 Chapter 13.2.4 for aggregate handling. A control efficiency of 99.3% was applied for the baghouse used in this operation. No changes are necessary for this emission factor.[26]

5.2.2.19 Baghouse 1 for Material Handling Emissions (No Change)

The pre-project actual emissions for the Baghouse 1 for Material Handling (previously known as "Deslagging Station and Material HS") as presented by National Steel Corporation in the 1995 Application were calculated using an emission factor of 0.00355 lb/ton of hot metal. No new information is available that would require any revisions to this emission factor.[27]

5.2.2.20 Material Handling Emissions Changes (Revised)

The 1995 Application included emissions changes associated with the material handling and transfers for coke, pellets (other than screen), and limestone from the project under Table F-3. These emissions changes were accounted for in the contemporaneous emissions changes table for PM and PM_{10} along with the haul roads emissions changes. Construction Permit No. 95010001 accounted for the material handling emissions changes as "creditable contemporaneous actual emission decreases" in Table 6. With this application, the material handling and transfer operations for coke, pellets, and limestone are included in the project emissions calculations.

[24] CAAPP Permit moved this operation to Material Handling and Processing.
[25] Same as above.
[26] Same as above.
[27] This unit is addressed twice in the CAAPP Permit. However, it is a single operation now included in Material Handling and Processing.

Table 5-5. Pre-project Actual Emissions and Summary of Proposed Changes to Pre-Project PM Emission Factors for Affected Emissions Units

Emission Point[a]	Emission Factors[b]		Units	Basis	Baseline Emissions (TPY)	
	Original	Corrected			Original	Corrected
A & B Blast Furnace Casthouse Fugitives	0.031	0.030	lb/ton of hot metal	No change	31.92	30.9
A & B Blast Furnace Charging	0.0024	0.0024	lb/ton of material	No change	3.36	3.4
A & B Blast Furnace Casthouse Baghouse	0.07026	0.07026	lb/ton of hot metal	No change	72.35	72.4
Blast Furnace Slag Pits	0.00417	0.00417	lb/ton of hot metal	No change	4.29	4.3
Iron Spout Baghouse	0.02548	0.02548	lb/ton of hot metal	No change	26.24	26.2
Blast Furnace Operations					***138.17***	***137.1***
BOF 2 Vessels	0.16	0.16	lb/ton of steel	No change	193.07	193.1
BOF Roof Monitor	0.428	0.428	lb/ton of steel	No change	516.72	516.7
Desulfurization Station [inside BOF shop] & Transfer Pit	0.03721	0.03721	lb/ton of hot metal	No change	38.32	38.3
Hot Metal Charging Ladle Slag Skimmer	0.00502	0.00502	lb/ton of hot metal	No change	5.17	5.2
Baghouse 2 for Argon Stirring and Ladle Metallurgy	0.00715	0.00715	lb/ton of steel	No change	8.63	8.6
BOF Shop Operations					***761.9***	***761.9***
Caster Mold – Casters #1 & #2	0.006	0.006	lb/ton of steel	No change	7.24	7.2
Continuous Casters #1 & #2 – Spray Chamber	0.00852	0.00852	lb/ton of steel	No change	10.28	10.3
Slab Cutoff Casters #1 & #2	0.0071	0.0071	lb/ton of steel	No change	8.57	8.6
Slab Ripping Casters #1 & #2	0.00722	0.00722	lb/ton of steel	No change	8.71	8.7
Continuous Casting Operations					***34.8***	***34.8***
Combined BFG in stoves, boilers, ladle drying preheaters, and BFG flares	2.90	2.90	lb/MMcf	No change	175.51	175.5
Combined NG in stoves, boilers, ladle drying preheaters, and BFG flares	5.10	1.90	lb/MMcf	Note [I]	2.92	1.1
Combined COG in stoves, B11 & B12		16.56 & 43.13	lb/MMcf	Added		50.8
Combined FO in stoves, boilers, ladle drying preheaters, and BFG flares	9.72	9.72	lb/Mgal	No change	0.08	0.1
Certain Fuel Burning Units					***178.51***	***227.4***
Material handling for Coke, Pellets, Limestone	Table F-3 of 1995 Application					17.2
Iron Pellet Screen[a]	0.00279	0.00375	lb/ton of material	Note [d]	3.91	5.3
BOF Hopper Baghouse[a]	0.00032	0.00032	lb/ton of steel	No change	0.39	0.4
Flux Conv. & Transfer Points Bin Flo–r - BOF[a]	0.0016	0.0016	lb/ton of steel	No change	1.93	1.9
Baghouse 1 for Material Handling	0.00355	0.00355	lb/ton of steel	No change	4.28	4.3
Material Handling Operations					***10.51***	***29.0***
Total					***1,123.90***	***1,190.3***

(a) Emission unit groupings have been revised slightly: The identified line items associated with material handling operations were grouped with the blast furnace operations or BOF shop in Construction Permit No. 95010001. Material handling for coke, pellets, limestone are now included in the project emissions. Baghouse 1 for Material Handling is also now grouped with material handling operations. In addition, the Baghouse 2 for Argon Stirring and Ladle Metallurgy is now grouped with BOF Shop operations.

(b) Except as noted in subsequent sections of this permit application, the same emission factors used to calculate pre-project actual emissions are also used to calculate post-project actual emissions. The BOF Roof Monitor is a notable exception, as the 1996 Project included measures to improve PM control efficiency.

(c) Updated AP-42 emission factor for natural gas combustion.

(d) Calculated using AP-42 emission factor for crushed stone, assuming 85% control efficiency.

Table 5-6. Pre-project Actual Emissions and Summary of Proposed Changes to Pre-Project PM_{10} Emission Factors for Affected Emissions Units

Emission Point[a]	Emission Factors[b]		Units	Basis	Baseline Emissions (TPY)	
	Original	Corrected			Original	Corrected
A & B Blast Furnace Casthouse Fugitives	0.0155	0.0153	lb/ton of hot metal	Correction to calculation	15.96	15.8
A & B Blast Furnace Charging	0.0024	0.0012	lb/ton of materialIte [c]	3.36	1.7	
A & B Blast Furnace Casthouse Baghouse	0.07026	0.07026	lb/ton of hot metal	No change	72.35	72.4
Blast Furnace Slag Pits	0.00417	0.00417	lb/ton of hot metal	No change	4.29	4.3
Iron Spout Baghouse	0.02548	0.02548	lb/ton of hot metal	No change	26.24	26.2
Blast Furnace Operations					***122.21***	***120.3***
BOF 2 Vessels	0.16	0.16	lb/ton of steel	No change	193.07	193.1
BOF Roof Monitor	0.287	0.287	lb/ton of steel	No change	346.20	346.2
Desulfurization Station [inside BOF shop] & Transfer Pit	0.03721	0.03721	lb/ton of hot metal	No change	38.32	38.3
Hot Metal Charging Ladle Slag Skimmer	0.00502	0.00502	lb/ton of hot metal	No change	5.17	5.2
Baghouse 2 for Argon Stirring and Ladle Metallurgy	0.00715	0.00715	lb/ton of steel	No change	8.63	8.6
BOF Shop Operations					***591.39***	***591.4***
Cas–er Mold - Casters #1 & #2	0.006	0.006	lb/ton of steel	No change	7.24	7.2
Continuous Casters–#1 & #2 - Spray Chamber	0.00852	0.00852	lb/ton of steel	No change	10.28	10.3
Slab Cutoff Casters #1 & #2	0.0071	0.0071	lb/ton of steel	No change	8.57	8.6
Slab Ripping Casters #1 & #2	0.00722	0.00722	lb/ton of steel	No change	8.71	8.7
Continuous Casting Operations					***34.80***	***34.8***
Combined BFG in stoves, boilers, ladle drying preheaters, and BFG flares	2.90	2.90	lb/MMcf	No change	175.51	175.5
Combined NG in stoves, boilers, ladle drying preheaters, and BFG flares	5.10	1.90	lb/MMcf	Note [d]	2.92	1.1
Combined COG in stoves, B11 & B12		14.21 & 41.48	lb/MMcf	Added		48.5
Combined FO in stoves, boilers, ladle drying preheaters, and BFG flares	9.72	9.72	lb/Mgal	No change	0.08	0.1
Certain Fuel Burning Units					***178.51***	***225.2***
Material handling for Coke, Pellets, Limestone	Table F-3 of 1995 Application					17.2
Iron Pellet Screen [a]	0.00279	0.00131	lb/ton of materI	Note [e]	3.91	1.8
BOF Hopper Baghouse [a]	0.00032	0.00032	lb/ton of steel	No change	0.39	0.4
Flux Conv. & Transfer Point– Bin Floor - BOF [a]	0.0016	0.0016	lb/ton of steel	No change	1.93	1.9
Baghouse 1 for Material Handling	0.00355	0.00355	lb/ton of steel	No change	4.28	4.3
Material Handling Operations					***10.51***	***25.6***
Total					***937.42***	***997.3***

(a) Emission unit groupings have been revised slightly: The identified line items associated with material handling operations were grouped with the blast furnace operations or BOF shop in Construction Permit No. 95010001. Material handling for coke, pellets, limestone are now included in the project emissions. Baghouse 1 for Material Handling is also now grouped with material handling operations. In addition, the Baghouse 2 for Argon Stirring and Ladle Metallurgy is now grouped with BOF Shop operations.

(b) Except as noted in subsequent sections of this permit application, the same emission factors used to calculate pre-project actual emissions are also used to calculate post-project actual emissions. The BOF Roof Monitor is a notable exception, as the 1996 Project included measures to improve PM_{10} control efficiency.

(c) Applied PM to PM_{10} ratio from AP-42, Chapter 13.2.4.

(d) Updated AP-42 emission factor for natural gas combustion.

(e) Calculated using AP-42 emission factor for crushed stone, assuming 85% control efficiency.

5.3 Post-Project PM and PM_{10} Emissions Limitations

As noted in Sections 2.2.3 through 2.2.5 herein, and as discussed further below, for each pollutant, the project emissions increase and/or net emissions increase from the 1996 Project was calculated using the difference between the pre-project actual emissions (August 1992 to July 1994, 24-month period) and the post-project emissions cap for each major operational group of affected emissions units. The post-project emissions caps and emissions increases from the 1996 Project, respectively, were listed in Tables 5 and 6 of Construction Permit No. 95010001.

This Section 5.3 presents a discussion of the post-project PM and PM_{10} emissions caps and a summary of the updated emissions increase calculations for the 1996 Project, reflecting the proposed changes to the emissions caps. Section 5.4 of this permit application presents a summary of the updated net emissions increase calculations and Section 5.5 of this permit application presents certain permit terms proposed by USS Granite City for purposes of ensuring the emissions limitations are enforceable as a practical matter. As already discussed, USS Granite City is proposing that the revised permit no longer include limitations for the PM and PM_{10} emissions of individual emission points or emissions units.

The proposed emissions caps for the project-affected emissions units were developed by USS Granite City using the operating rates shown in Table 5-7. Other than the natural gas usage, which is proposed to increase, and the oil usage, which is proposed to be deleted entirely, these rates are unchanged from the operating rates in Construction Permit No. 95010001. USS Granite City shut down the by-product coke oven batteries in 2015. The shutdown of the Coke Plant eliminated coke oven gas as process fuel at the facility for use in the various fuel burning units. This resulted in increased use of natural gas for certain Project-affected fuel burning units. The emissions effects of the natural gas usage increase is also being addressed in this permit application.

Table 5-7. Projected Post-Project Operating Rates for PM and PM_{10}

Parameters	Units	Post Project Rates
Blast Furnace Production	Net tons of hot metal/year	3,165,000
BOF Shop	Molten steel tons/year	3,580,000
Combined BFG Combustion	MMcf/year	185,030
Combined NG Combustion	MMcf/year	1,980
Combined COG Combustion	n/a	0
Combined Oil Combustion	n/a	0

A comparison of the PM and PM_{10} emissions caps from Table 5 of Construction Permit No. 95010001 and the proposed revisions to these emissions caps is provided in Table 5-8. USS Granite City is proposing only minor changes to the emissions limitations as part of this permit application. (The changes are primarily attributable to the redistribution of the emission caps, including establishment of a separate emissions cap for certain material handling operations.)

The proposed revisions to the post-project PM and PM_{10} emissions caps reflect three categories of changes: corrections of certain emission factors used to calculate both pre-project and post-

project emissions, as shown in Table 5-5 and Table 5-6 herein; [28] changes to post-project operating rates as shown in Table 5-7; and changes to emissions unit groups for certain material handling and other operations, as discussed in footnote (a) of both Table 5-5 and Table 5-6 herein. A separate group for material handling builds upon the approach taken by Illinois EPA in the CAAPP permit for the USS Granite City facility.

Table 5-8. PM and PM_{10} Emissions Caps

Processes and Activities	Emissions Caps (TPY) from Table 5 of Construction Permit No. 95010001		Proposed Revised Emissions Caps (TPY)	
	PM	PM_{10}	PM	PM_{10}
Blast Furnace Operations	218	194	215	190
BOF Shop	510	451	525	462
Continuous Casting Operations	71	71	52	52
Certain Fuel Burning Units*	273	273	273	273
Roadways	27	27	27	27
Material Handling (coke, pellets (other than screen), limestone)	2	2	n/a	n/a
Material Handling Operations (New group accounts for emissions from material handling operations previously grouped under the BF and BOF Shop operations and material handling line shown above)	n/a	n/a	30	19
Total	1,101	1,018	30	19
* Emission rates for "certain fuel burning units" represent the potential to emit for these operations. No emissions caps are proposed for this category of affected units.				

Updated project emissions increase analyses for PM and PM_{10}, reflecting proposed revisions to the emissions increase calculations in Table 6 of Construction Permit No. 9501001, are provided in Table 5-9. This table incorporates the effects of the corrected pre-project emission factors and annual emissions as shown in Table 5-5 and Table 5-6 and the requested updates to the emissions caps as shown in Table 5-8. In addition, adjustments to the emissions caps reflect reorganization of material handling operations affected by the project under a separate operational group for Material Handling Operations (similar to the approach in the CAAPP Permit) and regrouping of some of the operations under the BOF Shop.

[28] In the 1995 Application, for post-project PM and PM_{10} emissions from the BOF roof monitor, National Steel proposed lower emission factors reflecting the implementation of measures to improve capture and control efficiency in the BOF. Illinois EPA agreed with this proposal, incorporated the lower emission factors into the 1996 Construction Permit, and recognized the PM and PM_{10} emission reductions in the netting analyses for these pollutants. No changes are proposed by USS Granite City to the post-project PM and PM_{10} emission factors for the BOF Shop roof monitor.

Table 5-9. PM and PM_{10} Project Emissions Increase Analyses

Processes and Activities	Pre-Project Actual Emissions (TPY)		Proposed Revised Emissions Caps (TPY)		Change (TPY)	
	PM	PM10	PM	PM10	PM	PM10
Blast Furnace Operations	137	120	215	190	78	70
BOF Shop	762	591	525	462	-237	-129
Continuous Casting Operations	35	35	52	52	17	17
Certain Fuel Burning Units	227	225	273	273	46	48
Material Handling Operations	29	26	30	19	1	-7
Total*					-95	-1
*Roadways were addressed as contemporaneous decreases in the 1995 Application. Table 5 of Construction Permit No. 95010001 includes the requisite emission limit for PM and PM10 emissions for the roadways. No changes are proposed to those emission limitations.						

5.4 Changes to Net Emissions Increases for PM and PM_{10}

As part of the requested revisions to Construction Permit No. 95010001, USS Granite City is also proposing updates to the analyses for net emissions increases in emissions of PM and PM_{10} for the 1996 Project. Table 5-10 shows the updated net emissions increases calculations for PM and PM_{10} based on the updated project emissions increase calculations shown in Table 5-9.

In the 1995 Application, the calculations relating to contemporaneous decreases in actual emissions associated with fugitive dust controls for roadways and material handling were presented together. For increased clarity, those calculations are presented separately in this permit application and emissions changes for the material handling operations are now shown in the project emissions increase calculations in Table 5-9 herein. Further, in the 1995 Application and in Construction Permit No. 95010001, the calculations supporting those creditable and contemporaneous decreases in emissions of were performed using PM_{10} emissions data (see Attachment C of the permit). The estimated decreases in emissions of PM from fugitive dust controls for roadways were based on the highly conservative assumption that pre-project PM emissions from roadways were equal to pre-project PM_{10} emissions. (See Appendices E and F of the 1995 Application and see Tables 5 and 6 of the permit.) Information available now is not sufficient to develop revised calculations of fugitive pre-project PM emissions from roadways or to calculate what the PM emissions decrease would have been due to the implementation of fugitive dust controls, but it is known that both the pre-project actual PM emissions and the decrease in PM emissions would have been greater than the corresponding PM_{10} values shown in the 1995 Application and in the permit.[29] Because the Project clearly does not result in a significant net increase in PM emissions even with this conservative assumption, USS Granite City is conservatively retaining the estimated PM emissions decrease of 17.1 TPY (same as PM_{10}).

[29] Based on the most recent emission inventory for the Granite City Works, actual PM emissions from paved and unpaved roadways are approximately 3.6 times the PM_{10} emissions. This is generally consistent with U.S. EPA's AP-42 emission factor compilation: PM emissions from paved roads are 5.2 times PM_{10} emissions (see AP-42 Table 13.2.1-1) and PM emissions from unpaved industrial roads are 3.3 times PM_{10} emissions (see AP-42 Table 13.2.2-2).

Table 5-10. Updated Net Emissions Increases for PM and PM_{10} for the Project

		PM	PM10
Start of Contemporaneous Period		Jan 1991	Jan 1990
End of Contemporaneous Period		Jan 1996	Jan 1996
		Emissions (TPY)	
Project Emissions Increases (not including project decreases)		141.6	134.7
Significant Emission Rates		25	15
Whether Significant?		Yes	Yes
Project Emissions Changes (includes decreases at BOF shop operations)		-95	-1
Contemporaneous Emissions Increases	Date		
Remove Blast Furnace Slag Spout Hood	Jan-1990	n/a	4.9
#2 Caster Production	Dec-1990	n/a	11.7
Installation of #8 Galvanizing Line	Mar-1996	n/a	n/a
Contemporaneous Emissions Decreases			
Ingot Teeming Shutdown	Apr-1991	-22.4	-22.4
Blooming Mill Shutdown	Apr-1991	-3.4	-3.4
NESHAP Controls Coke By-product	Jul-1991	-	-
Batch Annealing Shutdown	Dec-1991	-0.2	-0.2
Roadways Fugitive Dust Controls	Nov-1991	-17.1	-17.1
Net Emissions Increases		**-138.4**	**-27.8**
Whether Significant?		No	No

The net emissions increases calculations also incorporate changes due to corrections to the contemporaneous period:

- The contemporaneous period for PM emissions from the project was established using the definition in 40 CFR § 52.21(b)(3)(ii). The start of the contemporaneous period was January 25, 1991, five years prior to the date on which construction of the project commenced. The end of the contemporaneous period was January 25, 1996, the date on which the emissions increase from the project occurred. The original analysis considered changes involving the removal of the blast furnace slag spout hood, startup of #2 caster, and the #8 Galvanizing Line to be contemporaneous. However, the removal of the blast furnace slag spout hood and the startup of the #2 caster occurred prior to the beginning of the contemporaneous period and the startup of the #8 Galvanizing Line occurred after the end of the contemporaneous period. Therefore, these changes were not contemporaneous for PM for the 1996 Project. USS Granite City has updated the netting analysis to reflect the fact that the PM emissions increase from installation of the #8 Galvanizing Line did not occur within the contemporaneous period.
- The contemporaneous period for PM_{10} emissions from the project was established using the definition in 35 IAC 203.208.[30] The start of the contemporaneous period was January 4, 1990, five years prior to the date of submittal of a timely and complete application on

[30] The USS Granite City facility was located in area that was designated as nonattainment for PM_{10} at the time of 1996 Construction Permit issuance.

January 3, 1995. The end of the contemporaneous period was January 25, 1996, the date on which the emissions increase from the project occurred. The original analysis considered the #8 Galvanizing Line to be contemporaneous. However, the startup of the #8 Galvanizing Line occurred after the end of the contemporaneous period and this project was not contemporaneous for PM_{10} for the 1996 Project. USS Granite City has updated the netting analysis to reflect the fact that the PM_{10} emissions increase from installation of the #8 Galvanizing Line did not occur within the contemporaneous period.

Net emissions increases for PM and PM_{10} remain below the applicable significant emission rates. Therefore, the 1996 Project remains a non-major modification under PSD and NNSR.

5.5 Requested Changes to Permit Terms Relating to PM and PM_{10} Emissions

As part of this application for revision to Construction Permit No. 95010001, USS Granite City is proposing the following revisions to the emission limitations and other permit terms relating to PM and PM_{10} emissions from the processes or activities affected by the 1996 Project.

5.5.1 Blast Furnace Operations

This section addresses the proposed changes to the terms of Construction Permit No. 95010001 for the blast furnace operations. The permit grouped the Iron Pellet Screen as part of the Blast Furnace Operations under Table 1. With this revision, USS Granite City is proposing to move the Iron Pellet Screen, previously listed under the Blast Furnace Operations, under a new Material Handling Operations Group discussed later in this Section.

5.5.1.1 Proposed PM and PM_{10} Emission Limitations for Blast Furnace Operations

USS Granite City proposes the following to replace Condition 5 in Construction Permit No. 95010001.

> *5.a Particulate matter emissions from the Blast Furnace Operations (A & B Blast Furnaces Casthouse Roof Monitor and Casthouse Baghouse stack, A & B Blast Furnace Charging, Iron Spout Baghouse, and Blast Furnace Slag Pits) shall not exceed 215 tons per year for PM and 190 tons per year for filterable PM10, each on a monthly rolling 12-month total.*

As the emission limitations would be in Condition 5.a itself, USS Granite City also requests the deletion of the PM and PM_{10} emission limitations for specific emissions points and emissions units from Table 1 of Construction Permit No. 95010001 as they would be redundant.

5.5.1.2 Prescribed Emission Factors for Certain Blast Furnaces Operations

Prescribed emission factors consistent with the approach described in Section 3 are provided herein. USS Granite City is proposing the following prescribed emission factors for the

emissions points for which emissions testing is not feasible.[31] Each of these emission factors is the same as the corresponding emission factor used to calculate pre-project actual emissions as shown in Table 5-5 and Table 5-6.

(a) For Blast Furnace Casthouse Roof Monitor, use PM emission factor of 0.030 lb/ton and PM_{10} emission factor of 0.0153 lb/ton.
(b) For Blast Furnace charging, use PM emission factor of 0.0024 lb/ton and PM_{10} emission factor of 0.0012 lb/ton.
(c) For slag pits, use PM and PM_{10} emission factor of 0.00417 lb/ton.

USS Granite City recognizes that the annual emission limitations in the revised permit must now address a running total of 12-consecutive months of emissions, so that compliance with the annual limitations can be assessed 12 times per calendar year. Monthly emissions would be determined as the product of monthly throughout rate and applicable emission factor except if there are process upsets or malfunctions, that are accompanied by higher emissions. For such events, the additional emissions would be determined in accordance with the principles of credible evidence.

5.5.2 Basic Oxygen Furnace Shop Operations

This section of the permit application addresses the proposed changes to the requirements under Construction Permit No. 95010001 for the BOF Shop operations. The permit grouped the BOF Additive with BOF Hopper Baghouse and Flux Conveyor & Transfer Pits Bin Floor as part of the BOF Shop Operations under Table 2. With this revision, USS Granite City is proposing to address these units in a new group for Material Handling Operations. That group is discussed in Section 5.5.4 of this permit application. In addition, with this revision, USS Granite City is proposing to move the permit terms relating to the Baghouse 2 for Argon Stirring and Ladle Metallurgy (previously Argon Stirring and Material Handling Tripper (Ladle Metallurgy)) which was previously listed under the Continuous Casting Operations, in the BOF Shop Operations Group.

5.5.2.1 Proposed PM and PM_{10} Emission Limitations for BOF Shop Operations

USS Granite City proposes the following to replace Condition 18 in Construction Permit No. 95010001.

> *18.a Particulate matter emissions from the BOF Shop Operations (BOF ESP, BOF Baghouse, BOF Shop Roof Monitor, Desulf/ Soda Ash and Hot Metal Charging Baghouse, Slag Skimming Baghouse, and Baghouse 2 for Argon Stirring and Ladle Metallurgy shall not exceed 525 tons per year for PM and 462 tons per year for filterable PM_{10}, each on a monthly rolling 12-month total.*[32]

[31] PM and PM_{10} emissions factors are appropriately determined from the results of emissions testing per 40 CFR 63 Subpart FFFFF to determine PM and PM_{10} emission rates for the Blast Furnace Casthouse baghouse and the Iron Spout baghouse.
[32] USS installed a capture system for the BOF vessels in the BOF Shop operations. This system captures emissions from charging and tapping of the BOF vessels and routes it to a baghouse. For compliance with the BOF Shop emission caps, emissions from the BOF ESP and baghouse exhausts are included here.

As the emission limitations would be in Condition 18.a itself, USS Granite City also requests the deletion of the PM and PM_{10} emission limitations for specific emissions points and emissions units from Table 2 and Table 3 of Construction Permit No. 95010001 as it would be redundant.

5.5.2.2 Prescribed Emission Factors for Certain BOF Shop Operations

Prescribed emission factors consistent with the approach described in Section 3 are provided herein. USS Granite City is proposing prescribed emission factors for the BOF Shop Roof Monitor for which emissions testing is not feasible.[33] For BOF Shop Roof Monitor, use PM emission factor of 0.0296 lb/ton and filterable PM_{10} emission factor of 0.0198 lb/ton.

5.5.3 Continuous Casting Operations

This section addresses the proposed changes to the requirements of Construction Permit No. 95010001 for the Continuous Casting operations.

5.5.3.1 Proposed PM and PM_{10} Emission Limitations for Continuous Casting Operations

USS Granite City proposes the following to replace Condition 20 in Construction Permit No. 95010001.

> *20.a Particulate matter emissions from the Continuous Casting Operations Caster Mold, Continuous Caster Spray Chamber, Slab Cutoff, and Slab Ripping shall not exceed 52 tons per year for PM and 52 tons per year for filterable PM_{10}, each on a monthly rolling 12-month total.*

As the emission limitations would be in Condition 20.a itself, USS Granite City also requests the deletion of the PM and PM_{10} emission limitations for specific emissions points and emissions units from Table 3 of Construction Permit No. 95010001 as they would be redundant.

5.5.3.2 Prescribed Emission Factors for Continuous Casting Operations

Prescribed emission factors consistent with the approach described in Section 3 are provided herein. USS Granite City is proposing the following prescribed emission factors for the emissions points for which emissions testing is not feasible.

(a) For Caster Mold, use PM/PM_{10} emission factor of 0.006 lb/ton.
(b) For Slab Cutoff, use PM/PM_{10} emission factor of 0.0071 lb/ton.
(c) For Slab Ripping, use PM/PM_{10} emission factor of 0.00722 lb/ton.

5.5.4 Material Handling Operations

This section addresses the proposed changes to the terms of Construction Permit No. 95010001 for the material handling operations associated with the Blast Furnace and BOF Shop operations. As previously noted, material handling equipment in the Blast Furnace Operations and the BOF

[33] PM and PM_{10} emissions factors are appropriately determined from the results of emissions testing per 40 CFR 63 Subpart FFFFF to determine PM and PM_{10} emission rates for the BOF ESP and baghouse, Desulf/ Soda Ash and Hot Metal Charging Baghouse, Slag Skimming Baghouse, and Baghouse 2 for Argon Stirring and Ladle Metallurgy.

Shop Operations are now proposed to be included in this new section. This also includes emissions associated with material handling and transport of coke, pellets, and limestone. In addition, emissions from Baghouse 1 for Material Handling operation are also included in this section. In addition, USS identified a small silo used to store Mag-Lime at the BOF that used an integrated filter that exhausts inside the building. This emissions from this silo are also included in this group.[34]

5.5.4.1 Proposed PM and PM_{10} Emission Limitations for Material Handling Operations

USS Granite City proposes the following new Condition 42 in Construction Permit No. 95010001.

> *42. Particulate matter emissions from the Material Handling Operations shall not exceed 30 tons per year of PM and 19 tons per year of filterable PM_{10}, each on a monthly rolling 12-month total.*

As the emission limitations would be in Condition 42 itself, USS Granite City also requests the deletion of the PM and PM_{10} emission limitations from Table 1, Table 2, and Table 3 of Construction Permit No. 95010001 as they would be redundant.

5.5.4.2 Prescribed Emission Factors for Material Handling Operations

Prescribed emission factors consistent with the approach described in Section 3 are provided herein. USS Granite City is proposing the following prescribed emission factors for the emissions points for which emissions testing is not feasible.

(a) For Iron Pellet Screen fugitives, use PM/PM_{10} emission factor of 0.00131 lb/ton.
(b) For material handling and transfer operations for coke, pellets, and limestone, use AP-42 Chapter 13.2.4 to calculate applicable emission factors.
(c) For Mag-Lime silo with filter, use PM/PM10 emission rate of 0.009 lb/hour.

[34] PTE of the Mag-Lime silo is less than 0.1 TPY. Therefore, USS did not quantify any baseline for this operation and conservatively included this operation in the emission cap for the Maerial Handling Operations.

6. Proposed Changes to Permit Terms for NO_X Emission Increase Analysis

This section describes the proposed changes to Construction Permit No. 95010001 being requested by USS Granite City related to NO_X emissions. It also provides a demonstration that, even with the requested revisions, the Project would still not be a major modification under the PSD program at 35 IAC 204 with respect to emissions of NO_2 and under the NNSR program at 35 IAC Part 203 with respect to emissions of NO_X. The emissions calculations for NO_X from the 1995 Application submitted by National Steel Corporation are reproduced in Appendix B.

6.1 Construction Permit No. 95010001 Applicability and Requirements

Table 6-1 below summarizes the provisions from Construction Permit No. 95010001 pertaining to NO_X emissions limitations from the project affected emissions units. Copies of the relevant permits are provided in Appendix D1 and D2 of this application.

Table 6-1. Construction Permit Conditions Addressing NO_X

Permit Condition	Requirements
5	Emissions from Blast Furnace operations shall not exceed the limits in attached Tables 1 and 5.
18	Emissions from the BOF Shop operations shall not exceed the limits in attached Tables 2 and 5.
20	Emissions from the continuous casting operations shall not exceed the limits in Tables 3 and 5
22	Emissions from the listed fuel combustion units shall not exceed the limits in Tables 4 and 5.

The annual NO_X emissions caps listed in Table 5 of Construction Permit No. 95010001 are presented in Table 6-2 below. These annual NO_X emissions caps cover all emissions units affected by the Project. The emissions units are grouped in the four main processes or activities at the USS Granite City facility, each calculated as the sum of the unit-specific NOx emissions limitations in Tables 1 through 3 and fuel specific in Table 4 of the permit.

Table 6-2. NO_X Emissions Information from Table 5 of Construction Permit No. 95010001

Processes and Activities	NOx Emissions Caps (tons/year)
Blast Furnace Operations	24
BOF Shop Operations	70
Continuous Casting Operations	90
Certain Fuel Combustion Units	674
Total	858

The NO_X emissions caps restricted the PTE of the project-affected emissions units. The project emissions increase for NO_X was calculated by subtracting pre-project actual emissions (August 1992 to July 1994, 24-month period) from the PTE as restricted by the limitations in the permit. Table 6 of Construction Permit No. 95010001 included the emissions increase from the project

and major modification applicability determinations for NO_X. The NO_X net emissions increase was below the applicable significant emission rates and as a result, NO_X emissions were not subject to PSD or NNSR review.

6.2 Pre-Project Actual Emissions for 1996 Project

This section presents the updated pre-project actual emissions with proposed corrections to some of the NO_X emission factors. Corrections to the NO_X emissions factors are the result of more recent performance tests and updated information as discussed in 6.2.2.

6.2.1 Historical Throughput Rates

The NO_X net emissions increase calculations presented in Table 6 of Construction Permit No. 95010001 were based on the calculations provided by National Steel Corporation in Table 3-2 of the 1995 Application. That table from the prior construction permit application is reproduced in Appendix B of this permit application.

The pre-project actual emissions were calculated using the same production and operating rates as the 1995 Application shown in Table 6-3.

Table 6-3. Pre-Project Production and Operating Rates for NO_X

Parameters	Units	Pre-Project Rates
Blast Furnace Production	Net tons of hot metal/year	2,059,557
BOF Shop	Molten steel tons/year	2,413,406
Combined BFG Combustion	MMcf/year	121,039
Combined NG Combustion	MMcf/year	1,145
Combined Fuel Oil Combustion	Mgal/year	16

6.2.2 NO_X Emission Factors Basis and Revisions

USS Granite City has corrected some of the NO_X emission factors used to calculate pre-project actual emissions from the project-affected emissions units based on stack testing and updated literature-based information. USS Granite City has also validated the remaining emissions factors. The results are presented in Table 6-5; explanations are provided in the following paragraphs.

6.2.2.1 Fuel Burning Emissions Units Emissions (Revised)

The pre-project actual emissions for various fuels used in fuel burning emissions units affected by the project are calculated using the emission factors presented in Table 6-4.

Table 6-4. NO_X Emission Factors for Fuel Burning

Fuel	Emission Factor and Units	Basis
Blast Furnace Gas[35]	5.28 lb/MMcf	February 1993 stack test
Natural Gas	306 lb/MMcf	November 1992 stack test
Coke Oven Gas (added)	80 lb/MMcf in stoves and 403.69 lb/MMcf in boilers *(both added)*	Stoves – Stack test (date unknown) Boilers – "A" battery stack test 1989
Fuel Oil (*Shown for historical purposes. USS Granite City no longer plans to use fuel oil.*)	55 lb/1000 gallon	AP-42 Page 1.3-2

Section 5.2.2.15 includes discussion of inclusion of emissions from the COG combustion for applicability calculations here including the fuel usage information for the affected units.

6.2.2.2 A&B Blast Furnace Casthouse Stack (Baghouse) Emissions (Revised)

The pre-project actual emissions for the A and B Blast Furnace Casthouse stack (baghouse), as presented by National Steel Corporation in the 1995 Application, were calculated using data from a stack test conducted in July 1993. Other than the test results, USS Granite City has no information regarding this stack test, which was conducted by National Steel. In March 2012, USS Granite City performed NO_X stack tests at the Blast Furnace Casthouse stack. This test indicated a lower NO_X emission factor for this operation than previously used (0.0144 lb/ton in the original analysis vs 0.0027 lb/ton based on the March 2012 stack test). In Table 6-5, both the original and updated NO_X emission factors are shown for the Blast Furnace Casthouse stack.

6.2.2.3 A&B Blast Furnace Casthouse Roof Monitor Emissions (Revised)

The pre-project actual emissions for the A and B Blast Furnace Casthouse roof monitor, as presented by National Steel Corporation in the 1995 Application, were calculated using the emission factor as 0.00072 lb/ton. This value was developed using the July 1993 stack test result of 0.0144 lb/ton for the casthouse baghouse stack and an assumption of 95% capture efficiency as described in Section 5.2.2.3 herein. As discussed in Section 6.2.2.2 above, subsequent testing indicated a lower NO_X emission factor for the stack emissions of 0.0027 lb/ton. Assuming a 95% capture efficiency for the casthouse baghouse collection system, the uncaptured portion (5% of NOx generated) is emitted through the roof monitors at the rate of 0.00014 lb/ton. In Table 6-5, both the original and updated NO_X emission factors are shown for the Blast Furnace Casthouse roof monitor emissions.

6.2.2.4 A&B Blast Furnace Iron Spout Baghouse Emissions (Revised)

The 1995 Application and Construction Permit No. 95010001 did not identify any NO_X emissions from the Blast Furnace Iron Spout Baghouse. However, a stack test conducted in March 2012 indicated a NO_X emission factor of 0.0016 pound per ton of hot metal for this emission point. In Table 6-5, the revised analysis includes pre-project actual NO_X emissions from the Blast Furnace Iron Spout Baghouse stack.

[35] BFG is a low Btu fuel that results in a cool flame during combustion. This results in relatively low NOx emission rate for this fuel for all types of applications.

6.2.2.5 BOF ESP Stack (BOF 2 Vessels) Emissions (Revised)

The pre-project actual emissions for the BOF ESP stack, as presented by National Steel Corporation in the 1995 Application, were calculated using data from the average of three runs from one stack test conducted in August 1993. As discussed below, the results of this 1993 stack test have been shown by subsequent data not to be representative of emissions from the BOF ESP stack. The 1996 Project involved increases in the production limits for the Granite City blast furnaces and BOF Shop operations. The project did not involve any physical changes or changes in the method of operation for the BOF Shop. The BOF Shop operations do not use any add-on NO_X control devices. Thus, variability in NO_X emissions for the BOF process are inherent to the process operation. Beginning in 2012, USS Granite City performed several NO_X stack tests at the BOF ESP stack. This testing provided an updated NO_X emission factor for the BOF ESP stack (0.0389 lb/ton in the original analysis vs 0.14 lb/ton based on the average of April 2012, July 2012, and November 2014 stack test results). In Table 6-5, both the original and updated NO_X emission factors are shown for the BOF ESP stack.

6.2.2.6 BOF Baghouse - Secondary Emissions (New)

At the time of the 1995 Application, the BOF Shop did not include a baghouse to capture secondary emissions. Secondary emissions were released to the atmosphere through the BOF Shop roof monitor. No information was available at the time about the NO_X emissions from the BOF Shop roof monitor. Since then, the BOF Shop includes a capture system for secondary emissions that are routed to a baghouse. NO_X emission testing for the BOF Shop baghouse, completed in 2019-2020 timeframe, shows an average NO_X rate of 0.0075 lb/ton for the BOF Shop Baghouse stack. USS Granite City added the BOF Shop secondary NO_X emissions baseline based on the result of the stack test for the BOF Shop Baghouse stack.

6.2.2.7 Continuous Caster Mold Process Emissions (Revised)

The pre-project actual emissions for the Continuous Caster Mold – Caster #1 and Caster #2 process, as presented by National Steel Corporation in the 1995 Application listed NOx emissions from this operation. USS Granite City evaluated this analysis and determined that there is no NO_X formation in this operation. Any NO_X emissions from this operation are due to combustion of natural gas and are already accounted for under the gaseous fuel burning activities listed above. Therefore, in the revised analysis, NOx emissions are not included from this operation.

Table 6-5. Pre-project Actual Emissions and Summary of Proposed Changes to Pre-Project NO_X Emission Factors for Affected Emissions Units

Emission Point	Emission Factors[(a)]		Units	Reason for Change	Pre-project Actual Emissions (TPY)	
	Original	Corrected			Original	Corrected
A & B Blast Furnace Casthouse Stack (Baghouse)	0.0144	0.0027	lb/ton of hot metal	Revised based on 3/2012 stack test	14.83	2.78
A & B Blast Furnace Casthouse Roof Monitor	0.0007	0.0001	lb/ton of hot metal	3/2012 test assuming no NO_X control and 5% roof monitor fraction	0.74	0.15
Iron Spout Baghouse		0.0016	lb/ton of hot metal	Based on 3/2012 stack test		1.6
Blast Furnace Operations					***15.6***	***4.6***
BOF ESP Stack (2 Vessels)	0.0389	0.14	lb/ton of steel	Revised based on average of 2012-2014 stack tests	46.94	170.8
BOF Secondary Emissions (2 Vessels)		0.0075	lb/ton of steel	Based on 2019-20 stack test		9.1
BOF Shop Operations					***46.94***	***179.8***
Continuous Caster Mold - Casters #1 & #2	0.05	0.00	lb/ton of steel	All NO_X formed from natural gas combustion. No additional NO_X	60.34	0.00
Continuous Casting Operations					***60.34***	***0.00***
Combined BFG in stoves, boilers, ladle drying preheaters, and BFG flares	5.28	5.28	lb/MMcf	No change	319.54	319.54
Combined NG in stoves, boilers, ladle drying preheaters, and BFG flares	306.00	306.00	lb/MMcf	No change	175.19	175.19
Combined COG in stoves, B11 & B12		80 and 404	lb/MMcf	Added		461.18
Combined FO in stoves, B11 & B12, ladle drying preheaters, and BFG flares (*shown here for historical purposes*)	9.72	9.72	lb/Mgal	No change	0.44	0.44
Certain Fuel Burning Units					***495.17***	***956.4***
Total					***618.01***	***1,140.8***

6.3 Post-Project NO_X Emissions Limitations

As described in subsection 5.3, the post-project emissions caps and emissions increases from the 1996 Project were, respectively, listed in Tables 5 and 6 of Construction Permit No. 95010001. Similar to PM and PM_{10}, this subsection 6.3 presents a discussion of the post-project NO_X emissions caps and summary of the updated emissions increase calculations for the 1995 Project, reflecting the proposed changes in the emissions caps.

The post-project emissions caps for the project affected emissions units are developed by USS Granite City using the operating rates shown in Table 6-6. Other than the natural gas usage, which is proposed to increase, and the oil usage, which is proposed to be eliminated, these rates are unchanged from the operating rates in the permit. As previously noted in Section 5.3, due to 2015 shutdown of the Coke Plant this application addresses increase in natural gas usage for the fuel burning units affected by the project and also addresses elimination of COG at the affected units.

Table 6-6. Projected Post-Project Operating Rates for NO_X

Parameters	Units	Post Project Rates
Blast Furnace Production	Net tons of hot metal/year	3,165,000
BOF Shop	Molten steel tons/year	3,580,000
Combined BFG Combustion	MMcf/year	185,030
Combined NG Combustion	MMcf/year	1,980
Combined COG Combustion	n/a	0
Combined Oil Combustion	n/a	0

A comparison of the NO_X emissions caps from Table 5 of Construction Permit No. 95010001 and the proposed revisions to these emissions caps is provided in Table 6-7. Detailed emissions calculations are provided in Appendix B. The proposed revisions to the post-project NOx emissions caps reflect changes to some of the emission factors presented in Table 6-5 and changes in post-project operating rates as shown in Table 6-6. USS Granite City also revised NOx emission factors for boilers to reflect the currently applicable emission limitations for boilers under 35 IAC 217.164(b).

Table 6-7. NO_X Emissions Caps

	NO_X Emission Caps (TPY) from Table 5 of Construction Permit No. 95010001	Proposed Revised NOx Emissions Caps (TPY)
Blast Furnace Operations	24	24.0
BOF Shop	70	400
Continuous Casting Operations	90	0.0
Certain Fuel Burning Units*	674	706
Total	858	1130
* Emission rates for “certain fuel burning units” represent the potential to emit for these operations. No emissions caps are proposed for this category of units.		

Updated project emissions increase analysis for NOx reflecting proposed revisions to the emissions increase calculations in Table 6 of Construction Permit No. 95010001, is provided in Table 6-8. This table incorporates the effects of the corrected pre-project emission factors as shown in Table 6-5 and the requested updates to the emission caps as shown in Table 6-7.

Table 6-8. NO_X Project Emissions Increase Analysis

	NO_X Pre-Project Actual Emissions (TPY)	**Proposed Revised NO_X Emissions Caps (TPY)**	**NO_X Change (TPY)**
Blast Furnace Operations	4.6	24.0	19.4
BOF Shop	179.8	400.0	220.2
Continuous Casting Operations	0.0	0.0	0.0
Certain Fuel Burning Units	956.3	706.0	-250.3
Total	1140.7	1130	-10.7

6.4 Changes to Net Emissions Increase Calculation for NO_X

In conjunction with the requested revisions to Construction Permit No. 95010001, USS Granite City is also updating the analysis for net increases in emissions of NO_X for the 1996 Project.

Table 6-9 shows the updated net emissions increases calculations for NO_X based on the updated project emissions increase calculations shown in Table 6-8. This table includes a correction to the contemporaneous period for NOx emissions from the project as established using the definition in 35 IAC 203.208.[36] The start of the contemporaneous period was January 4, 1990, five years prior to the date of submittal of a timely and complete application on January 3, 1995. The end of the contemporaneous period was January 25, 1996, the date on which the emissions increase from the project occurred. The original analysis considered the #8 Galvanizing Line to be contemporaneous. However, the startup of the #8 Galvanizing Line occurred after the end of the contemporaneous period and this project was not contemporaneous for the 1996 Project.

Net emissions increase for NO_X remains below the applicable significant emission rate. Therefore, the 1996 Project remains a non-major modification under PSD and NNSR.

[36] Granite City Works is located in area that was designated as nonattainment for ozone at the time Construction Permit No. 95010001 was originally issued. Accordingly, the applicability provisions of the Illinois NNSR rule under 35 IAC 203 were addressed for the Project at that time.

Table 6-9. Updated Net Emissions Increases for NO_X for the 1996 Project

		NO_X
Start of Contemporaneous Period		Jan 1990
End of Contemporaneous Period		Jan 1996
Project Emissions Increases		239.6
Significant Emission Rates		40
Whether Significant?		Yes
Project Emissions Changes (includes decreases at the fuel combustion units)		-10.7
Contemporaneous Emissions Increases	Date	
Installation of #8 Galvanizing Line	Mar-1996	n/a
Contemporaneous Emissions Decreases		
Blooming Mill Shutdown	Apr-1991	-217.8
Batch Annealing Shutdown	Dec-1991	-8.7
Net Emissions Increase		**-237.3**
Whether Significant?		No

6.5 Requested Changes to Permit Terms Relating to NO_X Emissions

As part of this application for revision to Construction Permit No. 95010001, USS Granite City is proposing the following revisions to the emission limitations and other permit terms relating to NO_X emissions from the processes or activities affected by the 1996 Project.

6.5.1 Blast Furnace Operations

This section addresses the proposed changes to the terms of Construction Permit No. 95010001 for the blast furnace operations under Table 1.

6.5.1.1 Proposed NO_X Emission Limitations for Blast Furnace Operations

USS Granite City proposes the following as Condition 5.b in Construction Permit No. 95010001.

> *5.b NO_X emissions from the Blast Furnace Operations (A & B Blast Furnaces Casthouse Roof Monitor, Casthouse Baghouse stack, Iron Spout Baghouse stack) shall not exceed 24.0 tons per year on a monthly rolling 12-month total.*

As the NO_X emission limitations are to be incorporated in Condition 5.b itself, USS Granite City also proposes the deletion of the NO_X emission limitations for specific emissions points and emissions units from Table 1 of Construction Permit No. 95010001 as they would be redundant.

6.5.1.2 Prescribed Emission Factors for Blast Furnaces Operations

Prescribed emission factors consistent with the approach described in Section 3 are provided herein. USS Granite City is proposing a prescribed emissions calculation methodology for NO_X emissions from the blast furnace casthouse roof monitor based on application of 95% capture efficiency to the NO_X stack test result for the blast furnace casthouse baghouse.

6.5.2 Basic Oxygen Furnace Shop Operations

This section addresses the proposed changes to the terms of Construction Permit No. 95010001 for the BOF Shop operations under Table 2.

6.5.2.1 Proposed NO_X Emission Limitations for BOF Shop Operations

USS Granite City proposes the following as Condition 18.b in Construction Permit No. 95010001.

> *18.b NO_X emissions from the BOF ESP and BOF Baghouse stacks shall not exceed 400 tons per year on a monthly rolling 12-month total.*

As the NO_X emission limitations are to be incorporated in Condition 18.b itself, USS Granite City also proposes the deletion of the NO_X emission limitations for specific emissions points and emissions units in Table 2 of Construction Permit No. 95010001 as they would be redundant.

7. Proposed Changes to Permit Terms for VOM Emission Increase Analysis

This section describes the proposed changes to Construction Permit No. 95010001 requested by USS Granite City related to VOM emissions. It also provides a demonstration that, even with the requested revisions, the Project would still not be a major modification under the NNSR program at 35 IAC Part 203 with respect to emissions of VOM. The emissions calculations for VOM from the 1995 Application submitted by National Steel Corporation are reproduced in Appendix B.

7.1 Construction Permit No. 95010001 Applicability and Requirements

Table 7-1 below summarizes the provisions from Construction Permit No. 95010001 pertaining to VOM emissions limitations from the project-affected emissions units. Copies of the relevant permits are provided in Appendix D1 and D2 of this application.

Table 7-1. Construction Permit Conditions Addressing VOM

Permit Condition	Requirements
5	Emissions from Blast Furnace operations shall not exceed the limits in attached Tables 1 and 5.
18	Emissions from the BOF Shop operations shall not exceed the limits in attached Tables 2 and 5.
22	Emissions from the listed fuel combustion units shall not exceed the limits in Tables 4 and 5.

The annual VOM emissions caps listed in Table 5 of Construction Permit No. 95010001 are presented in Table 7-2 below. These annual VOM emissions caps cover all emissions units affected by the Project. The emission units are grouped in the three main processes or activities at the USS Granite City facility, each calculated as the sum of the unit specific VOM emissions limitations in Tables 1 through 3 and the fuel specific limitations in Table 4 of the permit.

Table 7-2. VOM Emissions Information from Table 5 of Construction Permit No. 95010001

Processes and Activities	VOM Emissions Caps (tons/year)
Blast Furnace Operations	157
BOF Shop Operations	12
Certain Fuel Combustion Units	2
Total	171

The VOM emissions caps restricted the PTE of the project affected emissions units. The VOM project emissions increase was calculated by subtracting pre-project actual emissions (August 1992 to July 1994 24-month period) from the PTE as restricted by the 1996 Construction Permit limitations. Table 6 of Construction Permit No. 95010001 included the emissions increase from the project and major modification applicability determinations for VOM. VOM net emissions increases were below the applicable significant emission rates and as a result, VOM emissions were not subject to NNSR review.

7.2 Pre-Project Actual Emissions for 1996 Project

This section presents the updated pre-project actual emissions with proposed corrections to some of the VOM emission factors. Revisions to the emissions factors are the result of more recent performance tests and updated information as discussed in 7.2.2.

7.2.1 Historical Throughput Rates

The VOM net emissions increase calculations presented in Table 6 of Construction Permit No. 95010001 were based on the calculations provided by National Steel Corporation in Table 3-6 of the 1995 Application. That table from the prior construction permit application is reproduced in Appendix B to this permit application.

The pre-project annual emissions were calculated using the same production and operating rates as the 1995 Application shown in Table 7-3.

Table 7-3. Pre-Project Production and Operating Rates for VOM

Parameters	Units	Pre-Project Rates
Blast Furnace Production	Net tons of hot metal/year	2,059,557
BOF Shop	Molten steel tons/year	2,413,406
Combined BFG Combustion	MMcf/year	121,039
Combined NG Combustion	MMcf/year	1,145
Combined Fuel Oil Combustion	Mgal/year	16

7.2.2 VOM Emission Factors Basis and Revisions

USS Granite City has corrected some of the VOM emission factors used to calculate pre-project actual emissions from the project affected emissions units based on stack testing and updated literature-based information and has validated the remaining emissions factors. The results are presented in Table 7-5; explanations are provided in the following paragraphs.

7.2.2.1 Fuel Burning Emissions Units Emissions (Revised)

The pre-project actual emissions for various fuels used in fuel burning emissions units affected by the project are calculated using the emission factors presented in Table 7-4.

Table 7-4. VOM Emission Factors for Fuel Burning

Fuel	Emission Factors and Units	Basis
Blast Furnace Gas	0.24 lb/MMcf *(revised)*	Updated based on the CoGen Boiler Permit No. 06070023
Natural Gas	5.5 lb/MMcf *(revised)*	Based on AP-42 Chapter 1.4
Coke Oven Gas (added)	0.18 lb/MMcf in stoves 1.22 lb/MMcf in boilers (both added)	Stoves – literature based factor Boilers – AIRS 1990
Fuel Oil	0.28 lb/1000 gallon	AP-42 Page 1.3-2

Section 5.2.2.15 includes discussion of inclusion of emissions from the COG combustion for applicability calculations here including the fuel usage information for the affected units.

7.2.2.2 A&B Blast Furnace Casthouse Baghouse Emissions (Revised)

The pre-project actual emissions for the A and B Blast Furnaces Casthouse stack (baghouse) as presented by National Steel Corporation in the 1995 Application were calculated using data from a stack test conducted in July 1993. Other than the test results, USS Granite City has no information regarding this stack test, which was conducted by National Steel. In March 2012, USS Granite City performed VOM stack tests at the Blast Furnace Casthouse stack. This test indicated a lower VOM emission factor for this operation than previously used (0.09458 lb/ton in the original analysis vs 0.014 lb/ton based on the March 2012 stack test). In Table 7-5, both the original and updated VOM emission factors are shown for the Blast Furnace Casthouse stack.

7.2.2.3 A&B Blast Furnace Casthouse Roof Monitor Emissions (Revised)

The pre-project actual emissions for the A and B Blast Furnace Casthouse roof monitor, as presented by National Steel Corporation in the 1995 Application, were calculated using an emission factor of 0.0047 lb/ton. This value was developed using the July 1993 stack test result of 0.09548 lb/ton for the casthouse baghouse stack and an assumption of 95% capture efficiency described in Section 5.2.2.3 herein. As discussed in 7.2.2.2 above, subsequent testing indicated a lower VOM emission factor for the stack emissions of 0.014 lb/ton. Assuming a 95% capture efficiency for the casthouse baghouse collection system, the uncaptured portion (5% of VOM generated) is emitted through the roof monitors at the rate of 0.00073 lb/ton. In Table 7-5, both the original and updated VOM emission factors are shown for the Blast Furnace Casthouse roof monitor emissions.

7.2.2.4 A&B Blast Furnace Iron Spout Baghouse Emissions (Revised)

The 1995 Application Construction Permit No. 95010001 did not identify any VOM emissions from the Blast Furnace Iron Spout Baghouse. However, a stack test conducted in March 2012 indicated a VOM emission factor of 0.0037 pounds per ton of hot metal for this emission point. In Table 7-5, the revised analysis includes pre-project actual VOM emissions from the Blast Furnace Iron Spout Baghouse stack.

7.2.2.5 BOF ESP Stack (BOF 2 Vessels) Emission (Revised)

The pre-project actual emissions for the BOF ESP stack, as presented by National Steel Corporation in the 1995 Application, were calculated using data from the average of three runs from one stack test conducted in August 1993. As discussed below, the results of this 1993 stack test have been shown by subsequent data to be non-representative of the emissions from the BOF ESP stack. The 1996 Project involved increases in the production limits for the Granite City blast furnaces and BOF Shop operations. The project did not involve any physical changes or changes in the method of operation for the BOF Shop. The BOF Shop operation does not use any add-on VOM control devices. Thus, variability in VOM emissions for the BOF process is inherent to the process operation. Beginning in 2012, USS Granite City performed several VOM stack tests at the BOF ESP stack. This testing provided an updated VOM emission factor for the BOF ESP stack (0.006 lb/ton in the original analysis vs 0.019 lb/ton based on the average of April 2012, July 2012, and November 2014 stack test results). In Table 7-5, both the original and updated VOM emission factors are shown for the BOF ESP stack.

7.2.2.1 BOF Baghouse - Secondary Emissions (New)

At the time of the 1995 Application, the BOF Shop did not include a baghouse to capture secondary emissions. Secondary emissions were released to the atmosphere through the BOF

Shop roof monitor. No information was available at the time about the VOM emissions from the BOF Shop roof monitor. Since then, the BOF Shop includes a capture system for secondary emissions that are routed to a baghouse. VOM emission testing for the BOF Shop baghouse, completed in 2019-2020 timeframe, shows an average NO_X rate of 0.0035 lb/ton for the BOF Shop Baghouse stack. USS Granite City added the BOF Shop secondary VOM emissions baseline based on the result of the stack test for the BOF Shop Baghouse stack.

7.2.2.2 Desulfurization Station & Transfer Pit Baghouse Emission Factor (Revised)

The pre-project VOM baseline emissions for the Desulfurization Station & Transfer Pit Baghouse stack as presented by National Steel Corporation in the 1995 Application were calculated using an emission factor from the U.S. EPA's AIRS 1990 database (WebFIRE). In May 2012, USS Granite City performed VOM stack tests at the Desulfurization Station & Transfer Pit Baghouse stack. This testing has provided an updated VOM emission factor for this emission point (0.0010 lb/ton in the original analysis vs 0.00019 lb/ton based on a May 2012 stack test). In Table 7-5, both the original and updated VOM emission factors are shown for the Desulfurization Station & Transfer Pit Baghouse stack.

7.2.2.3 Hot Metal Charging and Ladle Skimming Stack Emissions (New)

The 1995 Application and Construction Permit No. 95010001 did not quantify any VOM emissions from the Hot Metal Charging and Ladle Skimming baghouse exhaust. USS Granite City conducted a stack test in May 2012 and based on this stack test, included a VOM emission rate of 0.00015 lb/ton for this stack.

Table 7-5. Pre-project Actual Emissions and Summary of Proposed Changes to Pre-Project VOM Emission Factors for Affected Emissions Units

Emission Point	Emission Factors		Units	Basis	Baseline Emissions (TPY)	
	Original	Corrected			Original	Corrected
A & B Blast Furnace Casthouse Stack (Baghouse)	0.09458	0.014	lb/ton of hot metal	Revised based on 3/2012 stack test	97.40	14.3
A & B Blast Furnace Casthouse Roof Monitor	0.00469	0.00073	lb/ton of hot metal	3/2012 test assuming no VOM control and 5% roof monitor fraction	4.83	0.8
Iron Spout Baghouse	0.0000	0.0037	lb/ton of hot metal	Revised based on 3/2012 stack test	0.00	3.8
Blast Furnace Operations					***102.23***	***18.8***
BOF Stack (2 Vessels)	0.0060	0.0190	lb/ton of steel	Revised based on average of 2012-2014 stack tests	7.24	22.40
BOF Secondary Emissions (2 Vessels)		0.0035	lb/ton of steel	Based on 2019-20 stack test		4.2
Desulfurization Station [inside BOF shop] & Transfer Pit	0.00100	0.00019	lb/ton of hot metal	Revised based on 5/2012 stack test	1.03	0.2
Hot Metal Charging and Ladle Skimming		0.00015	lb/ton of hot metal	Based on 5/2012 stack test		0.2
BOF Shop Operations					***8.27***	***27.0***
Combined BFG in stoves, boilers, ladle drying preheaters, and BFG flares	0.0	0.24	lb/MMcf	Updated from Cogen Boiler permit	0	14.52
Combined NG in stoves, boilers, ladle drying preheaters, and BFG flares	2.8	5.5	lb/MMcf	1998 update to AP-42 Section 1.4	1.60	3.15
Combined COG in stoves, B11 & B12		0.18 and 1.22	lb/MMcf	Added		1.38
Combined FO in stoves, B11 & B12, ladle drying preheaters, and BFG flares	0.28	0.28	lb/Mgal	No change	0.00	0.00
Certain Fuel Burning Units					***1.61***	***19.1***
Total					***112.10***	***64.9***

7.3 Post-Project VOM Emissions Limitations

As described in subsection 5.3, the post-project emissions caps and emissions increases from the 1996 Project were, respectively, listed in Tables 5 and 6 of Construction Permit No. 95010001. Similar to PM and PM_{10}, this subsection 6.3 presents a discussion of the post-project VOM emissions caps and summary of the updated emissions increase calculations for the 1995 Project, reflecting the proposed changes in the emissions caps.

The post-project emissions caps for the project affected emissions units are developed by USS Granite City using the operating rates parameters shown in Table 7-6. Other than the natural gas usage, which is proposed to increase, and the oil usage, which is proposed to be deleted entirely, these rates are unchanged from the operating rates in Construction Permit No. 95010001. As previously noted in Section 5.3, due to 2015 shutdown of the Coke Plant this application addresses increase in natural gas usage for the fuel burning units affected by the project and also addresses elimination of COG at the affected units.

Table 7-6. Projected Post-Project Operating Rates for VOM

Parameters	Units	Post Project Rates
Blast Furnace Production	Net tons of hot metal/year	3,165,000
BOF Shop	Molten steel tons/year	3,580,000
Combined BFG Combustion	MMcf/year	183,030
Combined NG Combustion	MMcf/year	1,980
Combined COG Combustion	n/a	0
Combined Oil Combustion	n/a	0

A comparison of the VOM emissions caps from Table 5 of Construction Permit No. 95010001 and the proposed revisions to these emissions caps is provided in Table 7-7. Detailed emissions calculations are provided in Appendix B. The proposed revisions to the post-project VOM emissions caps reflect changes to some of the emission factors presented in Table 7-5 and changes in post-project operating rates as shown in Table 7-6.

Table 7-7. VOM Emissions Caps

	VOM Emission Caps (TPY) from Table 5 of Construction Permit No. 95010001	Proposed Revised VOM Emissions Caps (TPY)
Blast Furnace Operations	157	45.0
BOF Shop	12	45.20
Certain Fuel Burning Units*	2	40
Total	171	130
* Emission rates for “certain fuel combustion units” represent the potential to emit for these operations. No emissions caps are proposed for this category of units.		

Updated project emissions increase analysis for VOM reflecting proposed revisions to the emissions increase calculations in Table of Construction Permit No. 95010001, is provided in

Table 7-8. This table incorporates the effects of the corrected pre-project emission factors as shown in Table 7-5 and the requested updates to the emission limitations as shown in Table 7-7.

Table 7-8. Revised VOM Project Emissions Increase Analyses

	VOM Pre-Project Emissions (TPY)	VOM Revised Emission Limitations (TPY)	VOM Change (TPY)
Blast Furnace Operations	18.8	45.0	26.2
BOF Shop	27.0	45.0	18.0
Certain Fuel Burning Units	19.1	40.0	20.9
Total	64.9	130	65.1

7.4 Changes to Net Emissions Increase Calculation for VOM

In conjunction with the requested revisions to Construction Permit No. 95010001, USS Granite City is also updating the analysis for net increases in emissions of VOM for the 1996 Project. Table 7-9 shows the updated net emissions increases calculations for VOM based on the updated project emissions increase calculations shown in Table 7-8. This table includes a correction to the contemporaneous period for VOM emissions from the project as established using the definition in 35 IAC 203.208.[37] The start of the contemporaneous period was January 4, 1990, five years prior to the date of submittal of a timely and complete application on January 3, 1995. The end of the contemporaneous period was January 25, 1996, the date on which the emissions increase from the project occurred. The original analysis considered the #8 Galvanizing Line to be contemporaneous. However, the startup of the #8 Galvanizing Line occurred after the end of the contemporaneous period and this project was not contemporaneous for the 1996 Project.

Table 7-9. Updated Net Emissions Increases for VOM for the 1996 Project

		VOM
Start of Contemporaneous Period		Jan 1990
End of Contemporaneous Period		Jan 1996
Project Emissions Increases		65.1
Significant Emission Rates		40
Whether Significant?		Yes
Contemporaneous Emissions Increases	Date	
Installation of #8 Galvanizing Line	Mar-1996	n/a
Contemporaneous Emissions Decreases		
Blooming Mill Shutdown	Apr-1991	-0.9
NESHAP Controls for Coke By-Product Operations	Jul-1991	-31.6
Batch Annealing Shutdown	Dec-1991	-0.3
Net Emissions Increase		**32.3**
Whether Significant?		No

[37] The USS Granite City facility was located in area that was designated as nonattainment for ozone at the time of 1996 Construction Permit issuance. Therefore, NNSR provisions under 35 IAC 203 applied for the project at the time.

Net emissions increase for VOM remains below the applicable significant emission rate. Therefore, the 1996 Project remains a non-major modification under NNSR.

7.5 Requested Changes to Permit Terms Relating to VOM Emissions

As part of this application for revision to Construction Permit No. 95010001, USS Granite City is proposing the following revisions to the emission limitations and other permit terms relating to VOM emissions from the processes or activities affected by the 1996 Project.

7.5.1 Blast Furnace Operations

This section addresses the proposed changes to the terms of Construction Permit No. 95010001 for the blast furnace operations under Table 1.

7.5.1.1 Proposed VOM Emission Limitations for Blast Furnace Operations

USS Granite City proposes to add the following as Condition 5.c in Construction Permit No. 95010001.

> *5.c VOM emissions from the Blast Furnace Operations (A & B Blast Furnaces Casthouse Roof Monitor, Casthouse Baghouse stack, Iron Spout Baghouse stack) shall not exceed 45.0 tons per year on a monthly rolling 12-month total.*

As the VOM emission limitations are to be incorporated in Condition 5.c itself, USS Granite City also proposes the deletion of the VOM emission limitations from for specific emissions points and emissions units Table 1 of Construction Permit No. 95010001 as they would be redundant.

7.5.1.2 Prescribed Emission Factors for Blast Furnaces Operations

Prescribed emission factors consistent with the approach described in Section 3 herein. USS Granite City is proposing a prescribed emissions calculation methodology for NO_X emissions from the casthouse roof monitor based on application of 95% capture efficiency to the NO_X stack test result for the blast furnace casthouse baghouse.

7.5.2 Basic Oxygen Furnace Shop Operations

This section addresses the proposed changes to the terms of Construction Permit No. 95010001 for the BOF Shop operations under Table 2.

7.5.2.1 Proposed VOM Emission Limitations for BOF Shop Operations

USS Granite City proposes to add the following as Condition 18.c in Construction Permit No. 95010001.

> *18.c VOM emissions from the BOF Shop Operation (BOF ESP and BOF Baghouse, Desulf/Soda Ash and Hot Metal Charging Baghouse, and Hot Metal Charging and Ladle Skimming baghouse) shall not exceed 45.0 tons per year based on a monthly rolling 12-month total.*

As the VOM emission limitations are to be incorporated in Condition 18.c itself, USS Granite City also proposes the deletion of the VOM emission limitations for specific emission points and emissions units in Table 2 of Construction Permit No. 95010001 as they would be redundant.

8. Best Available Control Technology for CO

In accordance with 35 IAC 204.1100(c), the BACT requirement under the PSD program generally applies for each regulated NSR pollutant for which the major modification resulted in a significant net emission increase at the source. This requirement specifically applies to each emission unit that, as part of the Project, will have a net emissions increase as a result of a physical change or change in the method of operation in the unit. As previously noted, the boilers at Granite City Works, including the existing Boiler 11 and Boiler 12, were not subject to BACT as the Project does not involve physical changes or changes in the method of operation of these units.

8.1 Historical BACT Evaluation

In the 1995 Application, National Steel Corporation provided a CO BACT analysis for the blast furnace stoves, the ladle drying preheaters, and the continuous casters. Use of CO add-on control technology (*i.e.*, direct combustion in a flare, thermal oxidation, and catalytic oxidation) were proposed to be rejected on the basis of a lack of technical feasibility. National Steel proposed that good combustion practices be determined to be BACT for CO emissions from these emissions units. The ladle drying preheaters and continuous casters use NG fuel, which is inherently lower emitting practice. No add-on controls were demonstrated for these operations. Therefore, the use of NG was determined to be BACT.

Illinois EPA released a "Project Summary for Proposed Issuance of a Construction Permit" in November 1995 along with a draft construction permit. This document included a section "Additional Requirements for Major Projects" that addressed BACT requirements for the 1996 Project. BACT for CO was determined to be use of 'work practice' standards. Specifically, Illinois EPA stated the following with respect to CO BACT.

> *The requirements of PSD include a demonstration that best available control technology (BACT) will be used for SO_2 and CO emissions at affected units, an analysis of air quality impacts, and an analysis of the impacts of the project on visibility, vegetations [sic], and soils. The Agency has determined that these requirements have been met.*
>
> *GCD [Granite City Division of National Steel] has shown that **work practices** used for SO_2 and CO constitute BACT as used by other steel mills for these pollutants. [emphasis added]*

During the original PSD permitting process for the Project in 1996, neither National Steel Corporation nor Illinois EPA evaluated BACT for CO emissions from the blast furnace casthouse. As discussed in Section 4.4 of this permit application, available information at the time did not recognize that such emissions occurred, but subsequent emissions testing indicates that the blast furnace casthouse is a source of CO emissions.

8.2 Updated BACT Evaluations

USS Granite City is providing updated CO BACT evaluations for the subject fuel burning emissions units (*i.e.*, blast furnace stoves, ladle drying preheaters, blast furnace flare No. 1, and miscellaneous ancillary natural gas burning units in the BOF shop and at the continuous casters) and for the blast furnace casthouse operations.

8.2.1 BACT General Approach

This section presents a proposed BACT analysis for the subject units for CO.

8.2.1.1 Best Available Control Technology Definition

The definition of BACT in the Clean Air Act [at 42 U.S.C. § 7479(3)] is as follows:

> *The term "best available control technology" means an emission limitation based on the maximum degree of reduction of each pollutant subject to regulation under this chapter emitted from or which results from any major emitting facility, which the permitting authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such facility through application of production processes and available methods, systems, and techniques, including fuel cleaning, clean fuels, or treatment or innovative fuel combustion techniques for control of each such pollutant. In no event shall application of "best available control technology" result in emissions of any pollutants which will exceed the emissions allowed by any applicable standard established pursuant to section 7411 or 7412 of this title. Emissions from any source utilizing clean fuels, or any other means, to comply with this paragraph shall not be allowed to increase above levels that would have been required under this paragraph as it existed prior to November 15, 1990.*

The meaning of the term "emission limitation" used in the BACT definition is broad, as Congress expressed no preference for numeric limits rather than non-numeric requirements in the definition of this term in the Clean Air Act [at 42 U.S.C. § 7602(k)]:

> *The terms "emission limitation" and "emission standard" mean a requirement established by the State or the Administrator which limits the quantity, rate, or concentration of emissions of air pollutants on a continuous basis, including any requirement relating to the operation or maintenance of a source to assure continuous emission reduction, and any design, equipment, work practice or operational standard promulgated under this chapter.*

The regulatory definition of BACT in the PSD rules is similar, although it allows for non-numeric requirements only in limited circumstances. In particular, 35 IAC 204.280 provides:

> *"Best Available Control Technology" means an emissions limitation (including a visible emission standard) based on the maximum degree of reduction for each regulated NSR pollutant that would be emitted from any proposed major stationary source or major modification that the Agency, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel*

combustion techniques for control of such pollutant. In no event shall application of BACT result in emissions of any pollutant that would exceed the emissions allowed by any applicable standard under 40 CFR 60, 61, 62 and 63 (incorporated by reference in Section 204.100). If the Agency determines that technological or economic limitations on the application of measurement methodology to a particular emissions unit would make the imposition of an emissions standard infeasible, a design, equipment, work practice, operational standard, or combination thereof, may be prescribed instead to satisfy the requirement for the application of BACT. Such standard shall, to the degree possible, set forth the emissions reduction achievable by implementation of such design, equipment, work practice or operation, and shall provide for compliance by means that achieve equivalent results.

8.2.1.2 Methodology for the BACT Analysis

In a memorandum dated December 1, 1987, the U.S. EPA stated its preference for a "top-down" analysis.[38] U.S. EPA outlined the BACT determination methodology following the top-down approach.[39] Accordingly, the BACT analyses presented in this application utilize the top-down approach. Under the "top-down" approach, progressively less stringent control technologies are analyzed until a level of control considered BACT is determined, based on the most effective control option that is determined to result in acceptable environmental, energy, and economic impacts. More specifically, the top-down BACT analysis methodology consists of five steps as follows:

1. Identify all "available" control options that might be utilized to reduce emissions of the subject pollutant for the type of unit subject to BACT.
2. Eliminate those available options that are technically infeasible to apply to the specific unit under consideration.
3. Rank the remaining feasible control options by control effectiveness.
4. Evaluate economic, energy and/or environmental impacts of each control option as applied to the subject units, rejecting those options for which the adverse impacts are inappropriate.
5. Based on the most effective control option not rejected in Step 4, select an emission limit or work practice standard as BACT, reflecting the level of control continuously achievable with the selected control option.

[38] Memorandum from J.C. Potter to the Regional Administrators; U.S. EPA, Office of Air and Radiation; Washington, D.C.; December 1, 1987.
[39] See: *1990 New Source Review Workshop Manual, DRAFT,* at page B.2. (Environmental Appeals Board in *Prairie State Generating Station,* PSD Appeal No. 05-05, August 24, 2006, in footnote 2, noted that "[t]he NSR Manual has been used as a guidance document in conjunction with new source review workshops and training, and as a guide for state and federal permitting officials with respect to PSD requirements and policy. Although it is not a binding Agency regulation, the NSR Manual has been looked to by this Board as a statement of the Agency's thinking on certain PSD issues.")

8.2.1.3 Baseline Emission Rate

As used in the BACT analyses presented herein, the term "baseline emission rate" refers to the legal floor established in the definition of BACT, *i.e.*, applicable standards under 40 CFR parts 60, 61, 62 and 63.

8.2.1.4 Available Control Options

In the first step of the BACT analysis, all potentially "available" control strategies are identified for further consideration. In the context of the first step of a top-down BACT analysis, U.S. EPA's guidance describes "available" control strategies as:

> *Available control options are those air pollution control technologies or techniques with a practical potential for application to the emissions unit and the regulated pollutant under evaluation.*[40]

In the BACT analyses herein, the term "available" is used, consistent with the U.S. EPA guidance, to refer to any control strategy that is potentially applicable to the source type in question (*i.e.*, a technology or control option that has a practical potential for application to the source category in general). These may include fuel cleaning or treatment, inherently lower polluting processes, and end of pipe control devices. All identified control strategies that are not inconsistent with the fundamental purpose and basic design of the proposed facility are listed in this step.

The second step of the BACT analysis addresses source-specific or unit-specific factors that would prevent an otherwise available technology from being applied in the particular case. The criteria for "technical feasibility" are separate and distinct from the criteria used to determine whether a control option is considered to be "available" for purposes of BACT.

8.2.1.5 BACT Technical Feasibility Criteria

In the second step of a top-down BACT analysis, potentially available control strategies are evaluated for technical feasibility. A technically feasible control strategy is one that has been demonstrated to function efficiently on an emissions unit that is identical or similar to the emissions unit under review.[41] For the purposes of assessing technical feasibility of an add-on control technology, the determination of whether an emissions unit should be considered to be identical or similar is usually based on the physical and chemical characteristics of the gas stream to be controlled. An add-on control technology applicable to one emissions unit may not be technically feasible for application to an apparently similar unit depending on differences in physical and chemical gas stream characteristics, and rejection of a control option based on technical infeasibility for BACT purposes is appropriate if "it is uncertain the control device will work in the situation currently undergoing review."[42]

---

[40] See: *1990 New Source Review Workshop Manual, DRAFT*, at page B.5.
[41] See, *Prevention of Significant Deterioration Workshop Manual*, EPA-450/2-80-081, October 1980, at pp. I-B-6 through I-B-7.
[42] See, *PSD and Title V Permitting Guidance for Greenhouse Gases*, EPA-457/B-11-001, March 2011, at p. 34.

For control strategies that are not demonstrated, the analysis of technical feasibility is somewhat more involved. Two key concepts are important in determining whether an undemonstrated technology is feasible: "availability[43]" and "applicability." A technology is considered "available" if it can be obtained by the applicant through commercial channels or is otherwise available within the common sense meaning of the term. An available technology is "applicable" if it can reasonably be installed and operated on the source type under consideration. A technology that is both available and applicable is technically feasible.

8.2.2 CO BACT Evaluation for Fuel Burning Units

This section presents the CO BACT analyses for the subject fuel burning emissions units. CO emissions from these units result primarily from incomplete combustion during the firing of BFG and natural gas. Therefore, the most direct approach for reducing these emissions is efficient combustion in the fuel burning emissions units, *i.e.*, appropriate combustion temperatures, adequate excess air, and good air/fuel mixing during combustion. Measures taken to reduce the formation of NOx during combustion can increase CO emissions. In particular lowering combustion temperatures through staged combustion to reduce NOx emissions can be counterproductive with regard to CO emissions. The existing boilers (Boiler 11 and Boiler 12) did not undergo any physical change or change in the method of operation as a result of the 1996 Project. Therefore, pursuant to 40 CFR § 52.21(j)(3Ind 35 IAC 204.1100(c), the boilers were not and are not subject to the BACT requirement for CO emissions.

8.2.2.1 Purpose and Design of Subject Fuel Burning Emissions Units

The fundamental purpose of the blast furnace stoves is to provide heat needs for the ironmaking process preferentially using the BFG fuel, as this fuel is produced as a byproduct at the facility. Any excess BFG unable to be used in the stoves and boilers at Granite City Works is flared through the BFG flares. Use of natural gas or other higher-Btu fuel in the blast furnace stoves as supplemental fuel, for purposes of flame stabilization, also is a necessary and inherent part of the design.

The fundamental purpose of the ladle drying preheaters and ancillary fuel burning units is to provide heat needs for the mill's processes using readily available gaseous fuels.

Alternative production processes that would be inconsistent with these fundamental objectives would impermissibly redefine the source and are not a part of the BACT analyses presented herein.

8.2.2.2 CO BACT Baseline

There are no federal emissions standards applicable to CO emissions from the fuel burning emission units.

[43] In Step 2 of a top-down BACT analysis, the term "availability" has a different meaning than the term "available" in Step 1. Control strategies that are not "available" in Step 1 are not considered in Step 2.

8.2.2.3 Step 1– Identify Available CO Control Options

Based on a review of recent BACT determinations in U.S. EPA's RBLC database and other literature, the control options (individually and in certain combinations) that are being used to limit CO emissions from emissions units burning gaseous fuels include:

- CO Oxidation Catalysts;
- Thermal Incineration;
- Work Practice Standards, including good combustion practices.

CO oxidation catalysts have previously been applied to natural gas fired boilers located in CO and/or ozone nonattainment areas but are primarily used on large combustion turbines. The oxidation catalyst is typically a precious metal catalyst (e.g., platinum) that has been applied over a metal or ceramic substrate. The catalyst lowers the activation energy for the oxidation of CO so that it is oxidized at lower flue gas temperature (range of 650 - 1,100 °F). The CO removal efficiency in natural gas-fired systems at which CO oxidation catalysts are used is typically greater than 90 percent.

Other technology used for the control of CO for other sources include thermal incineration. Incineration requires the exhaust gas containing CO to be heated up to a temperature sufficiently high enough (> 1,300 °F) to thermally destroy CO. Typical methods used include regenerative thermal oxidizers, recuperative incinerators, and direct flame incinerators. These devices are typically employed to control sources with high levels of CO and VOM requiring less supplemental fuel for reheating the exhaust gas. Additionally, the exhaust gas CO concentrations from these devices would be similar to that expected from a gaseous fuel combustion device with good combustion design and operation.

Good combustion practices, as the name implies, are based upon maintaining good fuel/air mixing, a proper fuel/air ratio, and adequate time at an appropriate combustion temperature. These practices are an inherent part of the routine operation of the units, as maintaining good combustion is essential for efficient use of fuel.

8.2.2.4 Step 2– Eliminate Technically Infeasible CO Control Options

Technical feasibility of the CO emissions controls identified in Step 1 for the subject gaseous fuel burning emissions units is addressed in this section.

Blast Furnace Stoves
There are no known applications of add-on CO controls to blast furnace stoves. These control options are not feasible for this application for several reasons as discussed below.

First, the temperature of the exhaust gases from the blast furnace stoves averages around 500 °F, which is below the operating range for CO oxidation catalyst. Second, the CO concentration in the stove exhaust is relatively low at less than 0.3%. As the lower explosive limit for CO is 12.5%, the exhaust from the blast furnace stoves will not have enough CO to combust in thermal incineration.[44] Third, there is significant variation, both in exhaust flow and temperature, due to

[44] See, *e.g.*, www.cdc.gov/niosh/idlh/630080.html (last accessed Sept. 23, 2022).

cycling of the individual stoves between blow and heat steps. Fourth, oxidation catalyst would create unacceptable back-pressure on the stoves. These factors make add-on CO emissions controls infeasible.

Use of good combustion practices for the stoves is a technically feasible control option.

Other Fuel Burning Emissions Units
The No. 1 Flare, ladle drying preheaters, and fuel burning units at the continuous casters do not have specific stacks but exhaust through building ventilation or an open flame. It is not feasible to enclose the ladle drying preheaters or the ancillary fuel burning units in the BOF shop and at the continuous casters as the vessels containing molten steel need to be moved using overhead cranes in the building. Therefore, use of post-combustion control devices, such as CO oxidation catalyst, are not technically feasible for these operations.

Use of good combustion practices for the listed fuel-burning units is a technically feasible control option.

8.2.2.5 Steps 3 & 4– Rank and Evaluate CO Control Options

No add-on control devices options are technically feasible for CO emissions from the fuel burning emissions units. The only remaining control option is to follow good combustion practices. No further evaluation of control options is necessary.

Emissions from the fuel burning emissions units using good combustion practices are as described in Section 4.3 of this permit application.

8.2.2.6 Step 5 – Establish CO BACT

USS Granite City is proposing work practice requirements rather than numeric limits as BACT. Numeric emission limitations are not proposed because direct measurement of emissions—*i.e.*, use of U.S. EPA reference test methods—is not feasible for any of the fuel burning emissions units subject to the BACT requirement for CO emissions. In particular, for the stack serving the blast furnace A stoves, there is no sampling port,[45] and for the stack serving the blast furnace B stoves, there is no sampling port satisfying the location criteria in U.S. EPA Reference Method 1.[46] Each stack is refractory lined and is believed to be approximately one hundred years old.

For the reasons presented above, numeric CO emission standards are not feasible for the blast furnace stoves. USS Granite City is proposing that Illinois EPA define and impose work practice requirements, *i.e.*, good combustion practices, as BACT for the subject fuel burning emissions units. For the blast furnace stoves, USS Granite City proposes the following specific practices.

- Conduct annual adjustment and tune-up to include, at a minimum, inspecting, adjusting, cleaning, or replacing instrumentation and operational control system components and

[45] For the one-time exhaust gas sampling event discussed in footnote 19 of this permit application, USS Granite City inserted a sampling probe into the stack through a pipe used to inject steam into the stack.
[46] Appendix A-1 to 40 CFR part 60.

inspecting the air-to-fuel ratio control system and adjusting as appropriate for proper operation.

- Inspect burners at least once per calendar quarter and make repairs as appropriate.

- Continuously monitor dome temperature and flue gas oxygen level for each stove during periods of fuel burning and adjust air-to-fuel ratio as necessary to maintain instantaneous temperature in the dome—the area at the top of the stove where hot gases from the combustion chamber are distributed into the regenerative checkers—of 2,300 °F ± 100 °F.

8.2.3 BACT Evaluation for Blast Furnace Casthouse

This section presents the CO BACT analysis for the blast furnace casthouse.

8.2.3.1 Purpose and Design of Subject Blast Furnace Casthouse

The fundamental purpose of the subject blast furnace casthouse is to facilitate transfer of molten iron produced in the process to the torpedo cars and separate slag produced in the process. This operation is inherent to production of molten iron in blast furnaces, and use of coke as reductant and fuel is inherent in the design and operation of the blast furnaces at Granite City Works. Any alternative production process that would be inconsistent with these fundamental objectives would impermissibly redefine the emissions unit and is not a part of the BACT analyses presented herein.

8.2.3.2 CO BACT Baseline

There are no federal emissions standards applicable to CO emissions from the blast furnace casthouse.

8.2.3.3 Step 1– Identify Available CO Control Options

Based on a review of BACT determinations in U.S. EPA's RBLC database and other literature, the control options that are potentially available to control CO emissions from the blast furnace casthouse are:

- Capture system and thermal Incineration and
- Capture system and catalytic Incineration

These control technologies have not been applied to a blast furnace casthouse; they are technologies developed and used to control CO emissions in exhaust streams that are substantially higher than those from blast furnace casthouses. As such, it is uncertain whether they are properly considered as available control options, but they are conservatively assumed to be available for purposes of this analysis.

8.2.3.4 Step 2– Eliminate Technically Infeasible CO Control Options

For purposes of this BACT analysis for CO emissions, both of the control options identified in Step 1—use of a capture system with either thermal incineration or catalytic incineration—are

conservatively assumed to be technically feasible for the blast furnace casthouse and will be carried on to Step 4 of the BACT analysis.

8.2.3.5 Step 3 – Rank CO Control Options

For purposes of this BACT analysis for CO emissions, both of the control options identified in Step 1—use of a capture system with either thermal incineration or catalytic incineration—are conservatively assumed to be capable of achieving 90 percent control of non-fugitive CO emissions from the blast furnace casthouse at Granite City Works.

8.2.3.6 Step 4 – Evaluate Impacts of CO Control Options

The casthouse is equipped with capture systems that were installed in the 1980's in conjunction with baghouses for control of PM emissions. The capture system associated with the casthouse baghouse is estimated to achieve 95% capture efficiency, as discussed in Section 5.2.2.3 of this permit application. It is therefore assumed for purposes of this analysis that there are no energy, environmental, or economic impacts with the portion of each control option involving use of a 95% efficient capture system.

A portion of the CO that is generated in the casthouse is not captured and routed through the baghouses but rather is emitted to atmosphere as fugitive emissions through the casthouse roof monitor. Neither of the identified and available CO control options will have any effect on these emissions, so they will not be discussed further in this analysis.

The mechanically exhausted gas streams from the blast furnace casthouse are characterized by low CO concentration: The CO concentrations in the exhaust gases from the casthouse baghouse and the iron spout baghouse are approximately 43 parts per million by volume ("ppmv") and 16 ppmv, respectively.

Both thermal incineration and catalytic incineration would require combustion of significant quantities of auxiliary fuel in order to raise the temperature of the blast furnace casthouse exhaust gas streams to the temperatures necessary for oxidation (and therefore requisite to achieve decreases in CO emissions). Based on U.S. EPA air pollution control device cost and design models, the outputs from which are shown in Appendix F to this permit application, the natural gas usage would be 38.1 MMBtu/hr for regenerative thermal oxidizers with 70 percent heat recovery or 191 MMBtu/hr for fixed-bed catalytic oxidizers with 50 percent heat recovery. Assuming 0.08 lb NOx per MMBtu heat input, the additional NOx emissions from this auxiliary fuel combustion would be 13 TPY from regenerative thermal oxidizers with 70 percent heat recovery or 67 TPY for fixed-bed catalytic oxidizers with 50 percent heat recovery. These are unacceptable, adverse energy and environmental impacts.[47]

Both control options also would impose significant economic cost. Regenerative thermal oxidizers with 70 percent heat recovery would require a capital cost of more than $15 million,

[47] The air quality impacts analysis presented in Appendix C of this permit application shows that the impact of the Project on ambient CO concentration is acceptable even in the absence of any add-on controls on the blast furnace casthouse. The beneficial environmental impacts of using add-on controls to reduce CO emissions would therefore be minimal.

total annualized cost of nearly $6 million, and cost effectiveness of nearly $29,000 per ton of CO emission reduction. Fixed-bed catalytic oxidizers with 50 percent heat recovery would require a capital cost of nearly $8 million, total annualized cost of nearly $16 million, and cost effectiveness of more than $76,000 per ton of CO emission reduction. These are excessive, adverse economic impacts.

Because the adverse impacts of the identified control options greatly outweigh the trivial environmental benefit that would result from installing controls to reduce CO emissions, these control options are not BACT.

8.2.3.7 Step 5 – Establish CO BACT

USS Granite City proposes a CO emission limit of 70 lb/hr, combined for the casthouse baghouse and iron spout baghouse, as BACT for the blast furnace casthouse. This proposed limit is as stringent as any identified limit for a blast furnace casthouse at any similar facility.[48]

[48] The only CO emission limit identified for a blast furnace casthouse is a limit of 56.25 lb/hr for the casthouse baghouse stack at the Dearborn (MI) Works, currently owned and operated by Cleveland Cliffs. This casthouse has a permitted iron production rate of 8,000 tons per calendar day. See https://www.michigan.gov/egle/-/media/Project/Websites/egle/Documents/Permits/AQD/PTI/applications-of-interest/PTI-182-05C-Severstal-Conditions-2014-05-12.pdf (last accessed Sept. 23, 2022).

9. CO Source Impact Analysis (Including Dispersion Modeling)

In accordance with 35 IAC 204.1110 through 204.1130, requirements to conduct ambient air impacts analysis apply to a major modification for pollutants which are subject to PSD review. In issuing Construction Permit 95010001, Illinois EPA addressed PSD requirements for CO as the project was a major modification for CO. The proposed changes to the CO emission factors for gaseous fuels used in fuel burning emissions units at the facility and the recognition of CO emissions from the blast furnace casthouse will result in increases in permitted CO emission rates. The air impacts analysis for the Project with these CO emission increases is provided in Appendix C of this application. This analysis includes all of the CO emitting operations at the USS Granite City facility (including certain units that were constructed since 1996 *e.g.*, Cogeneration Boiler) and offsite sources in the area (*e.g.*, Gateway Energy and Coke Company). Results of this analysis demonstrate that the CO emissions from the Project will not cause or contribute to an exceedance of the applicable NAAQS.

10. Additional Impacts Analyses for CO

An additional impacts analysis was performed consistent with the requirements of 35 IAC 204.1110 to determine potential air emissions impacts on soils, vegetation, visibility, and growth as part of this application. The 1996 Project was a major modification for CO as its increase was in excess of the PSD significant emission rates. This application includes increases in the permitted CO emission rates; therefore, CO emissions are considered in the additional impacts analyses.

10.1 Soils and Vegetation Surveys

The only pollutant included in this analysis of the potential impairment to soils is CO. The results of this analysis show that no material impairment will occur as a result of the proposed revisions.

10.1.1 Soil Survey

Over 66,000 acres surrounding the USS Granite City site were evaluated for the soils analysis using the U.S. Department of Agriculture ("USDA") Natural Resource Conservation Service Web Soil Survey application. The area evaluated encompasses parts of Madison and St. Clair Counties in Illinois and a portion of St. Louis County in Missouri.[49] As presented in Table 10-1, the primary soil type in this area is some variety of silt clay or sandy loam or silty clay loam. These soils account for over 70 percent of the total acreage in the study. The types of soil in significant quantities around the facility include Tice-Fluvents, Landes-Fluvents, Shaffton-Fluvents. The pH of these soils ranged from 5.0 to 7.0.

[49] Source of data: U.S. Department of Agriculture, Natural Resource Conservation Service, Custom Soil Resource Report. February 18, 2020.

Table 10-1. Major Soil Types in Study Area

Map Unit Name	Acres	Percent of Total	pH	Cation Exchange Capacity (CEC) (milliequivalents per 100 grams of soil)
Darwin silty clay, 0 to 2 percent slopes	7,542.3	16.39%	7.1	32
Landes very fine sandy loam, 2 to 5 percent slopes, occasionally flooded	3,870.60	8.41%	6.9	9.4
Beaucoup silty clay loam, 0 to 2 percent slopes	3,473.80	7.55%	7	20
Nameoki silty clay loam, 0 to 2 percent slopes, frequently flooded	2,731.80	5.94%	6.8	19.5
Orthents loamy	2,415.5	5.25%	6.5	10.5
Shaffton clay loam, 0 to 2 percent slopes, occasionally flooded	2,222.60	4.83%	5.8	20
Shaffton-Fluvents-Urban land complex, 0 to 2 percent slopes, occasionally flooded	1,684.30	3.66%	5.6	16.2
Fults silty clay, 0 to 2 percent slopes, occasionally flooded	1,585.80	3.45%	6.7	21.3
Worthen silt loam	1,496.9	3.25%	6.8	16.1
Rocher loam, 2 to 5 percent slopes, frequently flooded	1,460.50	3.17%	7.8	7.8
Landes-Fluvents-Urban land complex, 2 to 5 percent slopes, occasionally flooded	1,323.70	2.88%	6.9	9.4
Dupo silt loam, 0 to 2 percent slopes, occasionally flooded	1,314.1	2.86%	6.6	26.8
Nameoki-Fluvents-Urban land complex, 0 to 2 percent slopes, occasionally flooded	1,215.40	2.64%	6.7	20
Menfro silt loam	1,173.2	2.55%	6	16
Tice silty clay loam, 0 to 2 percent slopes, occasionally flooded	1,164.90	2.53%	6.8	19
Sylvan-Bold silt loams	1,108.3	2.41%	7.1	16
Fishpot-Urban land complex, 0 to 5 percent slopes, rarely flooded	944.1	2.05%	6.5	14.2
Dozaville silt loam, 0 to 2 percent slopes, occasionally flooded	930.6	2.02%	6.6	13.3
Other soil types	8,367.3	18.18%	5.6-8.0	5.8-31.6

The cation exchange capacity (“CEC”) is the total amount of extractable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality or a pH of 7.0. Soils having a low CEC hold fewer cations and may require more frequent applications of fertilizer than soils having a high CEC. The ability to retain cations reduces the hazard of ground water pollution. The CEC of the types of soil in significant quantities in the study range from 8.0 to 31.0 milliequivalents per 100g soil.

The USDA considers a significant part of this land to be prime farmland. Additional land would be considered prime farmland if drained and/or protected from flooding. Further, the USDA soil survey rated all of the soil types listed in Table 10-1 as having somewhat or very limited use for recreational activities such as camping, paths and trails, picnic areas, and playgrounds. None of the total study area is identified as having unlimited recreational value.

10.1.2 Vegetation Survey

The natural vegetation located in these counties is primarily deciduous forest consisting of oaks, hickory, eastern white and red pine, ash, and cottonwood varieties.[50] According to a 2017 U.S. Department of Agriculture Forests of Illinois survey, approximately 21% of Madison County is forest land. [51]

Information provided in the 2012 USDA Census reports for Illinois was used to identify commercial vegetation in the study area.[52] The major crops are presented in Table 10-2. As shown, approximately 60 percent of the land included in the study area is used for harvested crops. Of this total, 26 percent is used for corn for grain and 29 percent is used for soybeans. Other crops, each harvested from less than 3 percent of the harvested area include forage, wheat for grain, and vegetables. Specific locations for the farms for these harvested crops are not provided in the Census reports.

Table 10-2. Land Use for Commercially Significant Crops

Vegetation	Area (Acres)
Corn	121,675
Wheat	16,331
Forage	7,145
Soybeans	137,628
Vegetables	2,331
Total Cropland	285,110
Total Land Area of Study	474,240

10.2 Pollutant Impacts on Soils, Vegetation, and Visibility

As explained in Section 9 and Appendix C of this permit application, ambient CO impacts from the Project and the proposed revisions to the CO limitations are below the primary CO NAAQS. CO, at ambient concentrations, is not known to cause any soils or vegetation impacts.[53] Elevated

[50] Forest Inventory and Analysis. Design and Analysis Toolkit for Inventory and Monitoring web application, Version November 30, 2018 10.0 c9ded9d. St. Paul, MN: U.S. Department of Agriculture, Forest Service, Northern Research Station. Available only on internet: https://www.fs.usda.gov/emc/rig/DATIM/index.shtml (last accessed August 17, 2022).
[51] Forests of Illinois 2017, https://www.fs.usda.gov/treesearch/pubs/55799 (last accessed on August 17, 2022).
[52] 2017 Census of Agriculture, Illinois State and County Data, https://www.nass.usda.gov/Publications/AgCensus/2017/Online_Resources/County_Profiles/Illinois/cp17119.pdf (last accessed on August 17, 2022).
[53] Secondary NAAQS provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings [https://www.epa.gov/criteria-air-pollutants/naaqs-table (last accessed on August 17, 2022)]. The U.S. EPA revoked the secondary NAAQS for CO in 1985 noting that "[c]arbon monoxide is a normal constituent of the plant environment. Plants can both metabolize and produce CO. This may explain the fact that relatively high levels of CO are necessary before damage occurs to vegetation. The lowest level for which significant effects on vegetation have been reported is 100 ppm for 3 to 35 days. The effect observed in this study was an inhibition of nitrogen fixation in legumes. Since CO concentrations of this magnitude are rarely if

CO may produce some impacts such as epinasty, chlorosis, and abscission. However, plant injury occurs at concentration over 100 ppm which is well over the CO primary NAAQS.[54] As noted in Section 9 and Appendix C, CO impacts from the facility are well below the CO primary NAAQS. Therefore, no adverse soil and vegetation impacts are expected as a result of the requested permit revisions relating to CO emissions.

In addition, CO emissions do not contribute to formation of the particulate that causes visibility impairment.[55]

10.3 Associated Growth

As stated in the 1995 Application, "The infrastructure surrounding the mill is already established due to the existing industrial nature of the area. Therefore, it is not anticipated that there will be secondary air quality impacts due to the increase in production." As part of its decision to issue Construction Permit No. 95010001 in 1996, Illinois EPA accepted this statement as part of its determination that National Steel Corporation had satisfied all requirements for impact analyses under the PSD program.

Because no physical changes are proposed, there will be no further industrial, commercial, or residential growth in the area in conjunction with the requested revisions to Construction Permit No. 95010001.

---

ever observed in the ambient air, it is very unlikely that any damage to vegetation will occur from CO air pollution. No other effects on welfare have been associated with CO exposures at or near ambient levels. Because no standards appear to be requisite to protect the public welfare from any known or anticipated adverse effects from ambient CO exposures, EPA is rescinding the existing secondary standards." 50 Fed. Reg. 37484, September 13, 1985.

[54] "The Effects of Air Pollutants on Vegetation and the Role of Vegetation in Reducing Atmospheric Pollution," Iuliana Florentina Gheorghe and Barbu Ion, September 26, 2011, https://www.intechopen.com/books/the-impact-of-air-pollution-on-health-economy-environment-and-agricultural-sources/the-effects-of-air-pollutants-on-vegetation-and-the-role-of-vegetation-in-reducing-atmospheric-pollu (last accessed on Sept. 23, 2022).

[55] https://www.epa.gov/visibility/basic-information-about-visibility (last accessed on Sept. 23, 2022).

11. Regulatory Applicability Review

USS Granite City reviewed the federal and Illinois air quality regulations to determine their applicability to the proposed revisions to Construction Permit No. 95010001. Federal regulations delegated to the Illinois EPA include New Source Performance Standards ("NSPS"), and National Emission Standards for Hazardous Air Pollutants ("NESHAP"). Illinois air quality regulations are found at Title 35 of the Illinois Administrative Code ("IAC") Subtitle B. Chapters I and II of 35 IAC Subtitle B contain rules administered by the Illinois EPA.

Requirements associated with federal and State air quality regulations found to be applicable to the requested revisions of Construction Permit No. 95010001 are presented in this section.

11.1 Federal Air Quality Regulations

Federal regulations delegated to the Illinois EPA were reviewed to determine their applicability to the requested revisions. USS Granite City's conclusions regarding applicability of these rules and the supporting rationale are presented below.

11.1.1 New Source Performance Standards (NSPS, 40 CFR Part 60)

The federal NSPS regulations are codified at 40 CFR Part 60. Illinois has been delegated the authority to administer the federal NSPS.

NSPS apply to new or modified "affected facilities" as defined in specific subparts of 40 CFR Part 60. None of the emissions units covered by Construction Permit No. 95010001 are affected facilities under any NSPS. The proposed changes to the permit do not trigger applicability of NSPS requirements.

11.1.2 National Emission Standards for Hazardous Air Pollutants (NESHAP, 40 CFR Parts 61 and 63)

The federal NESHAP regulations are codified at 40 CFR Part 61 and 40 CFR Part 63 (NESHAP for source categories also known as MACT standards). Illinois EPA has been delegated authority to administer the federal NESHAP programs.

The Part 61 NESHAPs apply to certain pollutants and/or area source types. None of the emissions units covered by Construction Permit No. 95010001 are affected facilities under any Part 61 NESHAPs. The proposed changes to the permit do not trigger applicability of Part 61 NESHAPs requirements.

The Part 63 NESHAPs apply to existing, new, or reconstructed affected sources at major sources of HAP emissions in accordance with applicability criteria specified in individual subparts. The following NESHAPs now apply to the extant units that were affected under the Project.

a) Boilers 11 and 12 at USS Granite City are parts of an existing affected source subject to 40 CFR Part 63 Subpart DDDDD.[56]
b) Blast furnaces A and B are each an existing affected source subject to 40 CFR Part 63 Subpart FFFFF.
c) The BOF shop is an existing affected source subject to 40 CFR Part 63 Subpart FFFFF. (The terminology used in Subpart FFFFF is "basic oxygen process furnace shop" or "BOPF shop.")

There will be no changes to the applicability of the Part 63 NESHAPs to the boilers or the blast furnaces in conjunction with the requested permit action. However, with this application, USS Granite City requests that Illinois EPA change the organization of Construction Permit No. 95010001 to be consistent with the affected source definition under Subpart FFFFF. Specifically, the emissions unit historically identified as "Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy)" and grouped with the Continuous Casting Operations in the permit is part of the "BOPF shop ancillary operations" as that term is used in Subpart FFFFF; emissions from these BOPF shop ancillary operations are subject to the emission standards and compliance demonstration requirements for BOPF shops in Subpart FFFFF. Accordingly, for clarity and consistency with these federal rule provisions, USS Granite City requests that this operation be renamed as the "Baghouse 2 for Argon Stirring and Ladle Metallurgy Facility" and grouped with the BOF Shop operations. In addition, several material handling operations historically grouped with the Blast Furnace Operations and the BOF Shop in Construction Permit No. 95010001 are not parts of those affected sources under Subpart FFFFF. For similar reasons regarding clarity and consistency with federal rule provisions, USS Granite City is requesting that those emissions units be covered under a separate group for Material Handling Operations, as detailed in Sections 5.5.1, 5.5.2, and 5.5.4 of this permit application.

11.2 Illinois Air Quality Regulations

USS Granite City performed a review of 35 IAC Subtitle B regulations to determine the applicability of specific standards to the proposed revisions to Construction Permit No. 95010001. A summary of this review and associated regulatory applicability conclusions are documented below. Only those rules deemed potentially relevant to the proposed revisions request are addressed.

11.2.1 35 IAC Part 201.142 Construction Permit Required

The proposed revisions to Construction Permit No. 95010001 involve changes to an existing construction permit for the modifications of existing emissions sources. Therefore, a revised permit in accordance with 35 IAC 201.142 is required. This permit application, including the permit application forms contained in Appendix A, is intended to fulfill the requirements of 35 IAC 201.142.

[56] Boilers 11 and 12 are in the "units designed to burn gas 1 fuels" subcategory under Subpart DDDDD because the only regulated fuel burned in these boilers is natural gas, which falls within the definition of this term in 40 CFR § 63.7575. Blast furnace gas is expressly excluded from the definition of the term "gaseous fuel" and does not fall within any other fuel categories. These boilers previously burned COG and fuel oil but no longer do, so those fuels do not affect applicability of Subpart DDDDD to the boilers.

11.2.2 Prevention of Significant Deterioration (35 IAC Part 204) and Major Stationary Sources Construction and Modification [in Nonattainment Areas] (35 IAC Part 203)

The Illinois PSD regulations are codified at 35 IAC Part 204 and are applicable in attainment and unclassifiable areas within the State. The PSD regulations apply to new major stationary sources and to major modifications at an existing major stationary source. Emissions increases of PM, NOx, SO_2, and CO were evaluated under this program.

In nonattainment areas, Illinois EPA implements the requirements under 35 IAC Part 203 (NNSR program), with respect to major stationary sources and major modifications at major stationary sources for criteria pollutants for which the area is designated nonattainment. The area where Granite City Works is located was nonattainment for ozone and PM_{10} at the time of the 1996 Project. Therefore, emissions of NOx, VOM, and PM_{10} were evaluated under the requirements of this program.

As explained in Section 2.2 of this permit application, the revisions currently being requested to Construction Permit No. 95010001 addressed two sets of changes:

(a) Changes to the emission limits for PM, PM_{10}, NO_X, and VOM, regulated NSR pollutants for which the 1996 Project was not subject to PSD or NNSR permitting requirements. (No changes are proposed to lead emissions.)
(b) Changes to the emissions rates for CO for some of the emissions units that were subject to PSD review. (The 1996 Project also was subject to PSD review for SO_2 emissions, but USS Granite City is not requesting changes to any emissions rates or permit terms relating to SO_2.)

As demonstrated in sections 5, 6, and 7, the net emissions increases for PM, PM_{10}, NO_X, and VOM remain below the applicable significant emissions rates for these pollutants after the proposed revisions to the emissions limitations. Therefore, USS Granite City is not proposing any change to the applicability of PSD or NNSR requirements in regard to PM, PM_{10}, NOx, and VOM.

For CO, the 1996 Project was subject to the PSD requirements. Therefore, the proposed changes to the emissions limitations for CO have been evaluated per the PSD requirements. Sections 8, 9 and 10 herein address the PSD review requirements for CO.

11.2.3 35 IAC Part 270 CAAPP Permits

The CAAPP requirements are contained in Section 39.5 of the Illinois Environmental Protection Act and in 35 IAC Part 270. The Granite City Works is a major source subject to CAAPP requirements. As noted in Section 1 herein, this application package addresses the ‘integrated processing’ procedures for the proposed revisions to Construction Permit No. 95010001 for incorporation in the CAAPP permit via an administrative amendment.

11.2.4 Other State Regulations

There will be no change to the applicability of the limitations and requirements of other emissions standards under the Illinois Administrative Code that have already been addressed in the CAAPP permit for the USS Granite City facility.

Appendix A – Application Forms (Copies of Previously Submitted Versions)

Illinois Environmental Protection Agency

Bureau of Air • 1021 North Grand Avenue East • P.O. Box 19506 • Springfield • Illinois • 62794-9506

FEE DETERMINATION FOR CONSTRUCTION PERMIT APPLICATION

FOR AGENCY USE ONLY

ID Number: _____ Permit #: _____

☐ Complete ☐ Incomplete Date Complete: _____

Check Number: _____ Account Name: _____

This form is to be used to supply fee information that must accompany all construction permit applications. This application must include payment in full to be deemed complete. Make check or money order payable to the Illinois Environmental Protection Agency, Division of Air Pollution Control - Permit Section at the above address. Do NOT send cash. Refer to instructions (197-INST) for assistance.

Source Information

1. Source Name: United States Steel Corporation - Granite City Works
2. Project Name: 1996 Construction Permit Revision
3. Source ID #: (if applicable) 1191813AAI
4. Contact Name: Krista Armentrout
5. Contact Phone #: (618) 451-3013

Fee Determination

6. The boxes below are automatically calculated.

Section 1 Subtotal		Section 2, 3 or 4 Subtotal		
$0.00	+	$23,000.00	=	$23,000.00
				Grand Total

Section 1: Status of Source/Purpose of Submittal

7. Your application will fall under only one of the following five categories described below. Check the box that applies. Proceed to applicable sections. For purposes of this form:

- **Major Source** is a source that is required to obtain a CAAPP permit.
- **Synthetic Minor Source** is a source that has taken limits on potential to emit in a permit to avoid CAAPP permit requirements (e.g.,FESOP).
- **Non-Major Source** is a source that is not a major or synthetic minor source.

☑ Existing source without status change or with status change from synthetic minor to major source or vice versa. Proceed to Section 2.

☐ Existing non-major source that will become synthetic minor to major source. Proceed to Section 4.

☐ New major or synthetic minor source. Proceed to Section 4.

☐ New non-major source. Proceed to Section 3.

☐ AGENCY ERROR. If this is a timely request to correct an issued permit that involves only an agency error and if the request is received within the deadline for a permit appeal to the Pollution Control Board. Skip Sections 2, 3 and 4. Proceed directly to Section 5.

$0.00
Section 1 Subtotal

This agency is authorized to require and you must disclose this information under 415 ILCS 5/39. Failure to do so could result in the application being denied and penalties under 415 ILCS 5 ET SEQ. It is not necessary to use this form in providing this information. This form has been approved by the forms management center.

Section 2: Special Case Filing Fee

8. **Filing Fee**. If the application only addresses one or more of the following, check the appropriate boxes, skip Sections 3 and 4 and proceed directly to Section 5. Otherwise, proceed to Section 3 or 4 as appropriate.

Addition or replacement of control devices on permitted units.

Pilot projects/trial burns by a permitted unit

Land remediation projects

Revisions related to methodology or timing for emission testing

Minor administrative-type change to a permit

Section 3: Fees for Current or Projected Non-Major Sources

9.	This application consists of a single new emission unit or no more than two modified emission units. ($500 fee)	9.
10.	This application consists of more than one new emission unit or more than two modified units. ($1,000 fee)	10.
11.	This application consists of a new source or emission unit subject to Section 39.2 of the Act (i.e., Local Siting Review); a commercial incinerator or a municipal waste, hazardous waste, or waste tire incinerator; a commercial power generator; or an emission unit designated as a complex source by agency rulemaking. ($15,000 fee)	11.
12.	A public hearing is held (see instructions). ($10,000 fee)	12.
13.	Section 3 subtotal. (lines 9 through 12 - entered on page 1)	13. $0.00

Section 4: Fees for Current or Projected Major or Synthetic Minor Sources

Application contains modified emission units only	14. For the first modified emission unit, enter $2,000.	14. $2,000.00
	15. Number of additional modified emission units = 25 x $1,000.	15. $25,000.00
	16. Line 14 plus line 15, or $5,000, whichever is less.	16. $5,000.00
Application contains new and/or modified emission units	17. For the first new emission unit, enter $4,000.	
	18. Number of additional new and/or modified emission units = x $1,000.	18. $0.00
	19. Line 17 plus line 18, or $10,000, whichever is less.	19. $0.00
Application contains netting exercise	20. Number of individual pollutants that rely on a netting exercise or contemporaneous emissions decrease to avoid application of PSD or nonattainment area NSR = 4 x $3,000.	20. $12,000.00
Additional Supplemental Fees	21. If the new source or emission unit is subject to Section 39.2 of the Act (i.e. siting); a commercial incinerator or other municipal waste, hazardous waste, or waste tire incinerator; a commercial power generator; or one or more other emission units designated as a complex source by Agency rulemaking, enter $25,000.	21.
	22. If the source is a new major source subject to PSD, enter $12,000.	22.
	23. If the project is a major modification subject to PSD, enter $6,000.	23. $6,000.00
	24. If this is a new major source subject to nonattainment area (NAA) NSR, enter $20,000.	24.
	25. If this is a major modification subject to NAA NSR, enter $12,000.	25.
	26. If the application involves a determination of MACT for a pollutant and the project is not subject to BACT or LAER for the related pollutant under PSD or NSR (e.g., VOM for organic HAP), enter $5,000 per unit for which a determination is requested or otherwise required. ____ x $5,000.	26. $0.00
	27. If a public hearing is held (see instructions), enter $10,000.	27.
28. Section 4 subtotal (line 16 and lines 19 through 28) to be entered on page1		28. $23,000.00

Section 5: Certification

NOTE: Applications without a signed certification will be deemed incomplete.

29. I certify under penalty of law that, based on information and belief formed after reasonable inquiry, the information contained in this fee application form is true, accurate and complete.

by: _____ (Signature)

Michael Patton (Typed or Printed Name of Signatory)

General Manager - Granite City Works (Title of Signatory)

2/25/2020 (Date)

Illinois Environmental Protection Agency
Division Of Air Pollution Control -- Permit Section
P.O. Box 19506
Springfield, Illinois 62794-9506

Construction Permit Application for a Proposed Project at a CAAPP Source	For Illinois EPA use only
	ID No.:
	Appl. No.:
	Date Rec'd:
	Chk No./Amt:

This form is to be used to supply general information to obtain a construction permit for a proposed project involving a Clean Air Act Permit Program (CAAPP) source, including construction of a new CAAPP source. Detailed information about the project must also be included in a construction permit application, as addressed in the "General Instructions For Permit Applications," Form APC-201.

Proposed Project

1. Working Name of Proposed Project:
1996 Construction Permit Revision

2. Is the project occurring at a source that already has a permit from the Bureau of Air (BOA)?
☐ No ☒ Yes If Yes, provide BOA ID Number: 119813AAI

3. Does this application request a revision to an existing construction permit issued by the BOA?
☐ No ☒ Yes If Yes, provide Permit Number: 95010001

4. Brief Description of Proposed Project:
This application proposes revisions to certain emission limits and other requirements in the 1996 Construction Permit for the U.S. Steel Granite City facility.

Source Information

1. Source name:* United States Steel Corporation - Granite City Works

2. Source street address:* 1951 State Street

3. City: Granite City	4. County: Madison	5. Zip code:* 62040

ONLY COMPLETE THE FOLLOWING FOR A SOURCE WITHOUT AN ID NUMBER

6. Is the source located within city limits? ☐ Yes ☐ No
If no, provide Township Name:

7. Description of source and product(s) produced:	8. Primary Classification Code of source: SIC: ____ or NAICS: ____
9. Latitude (DD:MM:SS.SSSS):	10. Longitude (DD:MM:SS.SSSS):

* Is information different than previous information? ☐ Yes ☐ No
If yes, then complete Form CAAPP 273 to apply for an Administrative Change to the CAAPP Permit for the source.

Identification of Permit Applicant

1. Who is the applicant? ☒ Owner ☐ Operator	2. All correspondence to: (check one) ☒ Source ☐ Owner ☐ Operator
3. Applicant's FEIN: 25-1897152	4. Attention name and/or title for written correspondence: Krista Armentrout - Environmental Manager

This Agency is authorized to require and you must disclose this information under 415 ILCS 5/39. Failure to do so could result in the application being denied and penalties under 415 ILCS 5 et seq. It is not necessary to use this form in providing this information. This form has been approved by the forms management center.

Owner Information*		
1. Name: United States Steel Corporation		
2. Address: 600 Grant Street		
3. City: Pittsburgh	4. State: PA	5. Zip code: 15219

* Is this information idifferent than previous information? ☐ Yes ☐ No
If yes, then complete Form CAAPP 273 to apply for an Administrative Change to the CAAPP Permit for the source.

Operator Information (if different from owner)*		
1. Name		
2. Address:		
3. City:	4. State:	5. Zip code:

* Is this information different than previous information? ☐ Yes ☒ No
If yes, then complete Form CAAPP 273 to apply for an Administrative Change to the CAAPP Permit for the source.

Technical Contacts for Application	
1. Preferred technical contact: (check one) ☒ Applicant's contact ☐ Consultant	
2. Applicant's technical contact person for application: Christopher Hardin	
3. Contact person's telephone number(s) (412) 433-5904	4. Contact person's e-mail address: cwhardin@uss.com
5. Consultant for application: RTP Environmental Associates Inc. (Colin Campbell)	
6. Consultant's telephone number(s): (919) 845-1422, 20	7. Consultant's e-mail address: campbell@rtpenv.com

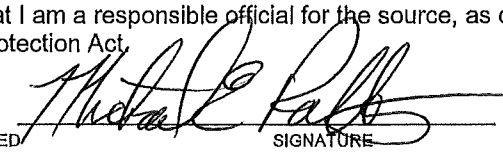
Other Addresses for the Permit Applicant	
ONLY COMPLETE THE FOLLOWING FOR A SOURCE WITHOUT AN ID NUMBER.	
1. Address for billing Site Fees for the source: ☐ Source ☐ Other (provide below):	
2. Contact person for Site Fees:	3. Contact person's telephone number:
4. Address for Annual Emission Report for the source: ☐ Source ☐ Other (provide below):	
5. Contact person for Annual Emission Report:	6. Contact person's telephone number:

Review Of Contents of the Application	
NOTE: ANSWERING "NO" TO THESE ITEMS MAY RESULT IN THE APPLICATION BEING DEEMED INCOMPLETE	
1. Does the application include a narrative description of the proposed project?	☒ Yes ☐ No
2. Does the application clearly identify the emission units and air pollution control equipment that are part of the project?	☒ Yes ☐ No
3. Does the application include process flow diagram(s) for the project showing new and modified emission units and control equipment, along with associated existing equipment and their relationships?	☒ Yes ☐ No
4. Does the application include a general description of the source, a plot plan for the source and a site map for its location?	☐ Yes ☐ No ☒ N/A* * Material previously provided
5. Does the application include relevant technical information for the proposed project as requested on CAAPP application forms (or otherwise contain all relevant technical information)?	☒ Yes ☐ No
6. Does the application include relevant supporting data and information for the proposed project as provided on CAAPP forms?	☒ Yes ☐ No
7. Does the application identify and address all applicable emission standards for the proposed project, including: State emission standards (35 IAC Chapter I, Subtitle B); Federal New Source Performance Standards (40 CFR Part 60)?	☒ Yes ☐ No
8. Does the application address whether the project would be a major project for Prevention of Significant Deterioration, 40 CFR 52.21?	☒ Yes ☐ No ☐ N/A
9. Does the application address whether the project would be a major project for "Nonattainment New Source Review," 35 IAC Part 203?	☒ Yes ☐ No ☐ N/A
10. Does the application address whether the proposed project would potentially be subject to federal regulations for Hazardous Air Pollutants (40 CFR Part 63) and address any emissions standards for hazardous air pollutants that would be applicable?	☒ Yes ☐ No ☐ N/A* * Source not major ☐ Project not major ☐
11. Does the application include a summary of annual emission data for different pollutants for the proposed project (tons/year), including: 1) The requested permitted emissions for individual new, modified and affected existing units*, 2) The past actual emissions and change in emissions for individual modified units* and affected existing units*, and 3) Total emissions consequences of the proposed project? (* Or groups of related units)	☒ Yes ☐ No ☐ N/A * The project does not involve an increase in emissions from new or modified emission units.
12. Does the application include a summary of the current and requested potential emissions of the source (tons/year)?	☒ Yes ☐ No ☐ N/A* * Applicability of PSD, NA NSR or 40 CFR 63 to the project is not related to the source's emissions.
13. Does the application address the relationships and implications of the proposed project on the CAAPP Permit for the source?	☒ Yes ☐ No ☐ N/A* * CAAPP Permit not issued
14. If the application contains information that is considered a TRADE SECRET, has it been properly marked and claimed and all requirements to properly support the claim pursuant to 35 IAC Part 130 been met? Note: "Claimed" information will not be legally protected from disclosure to the public if it is not properly claimed or does not qualify as trade secret information.	☐ Yes ☐ No ☒ N/A* * No information in the application is claimed to be a TRADE SECRET
15. Are the correct number of copies of the application provided? (See Instructions for Permit Applications, Form 201)	☒ Yes ☐ No
16. Does the application include a completed "FEE DETERMINATION FOR CONSTRUCTION PERMIT APPLICATION," Form 197-FEE, a check in the amount indicated on this form, and any supporting material needed to explain how the fee was determined?	☒ Yes ☐ No

Signature Block

Authorized Signature:

I certify under penalty of law that, based on information and belief formed after reasonable inquiry, the statements and information contained in this application are true, accurate and complete and that I am a responsible official for the source, as defined by Section 39.5(1) of the Environmental Protection Act.

BY: 

AUTHORIZED SIGNATURE

General Manager - Granite City Works
TITLE OF SIGNATORY

Michael Patton
TYPED OR PRINTED NAME OF SIGNATORY

02 25 2020
DATE

Appendix B – Emissions Calculations

Updated Emissions Calculations for the Construction Permit Revision Application

USS Granite City - 1996 Production Increase Project
Revised PM PSD Net Emissions Increase Analysis

Emission Point	Pre-Project Throughput	Units	Pre-Project Emission Factor	Units	Baseline Emissions (TPY)	Future Emissions (TPY)	Emissions Change (TPY)	Change from 1996 analysis?
Blast Furnace Operations								
A & B Blast Furnace Casthouse Fugitives	2,059,557	tons of hot metal/year tons of charge	0.03	lb/ton of hot metal	30.9			Minor correction to calculation (95.0% capture efficiency)
A & B Blast Furnace Charging	2,803,241	material/year	0.0024	lb/ton of material	3.4			No change
A & B Blast Furnace Casthouse Baghouse	2,059,557	tons of hot metal/year	0.07026	lb/ton of hot metal	72.4			No change
Blast Furnace Slag Pits	2,059,557	tons of hot metal/year	0.00417	lb/ton of hot metal	4.3			No change
Iron Spout Baghouse	2,059,557	tons of hot metal/year	0.02548	lb/ton of hot metal	26.2			No change
Subtotal					137.1	215.0	77.9	
BOF Shop								
BOF 2 Vessels Primary Emissions	2,413,406	tons of molten steel/year	0.16	lb/ton of steel	193.1			No change
BOF 2 Vessels Secondary Emissions	2,413,406	tons of molten steel/year	0.428	lb/ton of steel	516.7			No change
BOF Hot Metal Transfer and Desulfurization Baghouse	2,059,557	tons of hot metal/year	0.03721	lb/ton of hot metal	38.3			No change
BOF Slag Skimming Baghouse	2,059,557	tons of hot metal/year	0.00502	lb/ton of hot metal	5.2			No change
Baghouse 2 for Argon Stirring Ladle Metallurgy	2,413,406	tons of molten steel/year	0.00715	lb/ton of steel	8.6			No change other than regrouping
Subtotal					761.9	525.0	-236.9	
Continuous Casting Operations								
Caster Mold - Casters #1 & #2	2,413,406	tons of molten steel/year	0.006	lb/ton of steel	7.2			No change
Continuous Casters #1 & #2 - Spray Chamber	2,413,406	tons of molten steel/year	0.00852	lb/ton of steel	10.3			No change
Slab Cutoff Casters #1 & #2	2,413,406	tons of molten steel/year	0.0071	lb/ton of steel	8.6			No change
Slab Ripping Casters #1 & #2	2,413,406	tons of molten steel/year	0.00722	lb/ton of steel	8.7			No change
Subtotal					34.8	52.0	17.2	
Certain Fuel Burning Emissions Units								
BFG in stoves	44,977	MMcf/year	2.90	lb/MMcf	65.2			No change
COG in stoves	374	MMcf/year	16.56	lb/MMcf	3.1			Added; omitted from 1996 analysis
BFG in boilers	49,930	MMcf/year	2.90	lb/MMcf	72.4			No change
COG in boilers	2,211	MMcf/year	43.13	lb/MMcf	47.7			Added; omitted from 1996 analysis
Fuel oil in boilers	16	Mgal/year	9.72	lb/Mgal	0.1			No change
Natural gas in boilers	805	MMcf/year	1.9	lb/MMcf	0.8			Revised to use current AP-42 emission factor
BFG in BFG flare	26,132	MMcf/year	2.9	lb/MMcf	37.9			No change
Natural gas in ladle preheaters	340	MMcf/year	1.9	lb/MMcf	0.3			Revised to use current AP-42 emission factor
Subtotal					227.4	273.0	45.6	
Material Handling Operations at BF and BOF								
Material handling for Coke, Pellets, Limestone	Table F-3 of the 1995 Permit Application	tons of charge			17.2			This activity was previously listed only in the contemporaneous changes.
Iron Pellet Screen	2,803,241	material/year	0.00375	lb/ton of material	5.3			USS representation of 85% control to crushed stone EF
BOF Hopper Baghouse	2,413,406	tons of molten steel/year	0.00032	lb/ton of steel	0.4			No change other than regrouping
BOF Bin Floor Baghouse	2,413,406	tons of molten steel/year	0.0016	lb/ton of steel	1.9			No change other than regrouping
Baghouse 1 for Material Handling	2,413,406	tons of molten steel/year	0.00355	lb/ton of steel	4.3			No change other than regrouping
Subtotal					29.0	30.0	1.0	

USS Granite City - 1996 Production Increase Project
Revised PM PSD Net Emissions Increase Analysis

Contemporaneous Changes		
Remove Blast Furnace Slag Spout Hood	0.0	Removed from analysis because not contemporaneous
#2 Caster Production	0.0	Removed from analysis because not contemporaneous
Installation of #8 Galvanizing Line	0.0	Removed from analysis because not contemporaneous
Ingot Teeming Shutdown	-22.4	No change
Blooming Mill Shutdown	-3.4	No change
Batch Annealing Shutdown	-0.2	No change
Haul Roads emissions controls	-17.1	Revised to reflect only the haul road emissions changes
Subtotal	-43.1	
Total	-138.4	

USS Granite City - 1996 Production Increase Project
Revised PM10 PSD Net Emissions Increase Analysis

Emission Point	Pre-Project Throughput	Units	Pre-Project Emission Factor	Units	Baseline Emissions (TPY)	Future Emissions (TPY)	Emissions Change (TPY)	Change from 1996 analysis?
Blast Furnace Operations								
A & B Blast Furnace Casthouse Fugitives	2,059,557	tons of hot metal/year	0.0153	lb/ton of hot metal	15.8			Minor correction to calculation (95.0% capture efficiency)
A & B Blast Furnace Charging	2,803,241	tons of charge material/year	0.0012	lb/ton of material	1.7			USS representation includes basis for EF
A & B Blast Furnace Casthouse Baghouse	2,059,557	tons of hot metal/year	0.07026	lb/ton of hot metal	72.4			No change
Blast Furnace Slag Pits	2,059,557	tons of hot metal/year	0.00417	lb/ton of hot metal	4.3			No change
Iron Spout Baghouse	2,059,557	tons of hot metal/year	0.02548	lb/ton of hot metal	26.2			No change
Subtotal					120.3	190.0	69.7	
BOF Shop								
BOF 2 Vessels Primary Emissions	2,413,406	tons of molten steel/year	0.16	lb/ton of steel	193.1			No change
BOF 2 Vessels Secondary Emissions	2,413,406	tons of molten steel/year	0.287	lb/ton of steel	346.2			No change
BOF Hot Metal Transfer and Desulfurization Baghouse	2,059,557	tons of hot metal/year	0.03721	lb/ton of hot metal	38.3			No change
BOF Slag Skimming Baghouse	2,059,557	tons of hot metal/year	0.00502	lb/ton of hot metal	5.2			No change
Baghouse 2 for Argon Stirring Ladle Metallurgy	2,413,406	tons of molten steel/year	0.00715	lb/ton of steel	8.6			No change other than regrouping
Subtotal					591.4	462.0	-129.4	
Continuous Casting Operations								
Caster Mold - Casters #1 & #2	2,413,406	tons of molten steel/year	0.006	lb/ton of steel	7.2			No change
Continuous Casters #1 & #2 - Spray Chamber	2,413,406	tons of molten steel/year	0.00852	lb/ton of steel	10.3			No change
Slab Cutoff Casters #1 & #2	2,413,406	tons of molten steel/year	0.0071	lb/ton of steel	8.6			No change
Slab Ripping Casters #1 & #2	2,413,406	tons of molten steel/year	0.00722	lb/ton of steel	8.7			No change
Subtotal					34.8	52.0	17.2	
Certain Fuel Burning Emissions Units								
BFG in stoves	44,977	MMcf/year	2.90	lb/MMcf	65.2			No change
COG in stoves	374	MMcf/year	14.21	lb/MMcf	2.7			Added; omitted from 1996 analysis
BFG in boilers	49,930	MMcf/year	2.90	lb/MMcf	72.4			No change
COG in boilers	2,211	MMcf/year	41.48		45.8			Added; omitted from 1996 analysis
Fuel oil in boilers	16	Mgal/year	9.72	lb/Mgal	0.1			No change
Natural gas in boilers	805	MMcf/year	1.9	lb/MMcf	0.8			Revised to use current AP-42 emission factor
BFG in BFG flare	26,132	MMcf/year	2.9	lb/MMcf	37.9			No change
Natural gas in ladle preheaters	340		1.9		0.3			Revised to use current AP-42 emission factor
Subtotal					225.2	273.0	47.8	
Material Handling Operations at BF and BOF								
Material handling for Coke, Pellets, Limestone	Table F-3 of the 1995 Permit Application	tons of charge			17.2			This activity was previously listed only in the contemporaneous changes.
Iron Pellet Screen	2,803,241	material/year	0.00131	lb/ton of material	1.8			USS representation of 85% control to crushed stone EF
BOF Hopper Baghouse	2,413,406	tons of molten steel/year	0.00032	lb/ton of steel	0.4			No change other than regrouping
BOF Bin Floor Baghouse	2,413,406	tons of molten steel/year	0.0016	lb/ton of steel	1.9			No change other than regrouping
Baghouse 1 for Material Handling	2,413,406	tons of molten steel/year	0.00355	lb/ton of steel	4.3			No change other than regrouping
Subtotal					25.6	19.0	-6.6	

USS Granite City - 1996 Production Increase Project
Revised PM10 PSD Net Emissions Increase Analysis

Contemporaneous Changes		
Remove Blast Furnace Slag Spout Hood	4.9	No change
#2 Caster Production	11.7	No change
Installation of #8 Galvanizing Line	0.0	Removed from analysis because not contemporaneous
Ingot Teeming Shutdown	-22.4	No change
Blooming Mill Shutdown	-3.4	No change
Batch Annealing Shutdown	-0.2	No change
Haul Roads emissions controls	-17.1	Revised to reflect only the road emissions changes
Subtotal	-26.5	
Total	-27.8	

USS Granite City - 1996 Production Increase Project
Revised NOx PSD Net Emissions Increase Analysis

Emission Point	Pre-Project Throughput	Units	Pre-Project Emission Factor	Units	Baseline Emissions (TPY)	Future Emissions (TPY)	Emissions Change (TPY)	Change from 1996 analysis?
Blast Furnace Operations								
A & B Blast Furnace Casthouse Fugitives	2,059,557	tons of hot metal/year	0.00014	lb/ton of hot metal	0.1			3/2012 test assuming no NOx control and 5% fugitive
A & B Blast Furnace Casthouse Baghouse	2,059,557	tons of hot metal/year	0.0027	lb/ton of hot metal	2.8			3/2012 test
Iron Spout Baghouse	2,059,557	tons of hot metal/year	0.0016	lb/ton of hot metal	1.6			3/2012 test
Subtotal					4.6	24.0	19.4	
BOF Shop								
BOF 2 Vessels Primary Emissions	2,413,406	tons of molten steel/year	0.14	lb/ton of steel	170.8			Average of 4/2012, 7/2012, 11/2014 test results
BOF 2 Vessels Secondary Emissions	2,413,406	tons of molten steel/year	0.0075	lb/ton of steel	9.1			Average from 2019-20 test result
Subtotal					179.8	400.0	220.2	
Certain Fuel Burning Emissions Units								
BFG in stoves	44,977	MMcf/year	5.28	lb/MMcf	118.74			No change
COG in stoves	374	MMcf/year	80	lb/MMcf	14.95			Added; omitted from 1996 analysis
BFG in boilers	49,930	MMcf/year	5.28	lb/MMcf	131.82			No change
COG in boilers	2,211	MMcf/year	404	lb/MMcf	446.23			Added; omitted from 1996 analysis
Fuel oil in boilers	16	Mgal/year	55	lb/Mgal	0.44			No change
Natural gas in boilers	805	MMcf/year	306	lb/MMcf	123.17			No change
BFG in BFG flare	26,132	MMcf/year	5.28	lb/MMcf	68.99			No change
Natural gas in ladle preheaters	340		306		52.02			Revised to use current AP-42 emission factor
Subtotal					956.3	706.0	-250.3	
Contemporaneous Changes								
Installation of #8 Galvanizing Line							0.0	Removed from analysis because not contemporaneous
Batch Annealing Shutdown							-8.7	Removed from analysis because not contemporaneous
Blooming Mill Shutdown							-217.8	No change
Subtotal							-226.5	
Total							-237.3	

USS Granite City - 1996 Production Increase Project
Revised VOM PSD Net Emissions Increase Analysis

Emission Point	Pre-Project Throughput	Units	Pre-Project Emission Factor	Units	Baseline Emissions (TPY)	Future Emissions (TPY)	Emissions Change (TPY)	Change from 1996 analysis?
Blast Furnace Operations								
A & B Blast Furnace Casthouse Fugitives	2,059,557	tons of hot metal/year	0.00073	lb/ton of hot metal	0.8			3/2012 test assuming no VOM control and 5% fugitive
A & B Blast Furnace Casthouse Baghouse	2,059,557	tons of hot metal/year	0.014	lb/ton of hot metal	14.3			3/2012 test
Iron Spout Baghouse	2,059,557	tons of hot metal/year	0.0037	lb/ton of hot metal	3.8			3/2012 test
Subtotal					18.8	45.0	26.2	
BOF Shop								
BOF 2 Vessels Primary Emissions	2,413,406	tons of molten steel/year	0.019	lb/ton of steel	22.4			Average of 4/2012, 7/2012, 11/2014 test results
BOF 2 Vessels Secondary Emissions	2,413,406	tons of molten steel/year	0.0035	lb/ton of steel	4.2			Average from 2019-20 test result
BOF Hot Metal Transfer and Desulfurization Baghouse	2,059,557	tons of hot metal/year	0.00019	lb/ton of hot metal	0.2			5/2012 test
BOF Slag Skimming Baghouse	2,059,557	tons of hot metal/year	0.00015	lb/ton of hot metal	0.2			5/2012 test
Subtotal					27.0	45.0	18.0	
Certain Fuel Burning Emissions Units								
BFG in stoves	44,977	MMcf/year	0.24	lb/MMcf	5.40			Updated from Cogen Permit
COG in stoves	374	MMcf/year	0.18	lb/MMcf	0.03			Added; omitted from 1996 analysis
BFG in boilers	49,930	MMcf/year	0.24	lb/MMcf	5.99			Updated from Cogen Permit
COG in boilers	2,211	MMcf/year	1.22	lb/MMcf	1.34			Added; omitted from 1996 analysis
Fuel oil in boilers	16	Mgal/year	0.28	lb/Mgal	0.00			No change
Natural gas in boilers	805	MMcf/year	5.5	lb/MMcf	2.21			1998 update to AP-42 Section 1.4
BFG in BFG flare	26,132	MMcf/year	0.24	lb/MMcf	3.14			Updated from Cogen Permit
Natural gas in ladle preheaters	340		5.5		0.94			1998 update to AP-42 Section 1.4
Subtotal					19.1	40.0	20.9	
Contemporaneous Changes								
Installation of #8 Galvanizing Line							0.0	Removed from analysis because not contemporaneous
NESHAP Controls Coke By-product							-31.6	No change
Batch Annealing Shutdown							-0.3	No change
Blooming Mill Shutdown							-0.9	No change
Subtotal							-32.8	
Total							32.3	

Emissions Calculations Included in the 1995 Construction Permit Application

Projected Emissions Based On: Blast Furnace @ 8,571NTPD
BOF @ 9,808 NTPD

TABLE 3-1
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - CO

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	13.7	lb/MMcf	22,774	MMcf	156.00	included in line 17	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	13.7	lb/MMcf	22,203	MMcf	152.09	included in line 17	-	-	-
3	0008	01	Blast Furnace Gas Flare - BFG	13.7	lb/MMcf	26,132	MMcf	179.00	included in line 17	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	13.7	lb/MMcf	37,501	MMcf	256.88	included in line 17	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	40	lb/MMcf	361	MMcf	7.22	included in line 16	-	-	-
6	0044	01	Boiler #11 - BFG	13.7	lb/MMcf	5,323	MMcf	36.46	included in line 17	-	-	-
7	0044	91	Boiler #11 - NG	40	lb/MMcf	226	MMcf	4.52	included in line 16	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	5.0	lb/Mgal	15.00	Mgal	0.04	included in line 18	-	-	-
9	0048	01	Boiler #12 - BFG	13.7	lb/MMcf	7,106	MMcf	48.68	included in line 17	-	-	-
10	0048	91	Boiler #12 - NG	40	lb/MMcf	218	MMcf	4.36	included in line 16	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	5.0	lb/Mgal	1.00	Mgal	0.00	included in line 18	-	-	-
12	0033	01	BOF 2 Vessels	8.993	lb/ton proc.	2,413,406	ton proc.	10,851.88	3,580,000	ton proc.	16,097.47	5,245.59
13	0038	01	BOF Preheaters/Dryers - NG	40	lb/MMcf	283	MMcf	5.66	included in line 16	-	-	-
14	0071 & 0119	01	Continuous Casters #1 & #2 - NG	40	lb/MMcf	57	MMcf	1.14	included in line 16	-	-	-
15			Natural Gas	40	lb/MMcf	1,145	MMcf	inc. above	1,145	MMcf	22.90	-
16			Blast Furnace Gas	13.7	lb/MMcf	121,039	MMcf	inc. above	185,030	MMcf	1,267.46	-
17			Fuel Oil	5.0	lb/Mgal	16	Mgal	inc. above	365	Mgal	0.91	-
	TOTALS:							**11,703.94**			**17,388.74**	**5,684.80**
			Contemporaneous Changes									(11.51)
			Net Change									***5,673.29***

Projected Emissions Based On: Blast Furnace @2,971NTPD
BOF @ 9,808 NTPD

TABLE 3-2
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - NOx

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy	
1	0004	01	"A" Blast Furnace Stoves - BFG	5.28	lb/MMcf	22,774	MMcf	60.12	Included in Line 20	-	-	-	
2	0009	01	"B" Blast Furnace Stoves - BFG	5.28	lb/MMcf	22,203	MMcf	58.62	Included in Line 20	-	-	-	
3	0008	01	Blast Furnace Gas Flare - BFG	5.28	lb/MMcf	26,132	MMcf	68.99	Included in Line 20	-	-	-	
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	5.28	lb/MMcf	37,501	MMcf	99.00	Included in Line 20	-	-	-	
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	306	lb/MMcf	361	MMcf	55.23	Included in Line 19	-	-	-	
6	0044	01	Boiler #11 - BFG	5.28	lb/MMcf	5,323	MMcf	14.05	Included in Line 20	-	-	-	
7	0044	91	Boiler #11 - NG	306	lb/MMcf	226	MMcf	34.58	Included in Line 19	-	-	-	
8	0044	92	Boiler #11 - Fuel Oil	55	lb/Mgal	15.00	Mgal	0.41	Included in Line 21	-	-	-	
9	0048	01	Boiler #12 - BFG	5.28	lb/MMcf	7,106	MMcf	18.76	Included in Line 20	-	-	-	
10	0048	91	Boiler #12 - NG	306	lb/MMcf	218	MMcf	33.35	Included in Line 19	-	-	-	
11	0048	92	Boiler #12 - Fuel Oil	55	lb/Mgal	1.00	Mgal	0.03	Included in Line 21	-	-	-	
12	0033	01	BOF 2 Vessels	0.0389	lb/ton proc.	2,413,406	tons proc.	46.94	3,580,000	ton proc.	69.63	X -	+22.69
13	0038	01	BOF Preheaters/Dryers - NG	306	lb/MMcf	283	MMcf	43.30	Included in Line 19	-	-	-	
14	0007 & 0012	01	"A" & "B" Blast Furnace - Casthouse	0.01440	lb/ton proc.	2,059,557	tons proc.	14.83	3,165,000	tons proc.	22.79	X -	.796
15	0005 & 0010	01	"A" & "B" Blast Furnace - Uncaptured Roof Emiss.	0.00072	lb/ton proc.	2,059,557	tons proc.	0.74	3,165,000	tons proc.	1.14	-	0.4
16	0070 &0120	01	Caster Mold - Casters #1 & #2	0.05	lb/ton prod.	2,413,406	tons prod.	60.34	3,580,000	ton prod.	89.50	X -	29.16
17	0071 & 0119	01	Continuous Casters #1 & #2 - NG	306	lb/MMcf	57	MMcf	8.72	Included in Line 19	-	-	-	60.21
18			Natural Gas	306	lb/MMcf	1,145	MMcf	inc. above	1,145	MMcf	175.19	-	
19			Blast Furnace Gas	5.28	lb/MMcf	121,039	MMcf	inc. above	185,030	MMcf	488.48	+168.94	52.8%
20			Fuel Oil	55	lb/Mgal	16	Mgal	inc. above	365	Mgal	10.04	+ 9.59	
	TOTALS:							618.01			856.76	238.75	229.15
			Contemperaneous Changes									(200.54)	
			Net Change									***38.21***	

+15%

Projected Emissions Based On: Blast Furnace @ 8,071NTPD
BOF @ 9,808 NTPD

TABLE 3-3
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - SO2

LINE #	POINT	MODE	SOURCE OESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy	COMMENTS
1	0004	01	"A" Blast Furnace Stoves - BFG	6.65	lb/MMcf	22,774	MMcf	75.72	included in line 19	-	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	6.65	lb/MMcf	22,203	MMcf	73.82	included in line 19	-	-	-	-
3	0008	01	Blast Furnace Gas Flare - BFG	6.65	lb/MMcf	26,132	MMcf	86.89	included in line 19	-	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	6.65	lb/MMcf	37,501	MMcf	124.69	included in line 19	-	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	0.6	lb/MMcf	361	MMcf	0.11	included in line 18	-	-	-	-
6	0044	01	Boiler #11 - BFG	6.65	lb/MMcf	5,323	MMcf	17.70	included in line 19	-	-	-	-
7	0044	91	Boiler #11 - NG	0.6	lb/MMcf	226	MMcf	0.07	included in line 18	-	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	141.3	lb/Mgal	15.00	Mgal	1.06	included in line 20	-	-	-	-
9	0048	01	Boiler #12 - BFG	6.65	lb/MMcf	7,106	MMcf	23.63	included in line 19	-	-	-	-
10	0048	91	Boiler #12 - NG	0.6	lb/MMcf	218	MMcf	0.07	included in line 18	-	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	141.3	lb/Mgal	1.00	Mgal	0.07	included in line 20	-	-	-	-
12	0038	01	BOF Preheaters/Dryers - NG	0.6	lb/MMcf	283	MMcf	0.08	included in line 18	-	-	-	-
13	0007 & 0012	01	"A & B" Blast Furnace - Casthouse	0.2006	lb/ton proc.	2,059,557	tons proc.	206.57	3,165,000	tons proc.	422.00	215.43	Est. Annual Max
14	0005 & 0010	01	"A & B" Blast Furnace - Uncap. roof	0.0104	lb/ton proc.	2,059,557	tons proc.	10.71	3,165,000	tons proc.	21.94	11.23	Est. Annual Max
15	----	--	Iron Spout Baghouse	0.0073	lb/ton proc.	2,059,557	tons proc.	7.52	3,165,000	tons proc.	13.89	6.37	Est. Annual Max
16	113	1	Blast Furnace Slag Pits	0.0100	lb/ton	2,059,557	tons proc.	10.30	3,165,000	tons proc.	15.83	5.53	
17	0071 & 0119	01	Continuous Casters #1 & #2 - NG	0.6	lb/MMcf	57	MMcf	0.02	included in line 18	-	-	-	
18			Natural Gas	0.6	lb/MMcf	1,145	MMcf	-	1,145	MMcf	0.34	0.00	
19			Blast Furnace Gas	6.65	lb/MMcf	121,039	MMcf	-	185,030	MMcf	615.22	212.77	
20			Fuel Oil	141.3	lb/Mgal	16	Mgal	-	365	Mgal	25.79	24.66	
	TOTALS:							**639.03**			**1,115.01**	**475.98**	
			Contemporaneous Changes									(0.13)	
			Net Change									***475.85***	

Projected Emissions Based On: Blast Furnace @ 3,571NTPD
BOF @ 9,808 NTPD

TABLE 3-4
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - PM-10

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTEO THRUPUT	UNITS	PROJECTED EMISSION FACTOR	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
3	0008	01	Blast Furnace Gas Flare - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
6	0044	01	Boiler #11 - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
7	0044	91	Boiler #11 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
8	0044	92	Boiler #11 - Fuel Oil	9.72	lb/Mgal	Included in line 40	Mgal	-	Included in line 40	-			-	-
9	0048	01	Boiler #12 - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
10	0048	91	Boiler #12 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
11	0048	92	Boiler #12 - Fuel Oil	9.72	lb/Mgal	Included in line 48	Mgal	-	Included in line 48	-			-	-
12	0033	01	BOF 2 Vessels	0.16	lb/ton proc.	2,413,406	tons proc.	193.07	8,760	hours	60	lbs/hr	262.80	69.73
13	0038	01	BOF Preheaters/Dryers - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
14	0005 & 0010	01	"A" & "B" Blast Furnace - Uncap. Fugitives	0.0155	lb/ton proc.	2,059,557	tons proc.	15.96	3,165,000	tons proc.			24.53	8.57
15	0006 & 0011	01	"A" & "B" Blast Furnace - Charging	0.0024	lb/ton pellets charged	2,803,241	tons proc.	3.36	4,308,581	tons proc.			5.17	1.81
16	0007 & 0012	01	"A" & "B" Blast Furnace - Baghouse Stack	0.0703	lb/ton proc.	2,059,557	tons proc.	72.35	3,165,000	tons proc.			111.19	38.83
17	0034	01	BOF Roof Monitor	0.287	lb/ton proc.	2,413,406	tons proc.	346.20	3,580,000	tons proc.	0.066144		118.40	(227.81)
18	0037	01	Flux Conv. & Xfer Pts., Bin Floor - BOF	0.0016	lb/ton proc.	2,413,406	tons proc.	1.93	3,580,000	tons proc.			2.86	0.93
19	0040	01	Hot Metal Chging Ladle Slag Skimmer	0.0050	lb/ton proc.	2,059,557	tons proc.	5.17	3,165,000	tons proc.			7.94	2.77

Projected Emissions Baaed On: Blast Furnace @ 8,971NTPD
BOF @ 9,808 NTPD

TABLE 3-4
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - PM-10

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED EMISSION FACTOR	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
20	0070 & 0120	01	Caster Mold - Casters #1 & #2	0.006	lb/ton prod.	2,413,406	tons prod.	7.24	3,580,000	ton prod.			10.74	3.50
21	0071 & 0119	01	Cont. Casters #1 & #2 - Spray Chamber	0.00852	lb/ton proc.	2,413,406	tons prod.	10.28	3,580,000	ton prod.			15.25	4.97
22	0071 & 0119	01	Continuous Casters #1 & #2 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
23	0072 & 0118	01	Slab Cutoff - Casters #1 & #2	0.0071	lb/ton proc.	2,413,406	tons prod.	8.57	3,580,000	ton prod.			12.71	4.14
	73	1	Slab Ripping - Casters #1 & #2	0.00722	lb/ton proc.	2,413,406	tons prod.	8.71	3,580,000	ton prod.			12.92	4.21
25	0103, 0104 & 0121	01	LMF Argon Stirring #1 & #2, Material Handling Tripper	0.00715	lb/ton proc.	2,413,406	tons prod.	8.63	3,580,000	ton prod.			12.80	4.17
26	0105 & 0106	01	Deslagging Station & Material HS	0.00355	lb/ton proc.	2,413,406	tons prod.	4.28	3,580,000	ton prod.			6.35	2.07
27			BOF Hopper Baghouse	0.00032	lb/ton proc.	2,413,406	tons proc.	0.39	3,580,000	tons proc.			0.57	0.18
28	0107 & 0035	01	Desulf. Station (inside BOF shop) & Xfer Pit	0.03721	lb/ton proc.	2,059,557	tons prod.	38.32	3,165,000	ton prod.			58.88	20.57
29	0113	01	Blast Furnace Slag Pits	0.00417	lb/ton proc.	2,059,557	tons slag	4.29	3,165,000	ton prod.			6.60	2.30
30	9003	01	Iron Pellet Screen	0.00279	lb/ton pellets charged	2,803,241	tons proc.	3.91	4,308,581	tons proc.			6.01	2.10
31		01	Iron Spout Baghouse	0.02548	lb/ton proc.	2,059,557	tons proc.	26.24	3,165,000	tons proc.			40.32	14.08
32			Road Fugitive Emissions	Included in Contemporaeous Changes. See Appendix F						-				0.00
33			Material Handling	Included in Contemporaeous Changes. See Appendix F						-				0.00
34			Unpaved Parking Lots					-		-			-	-
35			Paved Parking Lots					-		-			-	-
36			Natural Gas	5.1	lb/MMcf	1,145	MMcf	2.92	1,145	MMcf			2.92	0.00
37			Blast Furnace Gas	2.9	lb/MMcf	121,039	MMcf	175.51	185,030	MMcf			268.29	92.79
38			Fuel Oil	9.72	lb/Mgal	16	Mgal	0.08	365	Mgal			1.77	1.70
	TOTALS:							937.42					989.04	51.62
			Contemporaneous Changes											(37.31)
			Net Change											***14.31***

Note: Actual Emissions = Base Year Throughput * Emission Factor / 2000

Projected Actual Emissions = Projected Throughput * Emission Factor / 2000
except -
BOF Vessels Projected Actual Emissions = 60 lb/hr * 8760 hrs
BOF Roof Monitor Projected Actual Emissions = Projected Emission Factor * Projected Throughput

Projected Emissions Based On: Blast Furnace @ [illegible]71NTPD
BOF @ 9,808 NTPD

TABLE 3-5
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - TSP

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED EMISSION FACTOR	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
3	0008	01	Blast Furnace Gas Flare - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
6	0044	01	Boiler #11 - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
7	0044	91	Boiler #11 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
8	0044	92	Boiler #11 - Fuel Oil	9.72	lb/Mgal	Included in line 40	Mgal	-	Included in line 40	-			-	-
9	0048	01	Boiler #12 - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
10	0048	91	Boiler #12 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
11	0048	92	Boiler #12 - Fuel Oil	9.72	lb/Mgal	Included in line 48	Mgal	-	Included in line 48	-			-	-
12	0033	01	BOF 2 Vessels	0.16	lb/ton proc.	2,413,406	tons proc.	193.07	8,760	hours	60	lbs/hr	262.80	69.73
13	0038	01	BOF Preheaters/Dryers - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
14	0005 & 0010	01	"A" & "B" Blast Furnace - Uncap. Fugitives	0.031	lb/ton proc.	2,059,557	tons proc.	31.92	3,165,000	tons proc.			49.06	17.13
15	0006 & 0011	01	"A" & "B" Blast Furnace - Charging	0.0024	lb/ton pellets charged	2,803,241	tons proc.	3.36	4,308,581	tons proc.			5.17	1.81
16	0007 & 0012	01	"A" & "B" Blast Furnace - Baghouse Stack	0.0703	lb/ton proc.	2,059,557	tons proc.	72.35	3,165,000	tons proc.			111.19	38.83
17	0034	01	BOF Roof Monitor	0.428	lb/ton proc.	2,413,406	tons proc.	516.72	3,580,000	tons proc.	0.0987		176.71	(340.01)
18	0037	01	Flux Conv. & Xfer Pts., Bin Floor - BOF	0.0016	lb/ton proc.	2,413,406	tons proc.	1.93	3,580,000	tons proc.			2.86	0.93
19	0040	01	Hot Metal Chging Ladle Slag Skimmer	0.0050	lb/ton proc.	2,059,557	tons proc.	5.17	3,165,000	tons proc.			7.94	2.77

TABLE 3-5

GRANITE CITY DIVISION of NATIONAL STEEL

NETTING ANALYSIS SUMMARY - TSP

Projected Emissions Based On: Blast Furnace @ [illegible]1NTPD
BOF @ 9,808 NTPD

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED EMISSION FACTOR	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
20	0070 & 0120	01	Caster Mold - Casters #1 & #2	0.006	lb/ton prod.	2,413,406	tons prod.	7.24	3,580,000	ton prod.			10.74	3.50
21	0071 & 0119	01	Cont. Casters #1 & #2 - Spray Chamber	0.00852	lb/ton proc.	2,413,406	tons prod.	10.28	3,580,000	ton prod.			15.25	4.97
22	0071 & 0119	01	Continuous Casters #1 & #2 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
23	0072 & 0118	01	Slab Cutoff - Casters #1 & #2	0.0071	lb/ton proc.	2,413,406	tons prod.	8.57	3,580,000	ton prod.			12.71	4.14
	73	1	Slab Ripping - Casters #1 & #2	0.00722	lb/ton proc.	2,413,406	tons prod.	8.71	3,580,000	ton prod.			12.92	4.21
25	0103, 0104 & 0121	01	Argon Stirring #1 & #2, Material Handling Tripper	0.00715	lb/ton proc.	2,413,406	tons prod.	8.63	3,580,000	ton prod.			12.80	4.17
26	0105 & 0106	01	Deslagging Station & Material HS	0.00355	lb/ton proc.	2,413,406	tons prod.	4.28	3,580,000	ton prod.			6.35	2.07
27			BOF Hopper Baghouse	0.00032	lb/ton proc.	2,413,406	tons proc.	0.39	3,580,000	tons proc.			0.57	0.18
28	0107 & 0035	01	Desulf. Station (inside BOF shop) & Xfer Pit	0.03721	lb/ton proc.	2,059,557	tons prod.	38.32	3,165,000	ton prod.			58.88	20.57
29	0113	01	Blast Furnace Slag Pits	0.00417	lb/ton proc.	2,059,557	tons slag	4.29	3,165,000	ton prod.			6.60	2.30
30	9003	01	Iron Pellet Screen	0.00279	lb/ton pellets charged	2,803,241	tons proc.	3.91	4,308,581	tons proc.			6.01	2.10
31		01	Iron Spout Baghouse	0.02548	lb/ton proc.	2,059,557	tons proc.	26.24	3,165,000	tons proc.			40.32	14.08
32			Road Fugitive Emissions	Included in Contemporaeous Changes. See Appendix F						-				0.00
33			Material Handling	Included in Contemporaeous Changes. See Appendix F						-				0.00
34			Unpaved Parking Lots					-		-			-	-
35			Paved Parking Lots					-		-			-	-
36			Natural Gas	5.1	lb/MMcf	1,145	MMcf	2.92	1,145	MMcf			2.92	0.00
37			Blast Furnace Gas	2.9	lb/MMcf	121,039	MMcf	175.51	185,030	MMcf			268.29	92.79
38			Fuel Oil	9.72	lb/Mgal	16	Mgal	0.08	365	Mgal			1.77	1.70
	TOTALS:							1,123.90					1,071.89	(52.01)
			Contemporaneous Changes											(37.16)
			Net Change											***(89.17)***

Note: Actual Emissions = Base Year Throughput * Emission Factor / 2000

Projected Actual Emissions = Projected Throughput * Emission Factor / 2000
except -
BOF Vessels Projected Actual Emissions = 60 lb/hr * 8760 hrs
BOF Roof Monitor Projected Actual Emissions = Projected Emission Factor * Projected Throughput

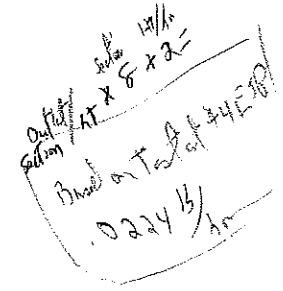
Projected Emissions Based On: Blast Furnace @8,[illegible]1 NTPD
BOF @ 9,808 NTPD

TABLE 3-6
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - VOM

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	0.0	lb/MMcf	22,774	MMcf	0.00	included in line 18	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	0.0	lb/MMcf	22,203	MMcf	0.00	included in line 18	-	-	-
3	0008	01	Blast Furnace Gas Flare - BFG	0.0	lb/MMcf	26,132	MMcf	0.00	included in line 18	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	0.0	lb/MMcf	37,501	MMcf	0.00	included in line 18	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	2.8	lb/MMcf	361	MMcf	0.51	included in line 17	-	-	-
6	0044	01	Boiler #11 - BFG	0.0	lb/MMcf	5,323	MMcf	0.00	included in line 18	-	-	-
7	0044	91	Boiler #11 - NG	1.4	lb/MMcf	226	MMcf	0.16	included in line 17	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	0.28	lb/Mgal	15.00	Mgal	0.00	included in line 19	-	-	-
9	0048	01	Boiler #12 - BFG	0.0	lb/MMcf	7,106	MMcf	0.00	included in line 18	-	-	-
10	0048	91	Boiler #12 - NG	1.4	lb/MMcf	218	MMcf	0.15	included in line 17	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	0.28	lb/Mgal	1.00	Mgal	0.00	included in line 19	-	-	-
12	0033	01	BOF Preheaters/Dryers - NG	2.8	lb/MMcf	283	MMcf	0.40	included in line 17	-	-	-
13	0007 & 0012	01	"A & B" Blast Furnace - Casthouse	0.0946	lb/ton proc.	2,059,557	tons proc.	97.40	3,165,000	tons proc.	149.68	-
14	0005 & 0010	01	"A & B" Blast Furnace - Uncap. roof	0.0047	lb/ton proc.	2,059,557	tons proc.	4.83	3,165,000	tons proc.	7.42	-
15	0033	01	2 BOF Vessels	0.0060	lb/ton proc.	2,413,406	tons proc.	7.24	3,580,000	tons proc.	10.74	-
16	0035	01	Transfer Pits	0.0010	lb/ton proc.	2,059,557	tons proc.	1.03	3,165,000	tons proc.	1.58	-
17	0071 & 0119	01	Continuous Casters #1 & #2 - NG	2.8	lb/MMcf	57	MMcf	0.08	included in line 17	-	-	-
18			Natural Gas	2.8	lb/MMcf	-	MMcf	-	1,145	MMcf	1.60	-
19			Blast Furnace Gas	0.0	lb/MMcf	-	MMcf	-	185,030	MMcf	0.00	-
20			Fuel Oil	0.28	lb/Mgal	-	Mgal	-	365	lb/Mgal	0.05	-
	TOTALS:							**111.80**			**171.08**	**59.28**
			Contemporaneous Changes									(31.23)
			Net Change									***28.05***

Projected Emissions Based On: Blast Furnace @ 8,671NTPD
BOF @ 9,808 NTPD

TABLE 3-7
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - Pb



LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	EMISSION RATE lb/hr	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION TPY	PROJECTED THRUPUT OR PRODUCTION RATIO	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0044	03	Boiler #11 - Fuel Oil	0.01600000	lb/Mgal	0.01600000	15.00	Mgal	0.0001	included in line 19	-	-	-
2	0048	03	Boiler #12 - Fuel Oil	0.01600000	lb/Mgal	0.01600000	1.00	Mgal	0.0000	included in line 19	-	-	-
3	0005	01	"A" Blast Furnace - Uncap. Fugitives	0.00039000	lb/hr	0.00039000	8760	hours	0.0017	1.537	tons proc.	0.00262550	-
4	0006	01	"A" Blast Furnace - Charging	0.00055000	lb/hr	0.00055000	8760	hours	0.0024	1.537	tons proc.	0.00370263	-
5	0007	01	"A" Blast Furnace - Baghouse Stack	0.00022000	lb/hr	0.00022000	8760	hours	0.0010	1.537	tons proc.	0.00148105	-
6	0010	01	"B" Blast Furnace - Uncap. Fugitives	0.00036700	lb/hr	0.00036700	8760	hours	0.0016	1.537	tons proc.	0.00247067	-
7	0011	01	"B" Blast Furnace - Charging	0.00053700	lb/hr	0.00053700	8360	hours	0.0024	1.537	tons proc.	0.00361512	-
8	0012	01	"B" Blast Furnace - Baghouse Stack	0.00021400	lb/hr	0.00021400	8360	hours	0.0009	1.537	tons proc.	0.00144066	-
9	0033	01	BOF 2 Vessels Stack	0.19337500	lb/hr	0.19337500	8760	hours	0.8470	1.483	tons prod.	1.25607505	0.2858
10	0034	01	BOF Roof Monitor	0.01290000	lb/hr	0.01290000	8760	hours	0.0565	1.483	tons prod.	0.08379247	-
11	0035	01	Hot Metal Reladling - Xfer Pit	0.00002320	lb/hr	0.00002320	8760	hours	0.0001	1.483	tons prod.	0.00015070	-
12	0037	01	Flux Conv. & Xfer Pts., Bin Floor - BOF	0.00000062	lb/hr	0.00000062	8760	hours	0.0000	1.483	tons prod.	0.00000405	-
13	0040	01	Hot Metal Chging Ladle Slag Skimmer	0.00002250	lb/hr	0.00002250	8760	hours	0.0001	1.483	tons prod.	0.00014615	-
14	0103	01	Argon Stirring #1 & #2	0.00020200	lb/hr	0.00020200	8760	hours	0.0009	1.483	tons prod.	0.00131210	-
15	0105	01	Deslagging Station	0.00240000	lb/hr	0.00240000	8760	hours	0.0105	1.483	tons prod.	0.01558930	-
16	0107	01	Desulf. Station (inside BOF shop)	0.01330000	lb/hr	0.01330000	8760	hours	0.0583	1.483	tons prod.	0.08639068	-
17	0120	01	Caster Mold - Casters	0.00113000	lb/hr	0.00113000	8760	hours	0.0049	1.483	tons prod.	0.00733996	-
18			Boilers -Waste Oil	0.33600000	lb/Mgals		-	-	-	365	Mgals	0.06132000	-
	TOTAL					0.26			0.988			1.527	0.539
			Contemporaneous Changes										0.000
			Net Change										***0.539***

Contemporaneous Changes from the 1995 Application

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

APPENDIX E

The following table summarizes emissions changing projects that have been undertaken at Granite City Steel since 1990.

PROJECTS CHANGING EMISSIONS SINCE 1990 (TPY)

Project	Effective Date	TSP/PM_{10}	SO_2	NO_x	CO	VOM
Removal Blast Furnace Slag Sput Hood	January, 1990	+4.90				
# 2 Caster Production	December 1, 1990	+11.70				
Ingot Teeming Shutdown	April 1, 1991	-22.40				
Installation NESHAP Controls Coke By-Product	July, 1991					-31.6
Shutdown Blooming Mill	April 1, 1991	-3.38	-0.34	-217.82	-22.12	-0.92
Shutdown Batch Annealing	December, 1991	-0.18	-0.036	-8.72	-1.19	-0.31
Fugitive Dust Control Program (Roads and Material Handling)	November, 1991 to present	-32.00				
Installation of #8 Galvanizaing Line	Expected 1996	+4.20/+4.05	+.25	+26.0	+11.8	+1.6
Net Change		-37.16/-37.31	-0.126	-200.54	-11.51	-31.23

The following information presents how the emission change was calculated for each project.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

REMOVAL OF BLAST FURNACE SLAG SPOUT HOOD - JANUARY, 1990

Based on May 8, 1989 submittal for modification of operating permit for "A" & "B" Blast Furnaces. +4.9 TPY

2 CASTER PRODUCTION - DECEMBER 1, 1990

Summary of Project Emission Changes (tons/yr)[1] (Assuming all steel produced is continuous cast.)

Argon Stirring and Baghouse	4.85
Tundish with Shrouds	--
Powder Addition	7.49
Slab Casting	2.01
Slab Cut-off	9.03
Slab Ripping with Baghouse	2.58
	26.0 tons/yr PM_{10}
Caster #1 Actual	14.3 tons/yr PM_{10}

Caster #2 PM_{10} emissions = 26.0 - 14.3 = 11.7 tons/yr

INGOT TEEMING SHUTDOWN - APRIL 1, 1991

670,000 tons / year X 0.067 lbs / ton = 22.4 tons / year PM_{10} reduction

[1] Reference - March 16, 1988 IEPA "Project Summary for Proposed Issuance of an Air Pollution Control Construction Permit for Continuous Caster".

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

SHUTDOWN BLOOMING MILL - APRIL 1, 1991

Coke oven gas consumed at Soaking Pits, 1,076,926 MMBtu in 1990.

The coke oven gas which was consumed at the Blooming Mill Soaking Pits (firing rate 408 MMBtu/hr/furnace) is to be used at the Hot Strip Slab Furnaces (1 - 3) (firing rate 321.8 MMBtu/hr/furnace) and #4 slab furnace (firing rate 495 MMBtu/hr).

The emission reductions for the displaced use of natural gas on the slab reheat furnaces is based on the AIRS 1990 emission factor for natural gas sources greater than 100 MMBtu/hr and the "ACT for NO_X Emissions from Iron and Steel Mills".

1990

Coke Oven Gas Soaking Pits - General < 10 MMBtu/hr

44,131 X 0.003 X 1/2000 = 0.066 tpy PM_{10} emission reduction

44,131 X 0.0006 X 1/2000 = 0.013 tpy SO_2 emission reduction

44,131 X 0.10 X 1/2000 = 2.21 tpy NO_X emission reduction

44,131 X 0.0053 X 1/2000 = 0.12 tpy VOC emission reduction

44,131 X 0.02 X 1/2000 = 0.44 tpy CO emission reduction

Natural Gas Blooming Mill < 10 MMBtu/hr

18,083 X 0.003 X 1/2000 = 0.027 tpy PM_{10} emission reduction

18,083 X 0.0006 X 1/2000 = 0.005 tpy SO_2 emission reduction

18,083 X 0.10 X 1/2000 = 0.90 tpy NO_X emission reduction

18,803 X 0.0053 X 1/2000 = 0.05 tpy VOC emission reduction

18,803 X 0.02 X 1/2000 = 0.18 tpy CO emission reduction

Coke Oven Gas Soaking Pits

1,076,926 X 0.005 X 1/2000 = 2.69 tpy PM_{10} emission reduction

1,076,926 X 0.0006 X 1/2000 = 0.32 tpy SO_2 emission reduction

1,076,926 X 0.399 X 1/2000 = 214.71 tpy NO_X emission reduction

1,076,926 X 0.0014 X 1/2000 = 0.75 tpy VOC emission reduction

1,076,926 X 0.04 X 1/2000 = 21.5 tpy CO emission reduction

EMISSION REDUCTION SUMMARY for SHUTDOWN of BLOOMING MILL (tons/year)

	PM_{10}	SO_2	NO_X	CO	VOC
Soaking Pit - General	0.66	0.013	2.21	0.44	0.12
Blooming Mill	0.027	0.005	0.90	0.18	0.05
Soaking Pits	2.69	0.32	214.71	21.5	0.75
Total	3.377	0.338	217.82	22.12	0.92

SHUTDOWN BATCH ANNEALING - DECEMBER, 1991

1990 Natural Gas Usage 118,612 MMBtu (< 10 MMBtu/hr)

118,612 X 0.003 X 1/2000 = 0.18 tpy PM_{10} emission reduction

118,612 X 0.0006 X 1/2000 = 0.036 tpy SO_2 emission reduction

118,612 X 0.147[2] X 1/2000 = 8.72 tpy NO_X emission reduction

118,612 X 0.0053 X 1/2000 = 0.31 tpy VOC emission reduction

118,612 X 0.02 X 1/2000 = 1.19 tpy CO emission reduction

[2] Based on the "ACT for NO_X Emissions from Iron and Steel Mills".

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

NO. 8 GALVANIZING LINE

Furnace

54.6 MMBtu/hr - natural gas fired

Pollutant	*Emission Factor/Source (lb/MMBtu)*	*Heat Input (MMBtu/hr)*	*Annual Emissions (tpy)*
NO_X	0.0378/Vendor Guarantee	54.6	9.04
TSP	0.003/AP-42	54.6	0.72
PM_{10}	0.003/AP-42	54.6	0.72
VOM	0.0028/AP-42	54.6	0.67
CO	0.035/AP-42	54.6	8.37
SO_2	0.0006/AP-42	54.6	0.14

Fume Scrubber

10,000 cfm

Pollutant	*Emission Factor (lb/hr)/Source*	*Annual Emissions (tpy)*
TSP	0.24/Vendor Guarantee	1.05
PM_{10}	0.24/ Vendor Guarantee	1.05

5 Space Heaters

3,440,000 Btu/hr per heater - natural gas fired
1,019 Btu/ft^3 (1993 emission inventory)
5 * 3,440,000 Btu/hr / (1,019 Btu/ft^3) = 16,879.3 ft^3/hr total natural gas consumption, 5 heaters

Pollutant	*Emission Factor(lb/MMft^3) AIRS-1-05-001-6*	*Heat Input (MMBtu/hr)*	*Annual Emissions (tpy)*
NO_X	100.0	16,879.3	7.39
TSP	3.0	16,879.3	0.22
PM_{10}	3.0	16,879.3	0.22
VOM	5.3	16,879.3	0.39
CO	20.0	16,879.3	1.48
SO_2	0.6	16,879.3	0.04

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

11 Galvanize Line Related Heaters

Heaters associated with the following galvanizing processes are to be installed as part of the No. 8 Galvanize Line Project:

Equipment	*Maximum Natural Gas Use (CFH)*
Entry Strip Dryer	2,078
Quench Strip Dryer	1,419
Chem. Treat Strip Dryer	1,370
Pre-clean Recirc. Tank	2,944
Electrolytic Recirc. Tank #1	2,748
Electrolytic Recirc. Tank #2	2,500
Hot Water Rinse Tank	883
Hot Water Make-up Tank	6,869
Chimical Treat Recirc. Tank	491
Chemical Treat Mix Tank	491
Roll Rig Preheaters	102
Total	21,895

Pollutant	*Emission Factor(lb/MMft^3) AIRS-1-05-001-6*	*Heat Input (MMBtu/hr)*	*Annual Emissions (tpy)*
NO_X	100.0	21,895	9.60
TSP	3.0	21,895	0.29
PM_{10}	3.0	21,895	0.29
VOM	5.3	21,895	0.51
CO	20.0	21,895	1.92
SO_2	0.6	21,895	0.06

Kettle Melting

32,000 tons product per month
0.1 tons Zn per ton product

32,000 tons product/month * 0.1 tons Zn/ton product * 0.1 lbs TSP/ton Zn * 12 months / 2000 lbs /ton = 1.92 tons TSP
1.92 tons TSP * 0.92 = 1.77 tons PM_{10}

Pollutant	*Emission Factor (lb/ton Zn)/Source*	*Annual Emissions (tpy)*
TSP	0.1/AP-42	1.92
PM_{10}	0.092/AP-42	1.77

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

TOTAL EMISSIONS ASSOCIATED WITH NO. 8 GALVANIZE LINE PROJECT

Pollutant	*Annual Emissions (tpy)*
NO_X	26.03
TSP	4.20
PM_{10}	4.05
VOM	1.56
CO	11.77
SO_2	0.25

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

INSTALLATION OF NESHAP CONTROLS AT COKE BY-PRODUCT PLANT

VOC Emissions Reduction at Coke By-Product Plant after Installation of NESHAPS Controls

It was reported, in Attachment 2 of the October 8, 1991 submittal of additional information in application for modification of Operating Permits for the Granite City Division Emission Reduction Plant Production Increase Project, that the installation of benzene emission controls (NESHAPS) at the Coke By-Product Recovery Plant would provide a reduction of 31.6 TPY VOC other than benzene. The following is a demonstration of the derivation of that VOC emission reduction.

All calculations are based on 1990 coke production of 577,473 tons.

Emission factors are taken from the publication EPA-450/3-83-016a, "Benzene Emissions from Coke By-Product Recovery Plants - Background Information for Proposed Standards." The NESHAPS emission factors contained in this publication are for benzene only. The emissions of other light oil (L.O.) constituents were calculated by taking the ratio of the mole fraction of each L.O. constituent (liquid) times the vapor pressure of that constituent to the mole fraction of benzene (liquid) times the vapor pressure of benzene, then multiplying that ration by the calculated benzene emissions. It is assumed that all emissions are vapors and that the vapors are in equilibrium with the liquid light oil.

Sample calculation:

For the direct water cooling tower, benzene emissions are calculated as follows:

$$(577{,}473 \text{ tons coke}) \times \frac{2000 \text{ lb.}}{\text{ton}} \times \frac{454 \text{g}}{\text{lb.}} \times \frac{1 \text{ Mg}}{10^6 \text{g}} = 524{,}346 \text{ Mg coke}$$

$$\frac{524{,}346 \text{ Mg coke}}{\text{yr.}} \times \frac{270 \text{g}}{\text{Mg}} \times \frac{1 \text{ lb.}}{454 \text{g}} = 311{,}836 \text{ lb./year}$$

where 270g/Mg = uncontrolled benzene emission factor from Table 3 - 7, attached.

From the Light Oil Constituents table, attached,

Benzene: $y(P^*) = .71(96) = 68.16$

where .71 = benzene mole fraction
and 96 = benzene vapor pressure

Similarly,

Toluene: $y(P^*) = .159(30) = 4.77$

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Hence, the toluene emissions, with no controls, from the direct water cooling tower are

$$\frac{4.77}{68.16} \text{ (311,836 lb/yr.)} = 21{,}823 \text{ lb. toluene/year}$$

Toluene emissions after installation of NESHAPS controls with 100% efficiency are

21,823 lb. toluene (100 - 100) = 0 lb. toluene/yr.

Emission of benzene, toluene, xylene, ethylbenzene and styrene are calculated, as above, for the various emission sources at the By-Product Plant and presented in the table Emissions of Light Oil Constituents after Installation of NESHAPS Controls at the Coke Oven By-Products Plant, attached.

The non-benzene emissions controlled by the NESHAPS project are then calculated, for each light oil constituent considered, by subtracting the total emissions after controls were applied at all sources from the total emissions prior to application of controls at all sources. These calculations are presented in the table entitled Non-Benzene Emissions Controlled by NESHAPS Project, attached.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Non-Benzene Emissions Controlled by NESHAPS Project

	Total Uncontrolled Emissions	-	Total Uncontrolled Emissions after NESHAPS Controls Installed	=				=	
Toluene	59,584	-	997	=	58,587 lbs.	x	$\frac{1T}{2000}$	=	29.3 tons/yr.
Xylene	2,871	-	48	=	2,823 lbs.	x	$\frac{1T}{2000}$	=	1.4 tons/yr.
Ethylbenzene	959	-	10	=	949 lbs.	x	$\frac{1T}{2000}$	=	0.5 tons/yr.
Styrene	868	-	9	=	859 lbs.	x	$\frac{1T}{2000}$	=	0.4 tons/yr.
									31.6 tons/yr.

SEP 13 '94 04:29PM GCS ENVIRONMENTAL

Emissions of Light Oil Constituents after Installation of NESHAPS Controls at the By-Product Plant

By-Product Source	Uncontrolled Benzene Factor (g Mg)	NESHAPS Control	NESHAPS Control Effiency %	Benzene (lb./yr.) A*	Benzene (lb./yr.) B**	Toluene (lb./yr.) A	Toluene (lb./yr.) B	Xylene (lb./yr.) A	Xylene (lb./yr.) B	Ethylbenzene (lb./yr.) A	Ethylbenzene (lb./yr.) B	Styrene (lb./yr.) A	Styrene (lb./yr.) B
Direct Water Cooling Tower	270	Tar Spray Final Cooler	100	311,836	0	21,823	0	1,050	0	351	0	317	0
Light Oil Condenser Vent	89	Gas Blanket	98	102,790	2,056	7,193	144	346	7	116	2	105	2
Napthlene Separator	87	Tar Spray	100	100,480	0	7,032	0	339	0	113	0	102	0
Napthalene Processing	20	Tar Spray	100	23,099	0	1,617	0	78	0	26	0	23	0
Tar-Intercepting Sump	95	Gas Blanket	98	109,720	2,194	7,678	154	370	7	124	3	112	2
Tar Dewatering	21	Steam Blanket	98	24,254	485	1,697	34	82	2	27	1	25	1
Tar Decanter	77	Steam Blanket	98	88,931	1,779	6,224	125	300	6	100	2	90	2
Tar Storage	12	Steam Blanket	98	13,859	277	970	19	47	1	16	0	14	0
Light Oil Sump	15	Gas Blanket	98	17,324	347	1,212	24	58	1	20	0	18	0
Light Oil Storage	5.8	Gas Blanket	98	6,699	134	469	9	23	1	8	0	7	0
BTX Storage (ILO)	5.8	Gas Blanket	98	6,699	134	469	9	23	1	8	0	7	0
Leaks	14	Manual Detection	88	16,169	1,940	1,132	136	55	7	18	2	16	2
Flushing Liquor Circulation Tank	9	Steam Blanket	98	10,395	208	727	15	35	1	11	0	11	0
Excess Ammonia Liquor Tank	9	Steam Blanket	98	10,395	208	727	15	35	1	11	0	11	0
Wash Oil Decanter	3.8	Uncontrolled	0	4,389	4,389	307	307	15	15	5	0	5	0
Wash Oil Circulating Tank	3.8	Gas Blanket	98	4,389	88	307	6	15	0	5	0	5	0
				851,428	14,239	59,584	997	2,871	48	959	10	868	0

*Uncontrolled emissions

**Emissions after NESHAPS controls installed

SEP 13 '94 04:29PM GCS ENVIRONMENTAL

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

LIGHT OIL CONSTITUENTS

Chemical	Weight fraction (X)	MW	X/MW	Mole fraction (y)	P° at 25°C
enzene	.5925	78.11	.0076	.710	96 mm Hg
oluene	.1598	92.13	.0017	.159	30
ylene (mixed)	.0336	106.16	.0003	.028	8.2
ylbenzene	.0100	106.16	.00009	.008	9.6
rene	.0136	104.14	.0001	.009	7.7
hthalene	.005	128.16	.00004	.004	<1
bon disulfide	.003	76.14	.00004	.004	366
marin	.0367	118.13	.00031	.029	100
lohexane	.0009	84.16	.00001	.001	98
lohexene	.0276	82.14	.00034	.032	100
lopentadiene	.0064	66.10	.00009	.008	600
lene	.0029	70.13	.00004	.004	654
tane	.0014	72.15	.00002	.002	533
ophene	.0024	84.13	.00003	.003	79
,5-trimethylbenzene	.0028	120.20	.00002	.002	7.0
,3-trimethylbenzene	.0130	120.20	.0001	.002	6.8

$\Sigma \frac{X}{MW} = .01071$

* Benzene, toluene, and xylene weight fractions were the average of two analysis OM of light oil samples: Environmetrics on March 1, 1991, and by Doug Stracke of Granite City Steel on March 24, 1985.

Average molecules weight of light oil = ΣyM = 84.47
Average vapor pressure of light oil = ΣyP = 89.67

SEP 13 '94 04:30PM GCS ENVIRONMENTAL

Environmental Protection Agency
Research Triangle Park NC 27711
Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

EPA

RECEIVED
JUL 12 1984
DECO

Benzene Emissions from Coke By-Product Recovery Plants - Background Information for Proposed Standards

Draft EIS

NESHAP

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

TABLE 3-7. UNCONTROLLED BENZENE EMISSION FACTORS FOR COKE BY-PRODUCT PLANTS

Source	Emission factor (g benzene/Mg coke)	Industry emissions (Mg/yr)[36]
Cooling tower		
Direct-water	270	6,340
Tar-bottom	70	1,090
Light-oil condenser vent	89	4,080
Naphthalene separation	87	2,040
Naphthalene processing	20	470
Tar-intercepting sump	95	5,360
Tar dewatering	21	1,090
Tar decanter	77	4,350
Tar storage	12	680
Light-oil sump	15	780
Light-oil storage	5.8	300
BTX storage	5.8	80
Benzene storage	5.8	80
Flushing-liquor circulation tank	9	510
Excess-ammonia liquor tank	9	510
Wash-oil decanter	3.8	180
Wash-oil circulation tank	3.8	180
Pump seals	a	600
Valves	a	400
Pressure-relief devices	a	270
Exhausters	a	30
Sample connections	a	50
Open-ended lines	a	20
Total (rounded)		29,000

[a] Emissions were estimated on the basis of number of potentially leaking units. Emission factors are listed in Table 3-6.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

APPENDIX F

FUGITIVE PARTICULATE EMISSIONS

EMISSION CALCULATIONS

Fugitive particulate emissions from paved and unpaved roads were calculated based on information provided in "Granite City Area PM-10 Emission Inventory", MRI Final Report, 1988, and the 1991 PM_{10} SIP developed by the Illinois Environmental Protection Agency.

Based on information in these sources, fugitive particulate inventories were developed for three scenarios:

- Initial Uncontrolled Emissions - These are uncontrolled emission estimates taken from the 1988 MRI report.
- Projected Initial Uncontrolled Emissions - These emission estimates reflect uncontrolled emissions reported in the 1988 MRI document scaled up by a factor related to the requested production increase. That factor is derived by dividing the requested production level by the base period production level. The factor applied is dependent on the potential increase in activity on each specific road segment. A factor of one was used for those areas where activity is not a function of production level. A factor of 1.1 was used in those areas where some increase in activity may occur, but that increase is expected to be minor.
- Projected Controlled Emissions - These estimates start with the Projected Initial Uncontrolled Emissions and are then reduced to reflect the fugitive emission control program that will be in effect with the production increase.

EMISSION CONTROL PROGRAM

Table F-1 presents intitial uncontrolled, projected uncontrolled, and projected controlled emissions.

Projected controlled emissions reflect an extensive fugitive dust control program. As a part of this application, Granite City Steel is committing to a fugitive emission control program that adds to the commitments that were implemented earlier. The resulting control program is outlined below in **Table F-2.**

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

MATERIALS HANDLING

Uncontrolled and controlled emissions from materials handling activities that will be affected by the production increase were estimated using the same sources previously cited. These estimates are presented in **Table F-3**.

SUMMARY

Fugitive emissions ard credits are summarized on **Table F-4**.

TABLE F-1

Granite City Division of National Steel Company
Projected PM-10 Emissions - Roads

Area	Segment ***	Initial Uncontrolled Emissions * (TPY)	Production Increase Factor	Projected Initial Uncontrolled Emissions **	Control Efficiency for Projected Emissions (%) *	Projected Controlled Emissions ***
South Plant	A ****	26.09	1.00	26.09	95.00%	1.30
	B	9.91	1.00	9.91	98.00%	0.20
	C	7.46	1.00	7.46	98.00%	0.15
Steelworks	D****	45.72	1.48	67.80	98.00%	1.36
	K ****	6.23	1.48	9.24	98.00%	0.18
	M ****	7.39	1.48	10.96	98.00%	0.22
	E	8.79	1.00	8.79	98.00%	0.18
	F ****	148.15	1.48	219.71	98.84%	2.55
	G ****	3.96	1.48	5.87	96.24%	0.22
	H [2]	11.24	1.00	11.24	97.90%	0.24
	J	8.10	1.00	8.10	98.00%	0.16
	L	161.37	1.48	239.31	98.00%	4.79
	R ****	2.57	1.48	3.81	98.00%	0.08
BOF	O ****	37.61	1.48	55.78	98.00%	1.12
	N	27.75	1.48	41.15	98.00%	0.82
	P [2]	28.44	1.48	42.18	99.30%	0.30
Furnace	V [2]	65.65	1.10	72.22	99.50%	0.36
	W ****	6.59	1.10	7.25	96.54%	0.25
	X ****	238.15	1.54	366.04	97.52%	9.08
	Y	11.06	1.00	11.06	98.00%	0.22
	Z [1]	43.70	1.54	67.17	99.67%	0.22
North Plant	S ****	17.84	1.00	17.84	95.00%	0.89
	T ****	21.09	1.00	21.09	95.00%	1.05
Area	D-D [2]	41.87	1.54	64.35	98.98%	0.66
	E-E [2]	1.69	1.54	2.60	97.87%	0.06
	F-F	1.53	1.54	2.35	98.00%	0.05
	CS(1) ****	13.57	1.00	13.57	98.00%	0.27
	CS(2)	8.49	1.00	8.49	98.00%	0.17
	G-G	5.81	1.00	5.81	95.00%	0.29
	Total:	1,017.82		1,427.23		27.42

*** Based on IEPA PM10 SIP**
**** Base case emissions times production increase factor**
***** Unpaved roads paved as per proposed schedule.**
****** Paved Road.**
[1] Road 72% paved. The remaining 28% will be paved prior to the production increase.
[2] Road to be paved prior to production increase.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

TABLE F-2
GRANITE CITY DIVISION of NATIONAL STEEL
FUGITIVE PARTICULATE EMISSION CONTROL PROGRAM for REQUESTED PRODUCTION INCREASE

AREA	SEGMENT	SURFACE	CONTROL
South Plant	A	Paved	Sweep or Flush once per month
	B	Unpaved	Spray three times per month
	C	Unpaved	Spray three times per month
Steelworks	D	Paved	Sweep or flush daily
	K	Paved	Sweep or flush daily
	M	Paved	Sweep or flush daily
	E	Unpaved	Spray three times per month
	F	Paved	Sweep or flush daily
	G	Paved	Sweep or flush daily
	H *	Paved	Sweep or flush once per month
	J	Paved	Sweep or flush daily
	L	Unpaved	Spray four times per month
	R	Paved	Sweep or flush daily
BOF	O	Paved	Sweep or flush daily
	N	Unpaved	Spray three times per month
	P *	Paved	Sweep or flush five days per week
Blast Furnace	V *	Paved	Sweep or flush five days per week
	W	Paved	Sweep or flush five days per week
	X	Paved	Sweep or flush five days per week
	Y	Unpaved	Spray three times per month
	Z *	Paved	Sweep or flush five days per week
North Plant	S	Paved	Sweep or flush every other day
	T	Paved	Sweep or flush every other day
Area	D-D *	Paved	Sweep or flush five days per week
	E-E *	Paved	Sweep or flush five days per week
	F-F	Unpaved	Spray three times per month
	CS(1)	Paved	Sweep or flush five days per week
	CS(2)	Unpaved	Spray three times per month
	G-G	Unpaved	Spray quarterly

* Sprayed four times per month as of production increase; paved by July 31, 1996.

TABLE F-3

Granite City Division of Nation Steel

Base Case PM10 Emissions and Contemporaneous Emissions Reductions - Materials Handling

Material			Control * Efficiency		Production Increase			Production Increase Related
	TPY (1)	TPY		TPY		TPY	TPY	TPY
Coke	7.45	7.45	90%	0.64	1.54	0.98	(6.47)	0.34
Coke Breeze	0.01	0.01	90%	0.00	1.54	0.00	(0.01)	0.00
Pellets	7.84	7.84	90%	0.67	1.54	1.03	(6.81)	0.36
Limestone	1.88	1.88	90%	0.16	1.54	0.25	(1.63)	0.09
	17.18	**17.18**		**1.47**		**2.26**	**(14.92)**	0.79

*** Based on IEPA PM10 SIP**

**** Reductions based Contemporaneous Controls**

TABLE F-4
FUGITIVE EMISSION SUMMARY
Granite City Division of National Steel

IEPA Fugitive PM10 SIP Control Requirement for GCS			61.68	tons / year
PM10 Emissions from Roads	27.42	tons / year		
PM10 Emissions from Materials Handling	2.26	tons / year		
Total Fugitive PM10 Emissions After Production Increase			29.68	tons / year
Excess Fugitive PM10 Reduction (Credit)			32.00	tons / year

Appendix C – Air Quality Modeling Report

CARBON MONOXIDE AIR DISPERSION MODELING FOR A PREVENTION OF SIGNIFICANT DETERIORATION AND CONSTRUCTION PERMIT REVISION FOR UNITED STATES STEEL GRANITE CITY WORKS

Prepared for:
United States Steel Corporation
Granite City Works
20th and State Streets
Granite City, IL 62040

Prepared by:
RTP Environmental Associates, Inc.
304A West Millbrook Road
Raleigh, North Carolina 27609

October 2022

Table of Contents

List of Tables

List of Figures

1.0 INTRODUCTION

This document presents the results of the air quality dispersion modeling analysis conducted for the United States Steel Corporation, Granite City Works ("US Steel") iron and steel making facility in Granite City, Illinois. The analysis has been conducted by RTP Environmental Associates, Inc. ("RTP Environmental") on behalf of US Steel.

The analysis evaluated the emissions of the criteria pollutant carbon monoxide ("CO") as regulated under the applicable provisions of the Prevention of Significant Deterioration ("PSD") regulations of 40 CFR § 52.21, incorporated by reference in the federally approved Illinois State Implementation Plan at 40 CFR § 52.738(b).[1] The criteria pollutant analysis was conducted to ensure that the proposed revisions to the CO emission limitations in the Prevention of Significant Deterioration ("PSD") and Construction Permit (Permit Number 95010001) ("1996 Construction Permit") do not cause or contribute to violation of a National Ambient Air Quality Standard (NAAQS).

As required by 40 CFR § 52.21(l), the analysis conforms with the modeling procedures outlined in the Guideline on Air Quality Models[1] promulgated by United States Environmental Protection Agency ("USEPA") (the "Guideline" or "Appendix W"). It also conforms to the Illinois Environmental Protection Agency's (IEPA) Prevention of Significant Deterioration Modeling Guidance[2], the modeling protocol submitted to the IEPA on February 3, 2020, and associated USEPA modeling policy and guidance.

[1] All citations to the PSD regulations herein are to the currently applicable provisions of 40 CFR § 52.21. The analysis also is designed to satisfy the parallel requirements of the currently pending Illinois PSD rule, 35 Ill. Adm. Code Part 204.

2.0 PROJECT DESCRIPTION

The 1996 Construction Permit authorized National Steel to increase iron and steel production limitations for the blast furnaces and basic oxygen furnace ("BOF") shop at the existing integrated iron and steel manufacturing facility in Granite City, in Madison County, Illinois. US Steel purchased the assets of National Steel in 2003, including Granite City Works. US Steel is proposing revisions to the 1996 Construction Permit that involve increases in the CO emission limitations that were established per the PSD requirements. Therefore, the proposed increases in the CO rates were evaluated for PSD requirements including compliance with the NAAQS for CO. No physical changes are proposed in conjunction with the requested revisions to the 1996 Construction Permit.

3.0 FACILITY AND SITE DESCRIPTION

The US Steel Granite City Works produces high-quality hot-rolled, cold-rolled and coated sheet steel products to customers in the construction, container, piping and tubing, service center, and automotive industries. Granite City Works has an annual raw steelmaking capability of 3.58 million net tons.

The facility occupies approximately 400 acres and is located approximately 12 miles east of Lambert, St. Louis International Airport. The approximate Universal Transverse Mercator (UTM) coordinates of the facility are 749,000m East and 4,287,000m North (NAD83, Zone 15). Figure 1 shows the general location of the facility. Figure 2 shows the specific facility location on a 7.5-minute U.S. Geological Survey ("USGS") topographic map.

The US Steel facility is classified under the regulations governing PSD and Title V as a major source. The area of Madison County where US Steel facility is located is classified as attainment or unclassifiable for all regulated pollutants except ozone. St. Louis is classified as marginal nonattainment for the 2015 8-hour ozone standard.

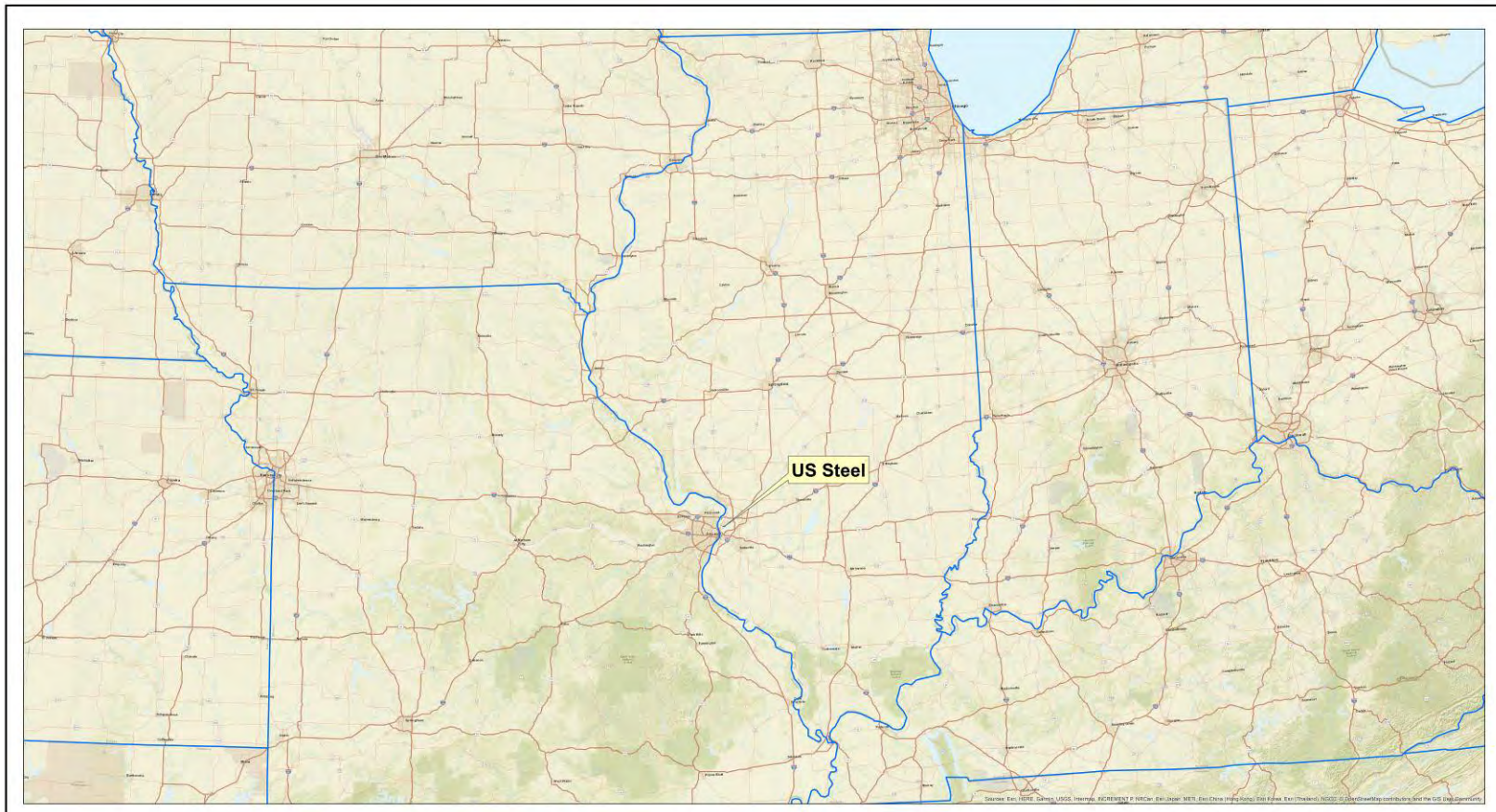


Figure 1. General Location of the US Steel Granite City Works

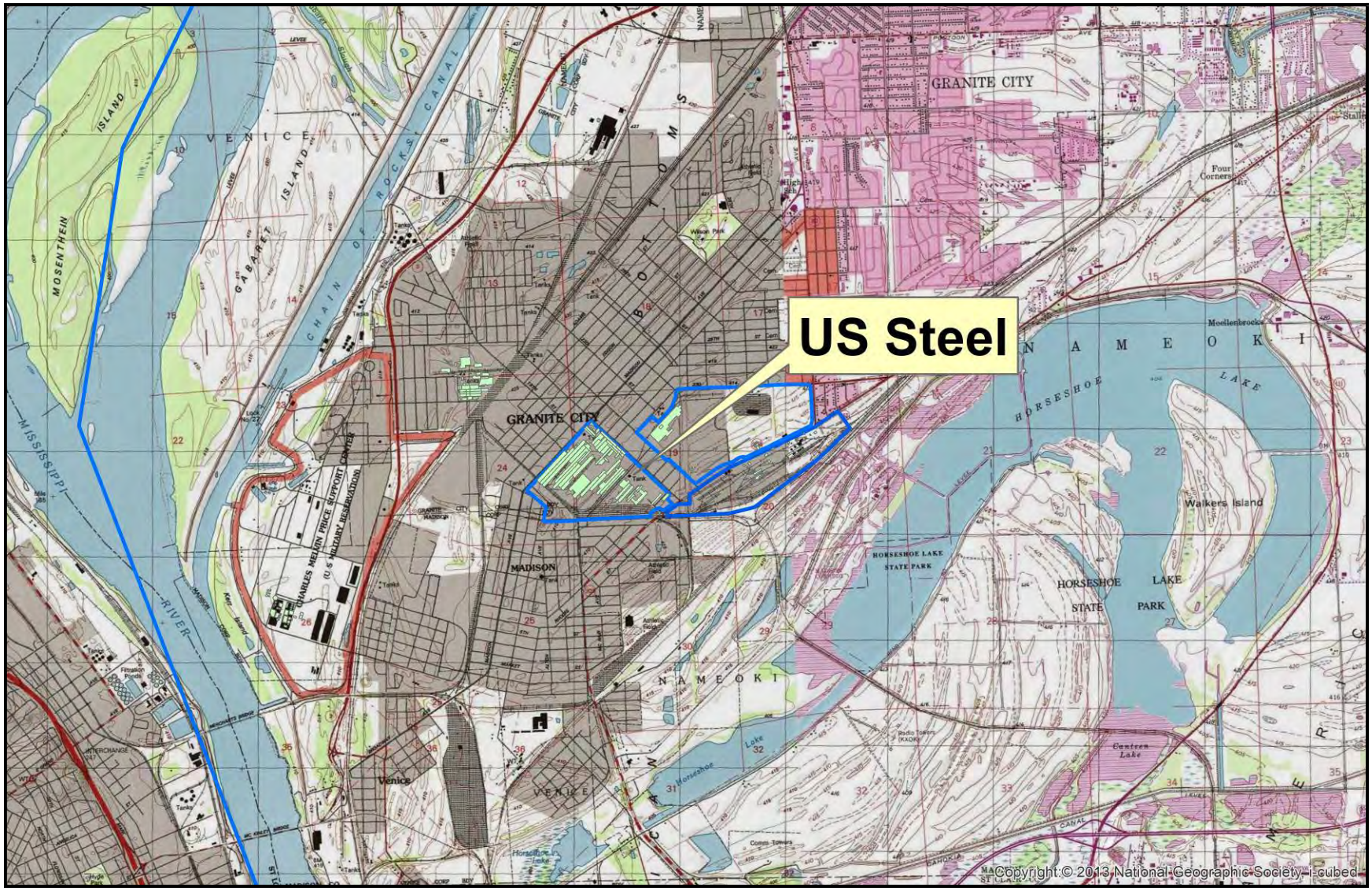


Figure 2. Specific Location of US Steel Granite City Works

4.0 MODEL SELECTION AND MODEL INPUT

4.1 Model Selection

The latest version of the AMS/EPA Regulatory Model (AERMOD, Version 22112) was used to conduct the dispersion modeling analysis. AERMOD is a Gaussian plume dispersion model that is based on planetary boundary layer principals for characterizing atmospheric stability. The model evaluates the non-Gaussian vertical behavior of plumes during convective conditions with the probability density function and the superposition of several Gaussian plumes. AERMOD is a modeling system with three components: AERMAP is the terrain preprocessor program, AERMET is the meteorological data preprocessor and AERMOD includes the dispersion modeling algorithms.

AERMOD is the required default model for calculating ambient concentrations near the US Steel facility based on the model's ability to incorporate multiple sources and source types. The model can also account for convective updrafts and downdrafts and meteorological data throughout the plume depth. The model also provides parameters required for use with up to date planetary boundary layer parameterization. The model also has the ability to incorporate building wake effects and to calculate concentrations within the cavity recirculation zone. All model options were selected as recommended in the USEPA Guideline on Air Quality Models.

Oris Solution's BEEST Graphical User Interface (“GUI”) was used to run AERMOD. The GUI uses an altered version of the AERMOD code to allow for flexibility in the file naming convention. The dispersion algorithms of AERMOD are not altered. Therefore, a model equivalency evaluation pursuant to Section 3.2 of 40 CFR 51, Appendix W was not warranted.

4.2 Model Control Options and Land Use

AERMOD was run in the regulatory default mode for all pollutants with the default rural dispersion coefficients. These coefficients were used by the Illinois Environmental

Protection Agency (“IEPA”) in its evaluation of the facility as part of the 1-hr sulfur dioxide (“SO2”) Data Requirements Rule (“DRR”).

4.3 Source Data

The modeling input data and modeled CO emission rates can be found in Appendix A of this report.

Source Characterization

The majority of modeled source input parameters were obtained from the IEPA’s model conducted for the Data Requirements Rule (“DRR”).

Point Sources

Most emission sources at the site vent to stacks with a well defined opening. These sources were modeled as point sources in AERMOD. Several other types of sources such as fugitive emissions also required evaluation.

Fugitive Emissions

Fugitive emissions are those that are not emitted from a well defined opening. These sources were modeled as volume sources. The initial dispersion coefficients (sigma y and sigma z) were provided by the IEPA and were calculated based upon the dimensions of the area of release and the equations contained in Table 3-1 of the AERMOD User’s Guide.

Flares

The facility uses blast furnace gas flares to combust excess process gas. Emissions that occur only during periods of malfunction are not required to be modeled per 40 CFR Part 51 Appendix W. Non-malfunction emissions were modeled using the procedures outlined in the AERSCREEN Manual[3]. The effective stack height (H, in meters) was computed by the IEPA as a function of heat release rate according to the following equation, where Q is the heat release rate of the flare stack in caloriesper second:

$$H_{equivalent} = H_{actual} + 4.56x10^{-3} \times Q^{0.478}$$

The effective flare stack diameter (d, in meters) was computed as a function of heat release rate according to the following equation, where Q is the heat release rate of the flare in calories per second:

$$d_{equivalent} = 9.88x10^{-4} \times (Q \times 0.45)^{0.5}$$

An exit temperature of 1273K and velocity of 20 m/sec is assumed.

All source locations were based upon a NAD83, UTM Zone 15 projection.

Good Engineering Practice Stack Height Analysis

A Good Engineering Practice ("GEP") stack height evaluation was conducted to determine appropriate building dimensions to include in the model and to calculate the GEP formula stack height used to justify stack height credit for any stacks n excess of 65m. Procedures used are in accordance with those described in the USEPA Guidelines for Determination of Good Engineering Practice Stack Height (Technical Support Document for the Stack Height Regulations-Revised)[4]. GEP formula stack height, as defined in 40 CFR 51, is expressed as GEP = H_b + 1.5L, where H_b is the building height and L is the lesser of the building height or maximum projected width. Building/structure locations were determined from a facility plot plan. The structure locations and heights were obtained from the IEPA and were input to the USEPA's Building Profile Input Program (BPIP-PRIME) computer program to calculate the direction-specific building dimensions needed for AERMOD. The structures included in the GEP analysis are shown as the green blocks in Figure 3. All stacks and structures that are located near a stack were included in the BPIP runs.

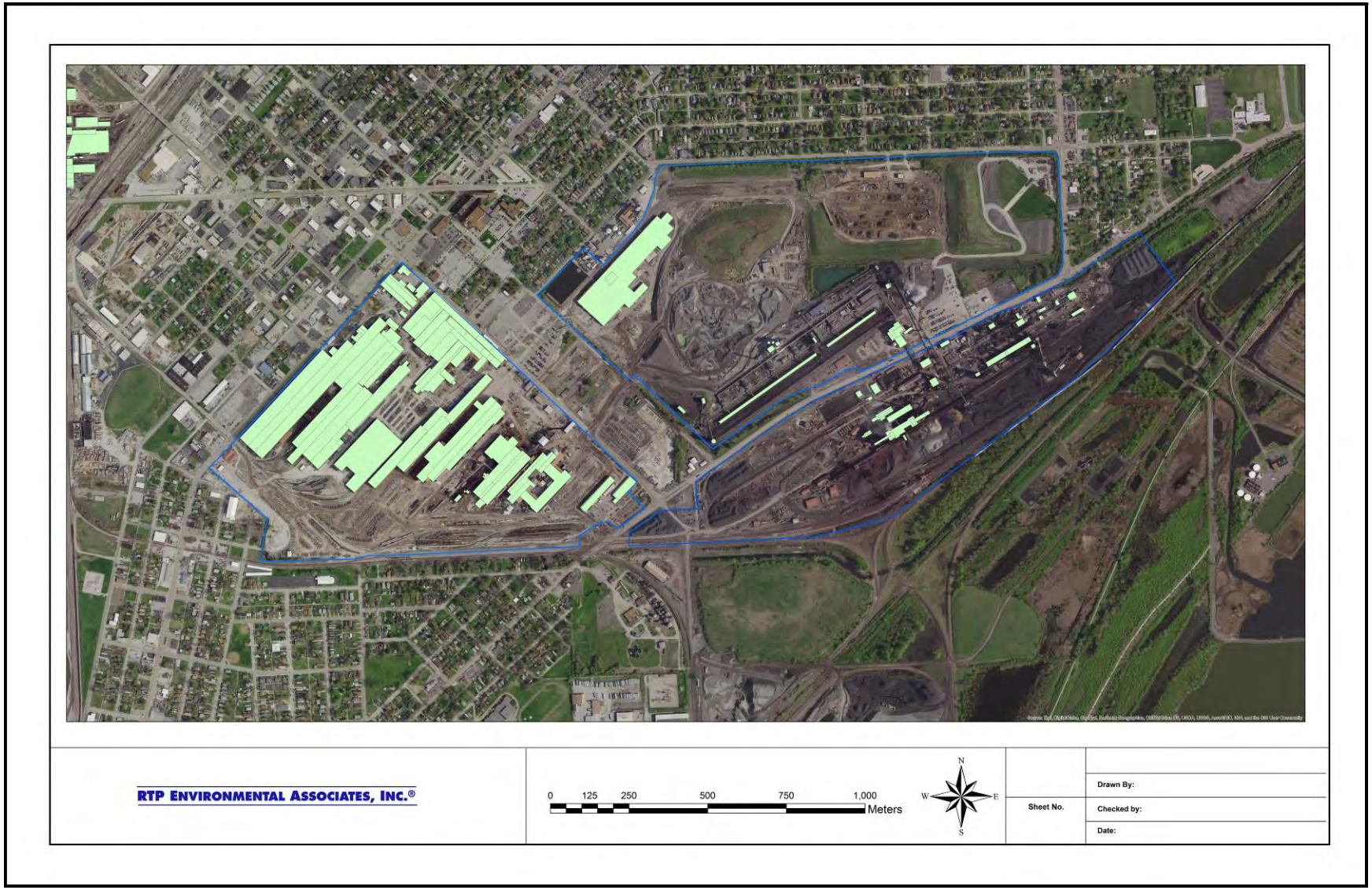


Figure 3. Structures Included in the US Steel GEP Analysis

4.4 Monitored Background Data

Ambient, background pollutant concentrations are needed to establish a representative background concentration to complete the NAAQS portion of the *Source Impact Analysis* of 40 CFR § 52.21(k). The background concentrations are added to the modeled concentrations to assess NAAQS compliance. Ambient pollutant concentrations are also needed to fulfill the *Air Quality Analysis* requirement of 40 CFR § 52.21(m), as discussed in Section 5.0herein.

Pursuant to 40 CFR § 52.21(i)(5), requirements for ambient monitoring data may be waived by the permitting authority if projected increases in ambient concentrations due to the project are less than the Significant Monitoring Concentrations. However, in light of the decision of the D.C. Circuit Court of Appeals *Sierra Club v. EPA*,[5] US Steel has elected not to request such a waiver at this time.

The USEPA Monitoring Guidelines[6], other USEPA interpretive guidance, and USEPA administrative decisions clarify that representative, existing air quality monitoring data may be used to fulfill the PSD pre-construction monitoring requirements and establish background concentrations needed for assessing NAAQS compliance, in lieu of monitoring data. USEPA's Monitoring Guidelines suggest specific criteria to determine representativeness of off-site data: *quality of the data, currentness of the data, and monitor location*.

There are many existing ambient CO monitors within 100 miles in the facility (Figure 4). Existing monitoring data have been evaluated in relation to the criteria provided in USEPA's Ambient Monitoring Guidelines as being representative of the US Steel site.

We have used recently available, quality assured data (2016-2018) from the AQS monitor in East St. Louis, IL (AQS Site # 17-163-0010). 2018 is the latest year of complete, available data. The 4th quarter of 2019 is incomplete and data are not

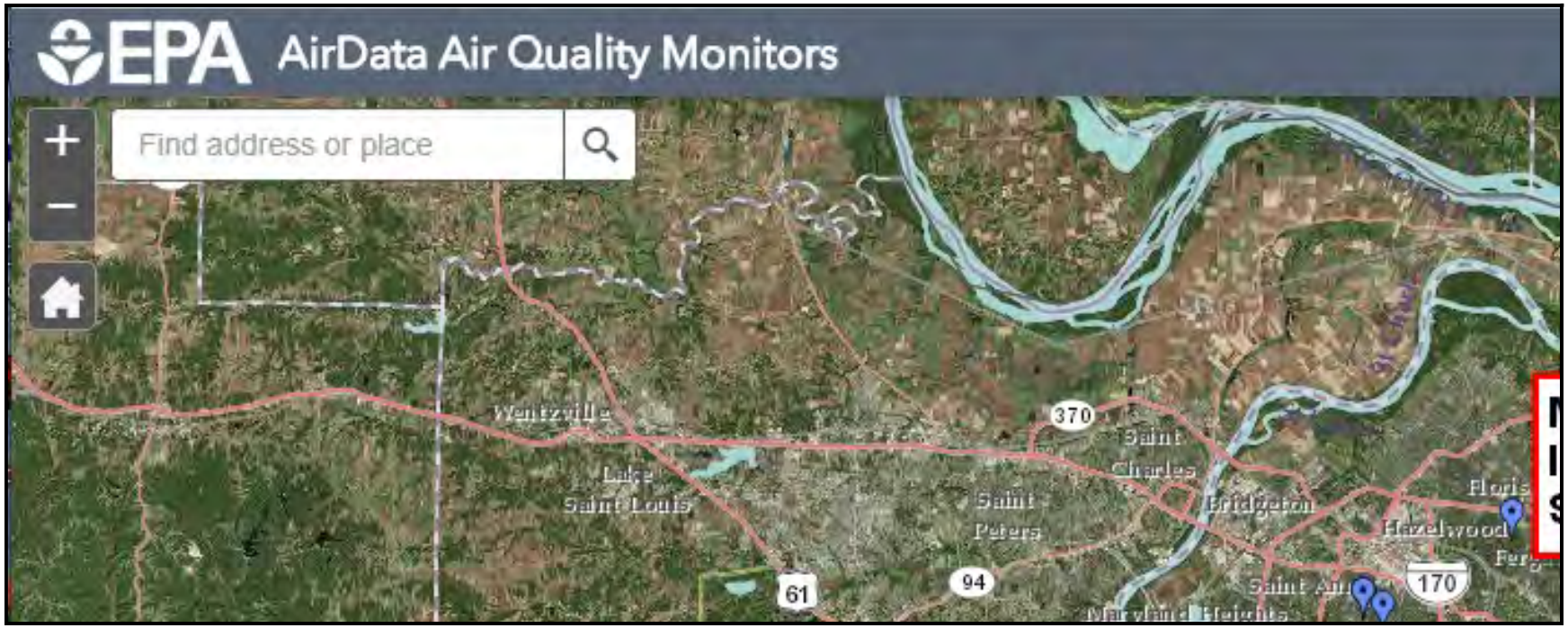


Figure 4. Ambient Air Quality Monitors in the Vicinity of the US Steel Facility

available for 2020-2021. This monitor best represents background concentrations near the facility as it is the closest monitor with current CO data and is in the vicinity of the site and therefore representative of conditions as the site. The background data are presented in Table 1.

Table 1. Proposed Background Concentrations 2016-2018

Pollutant	Averaging Time	Design Value (ppb)[µg/m^3]	Basis	AQS Site No.
CO	1-hour	(2,200) [2,515]	Maximum	17-163-0010 St. Louis
	8-hour	(1,440) [1,646]		

The existing monitoring data satisfy the criteria provided in USEPA's Ambient Monitoring Guidelines[7] as being representative of the site.

Monitor Location

Of the monitors available, the East St. Louis monitor represents background concentrations as it is the closest monitor with data for the pollutants of concern that is not also significantly influenced by the localized source impacts.

Data Quality

The monitor data were collected and quality assured by the IEPA.

Currentness of Data

The data were collected during 2016-2018, which represents the recently available, quality assured data available for use in assessing compliance.

4.5 Receptor Data

Modeled receptors were placed in all areas considered as "ambient air" pursuant to 40 CFR 50.1(e). Ambient air is defined as that portion of the atmosphere, external to buildings, to which the general public has access. Approximately 14,100 receptors were used in the AERMOD significant impacts analysis. The receptor grid consisted of three cartesian grids and receptors located at 50m intervals along the facility fence line.

The first cartesian grid extended to approximately 3.0km from the facility in all directions. Receptors in this region were spaced at 100m intervals. The second grid extended to 7.5km. Receptor spacing in this region were 250m. A third grid extended to 15km with a spacing of 500m. The receptor grid was designed such that maximum facility impacts fall within the 100m spacing of receptors. The receptor grid spacing is presented in Table 2.

Table 2. Receptor Grid Spacing

Receptor Spacing (m)	Distance from Facility (m)
100	3,000
250	5,000
500	15,000

The US Steel facility is located in southern Illinois. Terrain within 10km of the site is generally flat. Receptor elevations and hill height scale factors were calculated with AERMAP (18081). The elevation data were obtained from the USGS one arc second National Elevation Data (NED) obtained from the USGS. Locations were based upon a NAD83, UTM Zone 15 projection. The near-field receptor grid is presented in Figure 5.

4.6 Meteorological Data

The 2016-2020, 5-year sequential hourly surface meteorological data from the National Weather Service (NWS) at St. Louis Lambert Field (WBAN No. 13994) and upper air data from the NWS station in Lincoln, IL (WBAN No. 04833) were used in the analysis. These data were processed into a “model-ready” format using AERMET version 21112.

The AERMET meteorological processor requires estimates of the following surface characteristics: surface roughness length, albedo, and Bowen ratio. The surface roughness length is related to the height of obstacles to the wind flow. It is the height above the surface where the average wind speed is zero. The smoother the surface, the lower the roughness length. The surface roughness length influences the surface shear stress and is an important factor in calculating mechanical turbulence and stability. The albedo is the fraction of the total incident solar radiation reflected by the surface back to space without absorption.

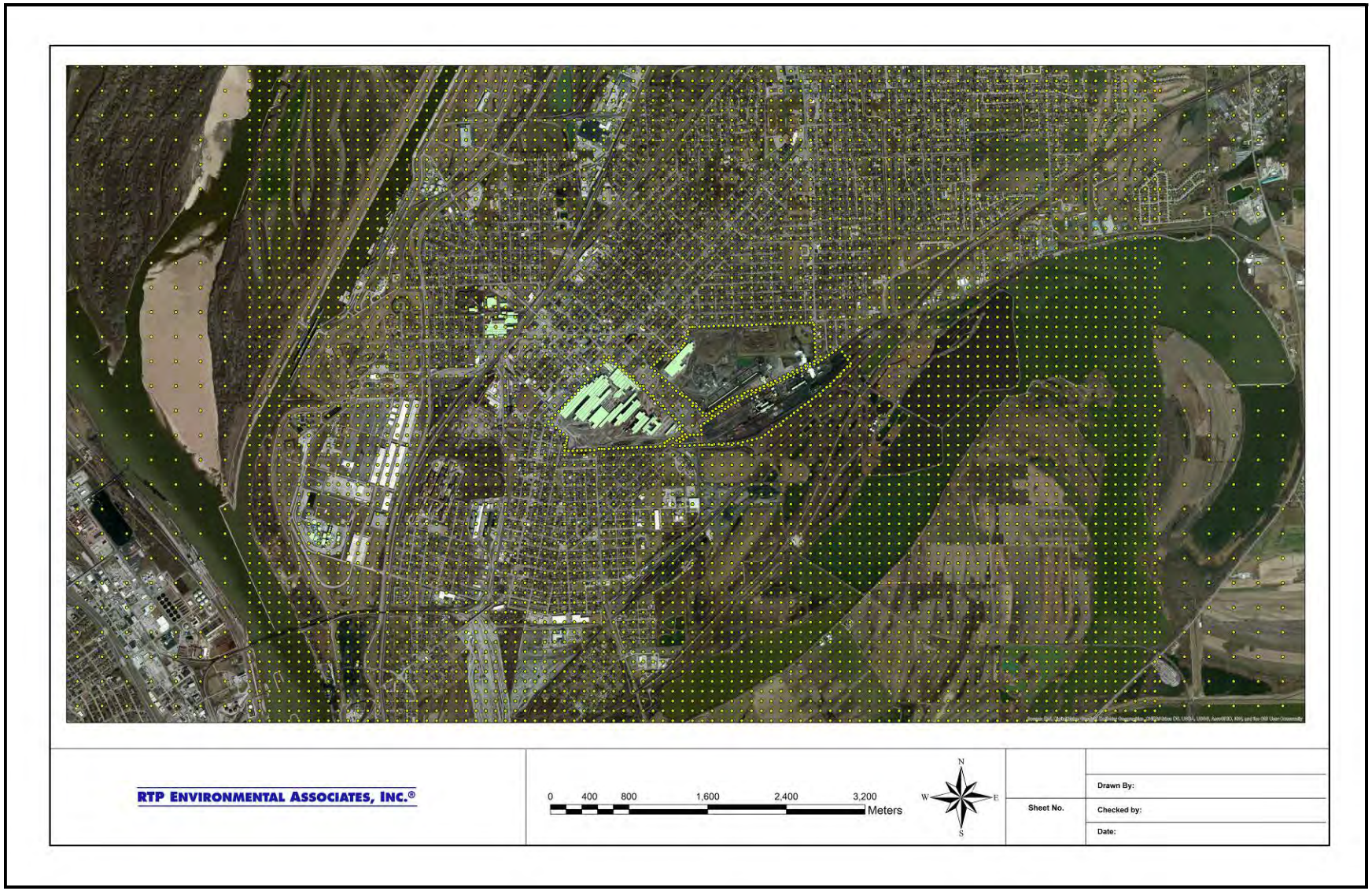


Figure 5. US Steel Facility Near-field Receptor Grid

The Bowen ratio is an indicator of surface moisture and is the ratio of the sensible heat flux to the latent heat flux. The albedo and Bowen ratio are used for determining the planetary boundary layer parameters for convective conditions due to the surface sensible heat flux. Estimates of the surface characteristics were made by the IEPA using USEPA's AERSURFACE program (Version 13016) and provided to RTP Environmental. A 1km search radius was employed at the location of the meteorological tower. Twelve sectors of 30 degrees each and seasonal resolution were used in the AERSURFACE analysis. RTP employed the "ADJ_U*" option to allow for adjustments to the friction velocity under low wind speeds was employed.

The use of NWS meteorological data for dispersion modeling can often lead to a high incidence of calms and variable wind conditions if the data are collected by Automated Surface Observing Stations ("ASOS"), as are in use at most NWS stations since the mid-1990's. A calm wind is defined as a wind speed less than 3 knots and is assigned a value of 0 knots. In addition, variable wind observations may include wind speeds up to 6 knots, but the wind direction is reported as missing, if the wind direction varies more than 60 degrees during the 2-minute averaging period for the observation. The AERMOD model currently cannot simulate dispersion under calm or missing wind conditions. To reduce the number of calms and missing winds in the surface data, archived 1-minute winds for the ASOS stations were used to calculate hourly average wind speed and directions, which were used to supplement the standard archive of hourly observed winds processed in AERMET. The USEPA AERMINUTE program (Version 15272) was used for these calculations. A wind rose of the 5-year meteorological dataset is provided in Figure 6.

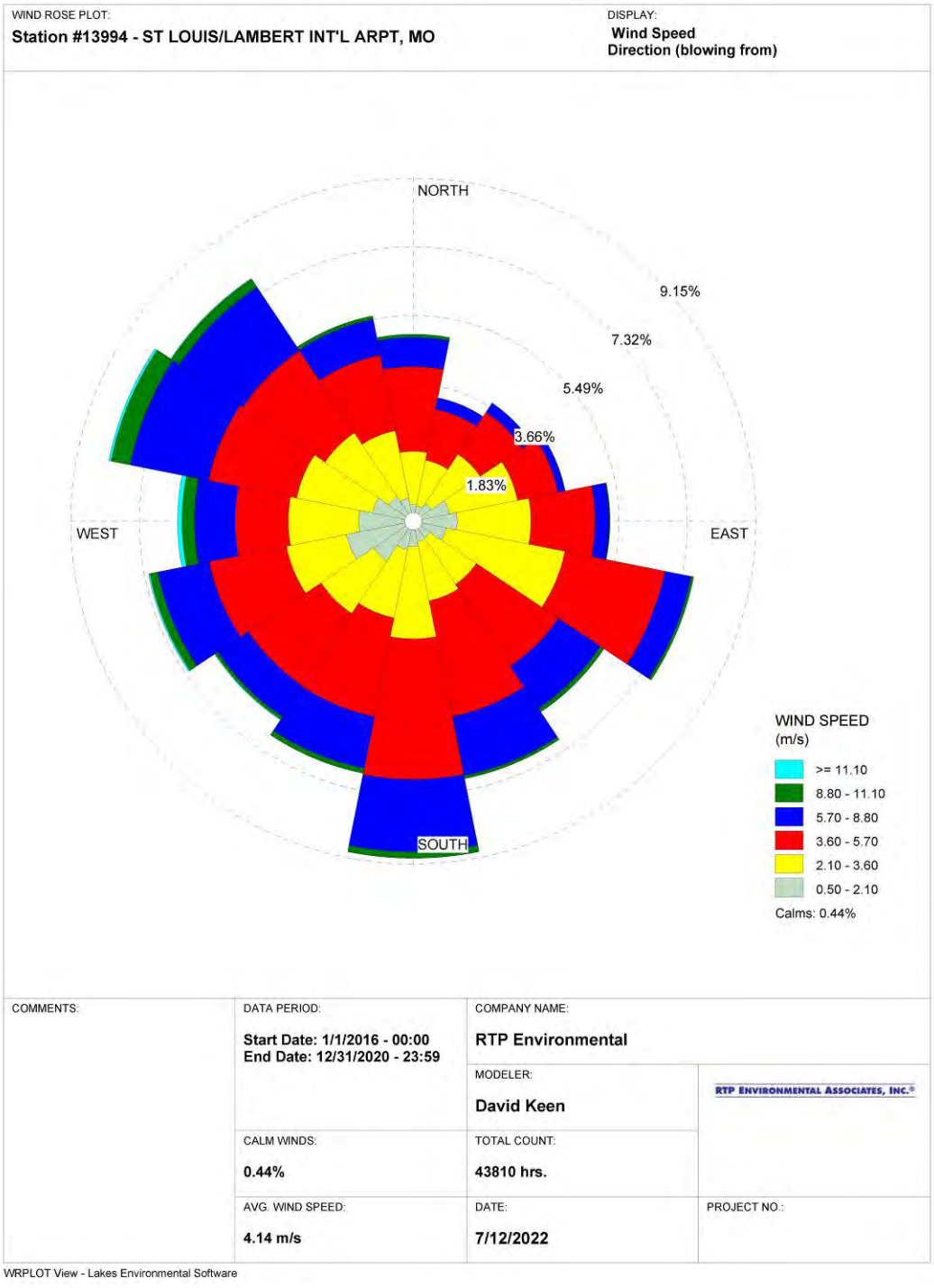


Figure 6. Lambert Field Windrose 2014-2018.

5.0 MODELING METHODOLOGY

5.1 Pollutants Subject to Review

USS Steel is proposing changes to the CO emission limitations in the 1996 Construction Permit that were established per the PSD requirements. Therefore, as requested by Illinois EPA, dispersion modeling of CO emissions have been evaluated and compared to the NAAQS.

5.2 Significant Impact Analysis

The air quality analysis was conducted in two phases: an initial or significant impact analysis, and a refined phase NAAQS analysis. In the significant impact analysis, the calculated maximum impacts due to the project were determined for CO.[b] These impacts determined the net change in air quality resulting from the proposed revision to modification permitted under the 1996 Construction Permit. Five years of meteorological data were used in the significant impact analysis. Maximum modeled CO concentrations were compared to the significance levels. The PSD Class II Significant Impact Levels for CO are listed in Table 3.

Table 3. PSD Class II Significant Impact Levels

Pollutant	Averaging Time	PSD Class II Significant Impact Levels (µg/m^3)
CO	1-hour	2,000
	8-hour	500

[b] For some of the affected emissions units, in place of project related emissions increases, we conservatively used the potential to emit of CO.

5.3 NAAQS Analysis

Following the determination of significant impacts, a refined air quality analysis to determine compliance with the CO NAAQS was conducted. In the NAAQS analysis, impacts from the US Steel facility were added to concentrations calculated from other nearby sources, plus a regional background concentration. The resultant total concentrations were compared to the NAAQS to assess compliance. The receptors modeled in the NAAQS analyses were limited to those showing a significant CO impact. Five years of meteorological data were again used in this analysis.

Nearby Source Inventory

Off-site sources were included in the NAAQS analysis. A 50km radius was used to define the screening area. A list of sources that are located within the screening area has been obtained from the IEPA as well as the Missouri Department of Natural Resources ("MDNR"). Section 8.3.3.b of Appendix W to 40 CFR Part 51 states that the number of nearby sources to be explicitly modeled is expected to be few, except in unusual situations. Appendix W further states that the sources to be included will usually be located within the first 10 to 20km from the source under consideration. In addition, it states that identification of nearby sources calls for the exercise of professional judgment by the appropriate reviewing authority. Further, USEPA's Guidance for PM2.5 Permit Modeling reiterates the Appendix W emphasis on a 10km screening radius for determining which nearby sources to include in the cumulative modeling analysis.

We conservatively included all sources provided by the IEPA and MDNR that are located within 50km of the US Steel facility. Total facility, potential emissions (i.e., all sources at a facility) were used in the NAAQS evaluation.

NAAQS Compliance Assessment

Ambient background concentrations (as discussed in more detail in Section 4.4) were then added to assess NAAQS compliance. The modeled and monitored values shown in Table 4 were used for this assessment.

Table 4. Monitored and Modeled Values Used to Assess NAAQS Compliance

Pollutant	Averaging Time	Monitored Value	Modeled Value
CO	1-hour & 8-hour	Maximum over 3 years	Highest, second high over 5 years

The NAAQS are shown in Table 5.

Table 5. National Ambient Air Quality Standards

Pollutant	Averaging Time	National Ambient Air Quality Standards ($\mu g/m^3$)	
		Primary	Secondary
CO	1-hour	40,000	--
	8-hour	10,000	--

6.0 RESULTS

Attachment B to this report provides the model summary output. AERMOD input and output files, including the BPIP-PRIME files, are included on the enclosed CD.

6.1 Significant Impact Analysis Results

The project results in CO impacts in excess of the 8-hour Significant Impact Level shown in Table 3. The significant impact analysis results are presented in Table 6. Based upon the results of the significant impacts analysis, a cumulative, NAAQS analysis was conducted.

6.2 NAAQS Analysis Results

Following the determination of significant impacts, an analysis was conducted to assess compliance with the CO NAAQS. The project resulted in insignificant 1-hr CO impacts, as a result the 1-hr average was not included in the NAAQS assessment. All sources located within 50km of the US Steel facility were modeled in conjunction with the US Steel facility in assessing compliance. Background concentrations were added to the model results to assess compliance. Evaluation of compliance with the CO short term standards was based upon the maximum of the highest-second-highest values from the five-year meteorological dataset.

The results of the NAAQS analysis are presented in Table 7. As can be seen, the model demonstrates compliance.

Table 6. Significant Impact Analysis Results

Pollutant	Averaging Period	Maximum Modeled Impact (µg/m^3)	PSD Significant Class II Impact Level (µg/m^3)	Significant Monitoring Concentration (µg/m^3)	Maximum Distance to a Significant Impact (km)
CO	1-hr	1,157	2,000	N/A	NA
	8-hr	692	500	575	2.2

N/A – Not applicable, impacts calculated to be insignificant.

Table 7. NAAQS Analysis Results

Pollutant	Averaging Period	Modeled Concentration (µg/m^3)	Background Concentration (µg/m^3)	Total Concentration (µg/m^3)	Standard (µg/m^3)	Comment
CO	8-hour	2,045	1,646	3,691	10,000	Compliant

ATTACHMENT A

MODELING INPUT DATA

.

US Steel Granite City Point Source Model Input (NAD83, Zone 15)
Last Update (10-5-22)

Source ID		Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	CO Potential Emissions (lb/hr)	CO Emissions Increase (lb/hr)
132833	DEFAULT	Blast Furnace A Stoves	749816.02	4286809.08	416.83	217.0	500.0	49.66	7.0	1604.52	1604.52
132838	DEFAULT	Blast Furnace B Stoves	749665.50	4286719.93	417.16	225.0	500.0	51.05	9.8	1837.76	1837.76
132837	DEFAULT	Blast Furnace Gas Flare #1	749777.33	4286841.02	418.21	221.8	1831.7	65.62	15.4	6280.99	6280.99
240479	DEFAULT	Blast Furnace Gas Flare #2	749865.93	4286920.23	416.24	221.8	1831.7	65.62	15.4	6280.99	0.00
132836	DEFAULT	Casthouse Baghouse	749616.61	4286732.18	417.75	63.0	150.0	63.88	11.0	63.77	21.68
132927	DEFAULT	Blast Furnace A and B Iron Spout Baghouse	749831.35	4286818.73	415.98	43.0	123.0	43.04	7.8	6.43	2.19
238459	DEFAULT	Cogeneration Boiler BFG-fired some NG-firing	749776.38	4287073.85	415.19	137.0	400.1	62.11	6.0	203.08	0.00
132867	DEFAULT	Boiler 11	749865.15	4286883.84	416.24	149.9	335.0	29.82	8.0	90.48	90.48
132872	DEFAULT	Boiler 12	749881.40	4286887.85	416.50	150.0	335.0	26.74	8.0	90.48	90.48
BOF	DEFAULT	BOF ESP	748415.00	4286681.00	416.57	125.0	400.0	50.00	15.0	4121.79	1274.01
BOF2ND	DEFAULT	BOF Secondary Baghouse	748625.57	4286763.99	413.00	160.0	275.0	38.55	17.0	19.69	19.69
132842	DEFAULT	Slab Reheat Furnace #1	747729.70	4286762.02	417.52	56.8	650.1	44.88	8.0	26.52	0.00
172532	DEFAULT	Slab Reheat Furnace #2	747715.25	4286747.05	416.47	56.8	650.1	44.88	8.0	26.52	0.00
172512	DEFAULT	Slab Reheat Furnace #3	747700.79	4286730.53	415.88	56.8	650.1	44.88	8.0	26.52	0.00
172514	DEFAULT	Slab Reheat Furnace #4	747700.27	4286714.00	416.08	146.0	736.1	26.94	13.7	40.76	0.00
132849	DEFAULT	Galvanizing line #8 - fume scrubber	748883.00	4287195.00	416.57	80.0	80.0	41.66	3.0	0.00	0.00
229337	DEFAULT	Galvanizing line #8 - space heaters	748398.00	4287038.00	418.90	39.0	284.1	23.16	2.0	0.00	0.00
229338	DEFAULT	Galvanizing line #8 - drying oven and storage area heaters	748398.00	4287038.00	418.90	39.0	284.1	23.16	2.0	0.00	0.00
229339	DEFAULT	Galvanizing line #8 - miscellaneous heaters	748398.00	4287038.00	418.90	39.0	284.1	23.16	2.0	0.00	0.00
229601	DEFAULT	Emergency Generator (3500 HP)	749641.00	4286863.00	416.17	37.0	442.0	32.80	1.9	0.00	0.00
GTEWY1	DEFAULT	Gateway Energy & Coke Co., LLC - Coking (New Main Stack)	749279.00	4286984.00	415.78	199.9	293.1	48.249	13.0	2.62E+01	0.00
GTEWY2	DEFAULT	Gateway Energy & Coke Co., LLC - Charging - Stack 2 of 6	749549.00	4287055.00	418.18	26.0	299.9	68.093	4.5	6.68E-02	0.00
GTEWY3	DEFAULT	Gateway Energy & Coke Co., LLC - Charging - Stack 3 of 6	749433.00	4286972.00	418.93	26.0	299.9	68.093	4.5	6.64E-02	0.00
GTEWY4	DEFAULT	Gateway Energy & Coke Co., LLC - Charging - Stack 4 of 6	749357.00	4286918.00	418.64	26.0	299.9	68.093	4.5	6.68E-02	0.00
GTEWY5	DEFAULT	Gateway Energy & Coke Co., LLC - Charging - Stack 5 of 6	749278.00	4286861.00	418.44	26.0	299.9	68.093	4.5	6.68E-02	0.00
GTEWY6	DEFAULT	Gateway Energy & Coke Co., LLC - Charging - Stack 6 of 6	749202.00	4286808.00	418.60	26.0	299.9	68.093	4.5	6.64E-02	0.00
GTEWY7	DEFAULT	Gateway Energy & Coke Co., LLC - Charging - Stack 1 of 6	749624.00	4287108.00	418.50	26.0	299.9	68.093	4.5	6.68E-02	0.00
GTEWY8	DEFAULT	Gateway Energy & Coke Co., LLC - Waste heat stack 1	749199.00	4286809.00	418.60	85.0	2000.0	74.653	9.0	7.30E-01	0.00
GTEWY9	DEFAULT	Gateway Energy & Coke Co., LLC - Pushing - Stack 1 of 6	749620.00	4287113.00	418.11	20.0	400.0	69.602	5.0	1.31E+00	0.00
GTEWY10	DEFAULT	Gateway Energy & Coke Co., LLC - Waste heat stack 2	749274.00	4286862.00	418.31	85.0	2000.0	74.653	9.0	7.35E-01	0.00
GTEWY11	DEFAULT	Gateway Energy & Coke Co., LLC - Waste heat stack 3	749353.00	4286919.00	418.67	85.0	2000.0	74.653	9.0	7.30E-01	0.00
GTEWY12	DEFAULT	Gateway Energy & Coke Co., LLC - Waste heat stack 4	749429.00	4286973.00	419.00	85.0	2000.0	74.653	9.0	7.35E-01	0.00
GTEWY13	DEFAULT	Gateway Energy & Coke Co., LLC - Waste heat stack 5	749545.00	4287055.00	418.27	85.0	2000.0	74.653	9.0	7.35E-01	0.00
GTEWY14	DEFAULT	Gateway Energy & Coke Co., LLC - Waste heat stack 6	749620.00	4287109.00	418.34	85.0	2000.0	74.653	9.0	7.35E-01	0.00
GTEWY15	DEFAULT	Gateway Energy & Coke Co., LLC - Pushing - Stack 2 of 6	749545.00	4287060.00	418.24	20.0	400.0	69.602	5.0	1.32E+00	0.00
GTEWY16	DEFAULT	Gateway Energy & Coke Co., LLC - Pushing - Stack 3 of 6	749429.00	4286977.00	418.93	20.0	400.0	69.602	5.0	1.32E+00	0.00
GTEWY17	DEFAULT	Gateway Energy & Coke Co., LLC - Pushing - Stack 4 of 6	749352.00	4286923.00	418.57	20.0	400.0	69.602	5.0	1.31E+00	0.00
GTEWY18	DEFAULT	Gateway Energy & Coke Co., LLC - Pushing - Stack 5 of 6	749274.00	4286866.00	418.24	20.0	400.0	69.602	5.0	1.32E+00	0.00
GTEWY19	DEFAULT	Gateway Energy & Coke Co., LLC - Pushing - Stack 6 of 6	749198.00	4286813.00	418.77	20.0	400.0	69.602	5.0	1.32E+00	0.00

US Steel Granite City Volume Source Inputs

Source ID	Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Release Height (ft)	Sigma Y (ft)	Sigma Z (ft)	CO Potential Emissions (lb/hr)	CO Emissions Increase (lb/hr)
26070	Ladle Preheaters/Dryers (formerly BOF 4, NG & COG) - Roof Monitor	748457.20	4286596.40	413.88	169.0	21.6	78.6	1.373	1.373
26080	Ladle Preheaters/Dryers (formerly BOF 4, NG & COG) - Roof Monitor	748466.60	4286606.00	413.98	169.0	21.6	78.6	1.373	1.373
26090	Ladle Preheaters/Dryers (formerly BOF 4, NG & COG) - Roof Monitor	748475.40	4286616.10	413.88	169.0	21.6	78.6	1.373	1.373
26100	Ladle Preheaters / Dryers (formerly BOF 5, NG & COG) - Roof Monitor	748483.60	4286624.10	413.85	169.0	21.6	78.6	1.029	1.029
26110	Ladle Preheaters / Dryers (formerly BOF 5, NG & COG) - Roof Monitor	748495.20	4286635.90	414.01	169.0	21.6	78.6	1.029	0.000
26120	Ladle Preheaters / Dryers (formerly BOF 5, NG & COG) - Roof Monitor	748504.10	4286646.00	414.37	169.0	21.6	78.6	1.029	0.000
26130	Ladle Preheaters / Dryers (formerly BOF 5, NG & COG) - Roof Monitor	748513.90	4286656.70	414.63	169.0	21.6	78.6	1.029	0.000
26570	Galv Line 8	748368.26	4287046.91	420.41	101.7	12.3	48.5	0.254	0.000
26580	Galv Line 8	748374.01	4287041.49	420.11	101.7	12.3	48.5	0.254	0.000
26590	Galv Line 8	748379.56	4287036.28	419.82	101.7	12.3	48.5	0.254	0.000
26600	Galv Line 8	748420.52	4286997.79	419.55	38.0	15.1	38.0	0.254	0.000
26610	Galv Line 8	748428.00	4286990.81	419.95	38.0	15.1	38.0	0.254	0.000
26620	Galv Line 8	748436.60	4286982.91	419.85	38.0	15.1	38.0	0.254	0.000
26630	Galv Line 8	748444.54	4286975.49	419.62	38.0	15.1	38.0	0.254	0.000
26640	Galv Line 8	748451.78	4286968.87	418.50	38.0	15.1	38.0	0.254	0.000
26650	Galv Line 8	748324.79	4287118.60	421.65	38.0	15.6	17.7	0.254	0.000
26660	Galv Line 8	748331.95	4287112.00	421.52	38.0	15.6	17.7	0.254	0.000
26670	Galv Line 8	748340.34	4287104.30	421.39	38.0	15.6	17.7	0.254	0.000
26680	Galv Line 8	748347.69	4287097.51	421.29	38.0	15.6	17.7	0.254	0.000
26690	Galv Line 8	748354.48	4287091.31	421.16	38.0	15.6	17.7	0.254	0.000
26700	Galv Line 8	748362.29	4287084.18	420.87	38.0	15.6	17.7	0.254	0.000
26710	Galv Line 8	748370.46	4287076.71	420.51	38.0	15.6	17.7	0.254	0.000
26720	Galv Line 8	748378.04	4287069.70	420.14	38.0	15.6	17.7	0.254	0.000
26730	Galv Line 8	748385.51	4287062.91	419.52	38.0	15.6	17.7	0.254	0.000
0126A_1	Slag Pit Volume 1	749691.91	4286762.44	418.70	53.0	29.0	17.7	0.000	0.000
0126A_2	Slag Pit Volume 2	749708.01	4286772.50	421.33	53.0	29.0	17.7	0.000	0.000
0126A_3	Slag Pit Volume 3	749724.24	4286782.31	420.44	53.0	29.0	17.7	0.000	0.000
0126A_4	Slag Pit Volume 4	749740.84	4286791.62	419.00	53.0	29.0	17.7	0.000	0.000
0126A_5	Slag Pit Volume 5	749757.20	4286801.31	418.86	53.0	29.0	17.7	0.000	0.000

Off-Site Point Source Model Input (NAD83, Zone 15)

Source ID		Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	Potential Emissions (lb/hr)		
										CO	SOx	SO2 (1-hour)
IL131772	DEFAULT	Star Memorial Pet Crematory - Crematory	749244.00	4324486.00	641.44	16.0	800.0	27.585	1.0	2.70E+00	0.00E+00	0.00E+00
IL131841	DEFAULT	Alton Steel Inc. - Electric arc furnaces	747753.00	4307832.00	433.07	100.0	250.1	31.029	24.2	2.25E+02	7.07E+01	7.07E+01
IL131845	DEFAULT	Alton Steel Inc. - 14 inch rolling mill reheat furnace	747645.00	4307692.00	432.64	106.0	200.0	2.394	16.0	2.40E+01	0.00E+00	0.00E+00
IL131945	DEFAULT	Alton Memorial Hospital - 3 Boilers	746364.00	4309470.00	521.36	89.0	389.9	24.108	3.0	0.00E+00	1.28E+01	1.28E+01
IL132052	DEFAULT	Olin Winchester, LLC - Package Boiler (B-4)	750887.00	4308614.00	435.63	35.0	400.0	84.854	2.0	0.00E+00	4.57E+00	4.57E+00
IL132062	DEFAULT	Olin Winchester, LLC - Package Boiler (B-3)	750891.00	4308619.00	435.89	35.0	400.0	84.854	2.0	0.00E+00	4.60E+00	4.60E+00
IL132063	DEFAULT	Olin Winchester, LLC - Package Boiler (B-2)	750892.00	4308613.00	435.53	35.0	400.0	84.854	2.0	0.00E+00	4.57E+00	4.57E+00
IL132064	DEFAULT	Olin Winchester, LLC - Package Boiler (B-1)	750888.00	4308609.00	435.30	35.0	400.0	84.854	2.0	0.00E+00	4.60E+00	4.60E+00
IL132065	DEFAULT	Olin Winchester, LLC - Package Boiler (B-5)	750883.00	4308610.00	435.27	35.0	400.0	84.854	2.0	0.00E+00	4.60E+00	4.60E+00
IL132148	DEFAULT	Amsted Rail Co., Inc. - Electric Arc Furnace #1 (EF-1)	747122.00	4287625.00	425.26	55.0	250.1	54.087	6.2	3.84E+01	4.07E+00	4.07E+00
IL132149	DEFAULT	Amsted Rail Co., Inc. - Electric Arc Furnace #2 (EF-2)	747147.00	4287625.00	425.20	44.0	250.1	42.443	7.0	3.84E+01	4.07E+00	4.07E+00
IL132193	DEFAULT	Velocity Services, LLC. - North American Boiler	748928.00	4286192.00	416.21	27.0	450.1	24.305	2.3	2.36E+00	0.00E+00	0.00E+00
IL132194	DEFAULT	Velocity Services, LLC. - Cleaver Brooks boiler	748928.00	4286192.00	416.21	29.0	440.0	39.590	2.0	2.36E+00	0.00E+00	0.00E+00
IL132225	DEFAULT	Gateway Regional Medical Center - Boiler #3	748587.00	4287448.00	426.05	48.0	600.0	41.131	4.5	1.53E+00	1.28E+01	1.28E+01
IL132226	DEFAULT	Gateway Regional Medical Center - Boilers #1 and 2	748592.00	4287452.00	425.95	48.0	600.0	38.966	4.5	3.07E+00	2.57E+01	2.57E+01
IL132247	DEFAULT	Prairie Farms Dairy, Inc. - Boiler #1	747505.00	4287550.00	424.64	75.0	375.0	30.078	2.5	1.30E-01	0.00E+00	0.00E+00
IL132248	DEFAULT	Prairie Farms Dairy, Inc. - Boiler #2	747505.00	4287550.00	424.64	25.0	375.0	65.010	2.5	2.40E-01	1.19E+00	1.19E+00
IL132324	DEFAULT	Precoat Metals - Afterburner AB1 and AB2	749469.00	4292538.00	424.97	34.0	1000.0	64.518	4.0	3.23E+00	0.00E+00	0.00E+00
IL132424	DEFAULT	Highland Electric Light Plant - Engine IC-5	788126.93	4293320.17	534.65	28.0	612.1	84.854	2.0	2.07E+01	0.00E+00	0.00E+00
IL132425	DEFAULT	Highland Electric Light Plant - Engine IC-7	788126.93	4293320.17	534.65	57.0	734.1	6.265	11.4	2.51E+01	0.00E+00	0.00E+00
IL132496	DEFAULT	ConocoPhillips Co. - Catalytic reformer #1 (STK12-4)	754869.00	4302625.00	442.55	349.9	600.0	56.810	15.0	6.28E+01	9.53E+01	9.53E+01
IL132510	DEFAULT	ConocoPhillips Co. - Distilling unit: HTR-DU1-F301 (STK5-2)	754327.00	4303077.00	444.69	185.0	319.0	21.878	8.0	1.21E+01	0.00E+00	0.00E+00
IL132511	DEFAULT	ConocoPhillips Co. - Distilling unit: HTR-DU1-F302 (STK5-1)	754326.00	4303100.00	444.49	150.0	150.0	11.677	8.5	1.57E+01	5.29E+00	5.29E+00
IL132512	DEFAULT	ConocoPhillips Co. - Steam methane reformer: SMR Heater (HTR-SMR - STK12-8)	754873.00	4302750.00	443.04	199.9	749.9	36.638	12.0	4.75E+01	6.82E+01	6.82E+01
IL132516	DEFAULT	ConocoPhillips Co. - Rectified absorption unit: Reboiler heater (HTR-RAU-DEBUT - STK5-5)	754470.00	4302943.00	444.98	75.0	850.0	34.440	5.0	7.14E+00	0.00E+00	0.00E+00
IL132517	DEFAULT	ConocoPhillips Co. - Rectified absorption system to RFG	754240.00	4303144.00	443.47	150.0	710.0	26.338	6.0	0.00E+00	1.20E+02	1.20E+02
IL132519	DEFAULT	ConocoPhillips Co. - Cracked absorption unit (HTR-CAU-ROSTILL - STK5-4)	754468.00	4302963.00	445.41	85.0	800.0	22.173	7.2	6.72E+00	0.00E+00	0.00E+00
IL132526	DEFAULT	ConocoPhillips Co. - CCU-1 Startup heater B-1	754240.00	4303144.00	443.47	212.0	500.1	86.953	4.5	0.00E+00	3.55E+01	3.55E+01
IL132535	DEFAULT	ConocoPhillips Co. - Catalytic cracking unit #2 (STK6-3)	754848.00	4302895.00	443.27	199.9	175.0	49.954	11.0	4.72E+01	2.17E+03	2.17E+03
IL132551	DEFAULT	ConocoPhillips Co. - Alkylation unit: HTR-ALKY-HM2 (STK6-6)	754930.00	4303043.00	442.59	150.9	475.1	12.398	5.7	4.32E+00	0.00E+00	0.00E+00
IL132556	DEFAULT	ConocoPhillips Co. - Utility boiler #15 (STK12-15)	754859.00	4302776.00	443.44	132.0	425.0	43.165	7.0	2.65E+01	1.62E+01	1.62E+01
IL132557	DEFAULT	ConocoPhillips Co. - Utility boiler #16 (STK12-16)	754875.00	4302778.00	443.21	132.0	425.0	43.165	7.0	2.78E+01	1.41E+01	1.41E+01
IL132558	DEFAULT	ConocoPhillips Co. - Utility boiler 17 (STK12-17)	754902.00	4302784.00	442.91	150.0	317.0	52.218	10.0	3.60E+01	1.82E+01	1.82E+01
IL132559	DEFAULT	ConocoPhillips Co. - Utility boiler 18 (STK6-9)	754919.00	4302809.00	442.52	100.0	325.0	14.465	6.2	3.00E+01	6.61E+00	6.61E+00
IL132561	DEFAULT	ConocoPhillips Co. - Hydrodesulfurization unit #1: Charge heater (HTR-HDU-1 - STK13-1)	755217.00	4302588.00	442.16	150.0	790.1	32.144	5.0	5.60E+00	0.00E+00	0.00E+00
IL132564	DEFAULT	ConocoPhillips Co. - Hydrodesulfurization unit #2: Charge heater (HTR-HDU-2 - STK12-14)	755022.00	4302530.00	442.95	150.0	900.1	31.422	5.8	4.90E+00	0.00E+00	0.00E+00
IL132565	DEFAULT	ConocoPhillips Co. - Cat reformer #3: Stabilizer reboiler (HTR-CR3-H2 - STK12-9)	755014.00	4302580.00	442.62	150.0	950.1	7.019	7.8	4.79E+00	0.00E+00	0.00E+00
IL132567	DEFAULT	ConocoPhillips Co. - Catalytic reformer unit #3: Charge heater (HTR-CR3 -H4)	755019.00	4302571.00	442.65	150.0	800.0	28.766	7.8	1.75E+01	8.04E+00	8.04E+00
IL132568	DEFAULT	ConocoPhillips Co. - Catalytic reformer unit #3: First interreactor heater (HTR-CR3-H5)	755019.00	4302548.00	442.78	150.0	749.9	26.929	7.8	2.11E+01	6.93E+00	6.93E+00
IL132569	DEFAULT	ConocoPhillips Co. - Cat reformer #3: Second interreactor heater (HTR-CR3-H6 - STK12-12)	755019.00	4302559.00	442.72	150.0	749.9	14.006	7.8	5.55E+00	0.00E+00	0.00E+00
IL132594	DEFAULT	ConocoPhillips Co. - Sulfuric acid tank	755114.00	4302829.00	441.93	40.0	186.0	26.273	2.0	1.78E+00	2.35E+00	2.35E+00
IL132598	DEFAULT	ConocoPhillips Co. - CCU-2 Startup heater B-1	754240.00	4303144.00	443.47	16.0	509.1	32.964	3.2	4.40E-01	0.00E+00	0.00E+00
IL132599	DEFAULT	Airgas USA, LLC - Liquified carbon dioxide plant	756314.00	4302509.00	435.93	30.0	70.1	79.573	0.2	4.10E-01	0.00E+00	0.00E+00
IL132701	DEFAULT	Kinder Morgan Liquids Terminals, LLC - New Truck loading rack	752998.00	4303578.00	435.63	20.0	70.1	0.262	2.2	4.87E+00	0.00E+00	0.00E+00
IL132739	DEFAULT	National Maintenance and Repair - Cleaver Brooks boiler (Stack 1 of 2)	750915.00	4300904.00	402.46	34.0	450.1	23.321	2.0	1.90E+00	5.00E+00	5.00E+00
IL132777	DEFAULT	Elias Kallal & Schaaf Funeral Home & Crematory - Crematorium	742098.00	4312210.00	627.20	30.0	1400.1	18.368	1.7	3.00E+00	0.00E+00	0.00E+00
IL132781	DEFAULT	Christ Bros Products, LLC - Baghouse	754160.00	4283243.00	419.46	32.0	240.0	83.706	3.9	5.56E+01	2.48E+01	2.48E+01
IL132928	DEFAULT	Enable Mississippi River Transmission, LLC - Engine SN-02	782556.00	4285336.00	492.29	30.0	1000.0	9.414	2.6	1.36E+01	0.00E+00	0.00E+00
IL133625	DEFAULT	Waterloo City Light Plant - Engine #1	748326.00	4246769.00	640.45	29.0	749.9	13.579	2.3	4.00E+01	1.35E+00	1.35E+00
IL133627	DEFAULT	Waterloo City Light Plant - Engine #9	748326.00	4246769.00	640.45	17.0	936.1	84.854	1.0	1.50E+01	3.60E+00	3.60E+00
IL133628	DEFAULT	Waterloo City Light Plant - Engine #10	748326.00	4246769.00	640.45	17.0	936.1	84.854	1.0	1.50E+01	3.60E+00	3.60E+00
IL135983	DEFAULT	Lakeview Memorial Gardens - Crematory	762896.00	4273894.00	579.89	16.0	895.0	26.666	2.6	8.40E+00	0.00E+00	0.00E+00
IL136012	DEFAULT	Breckenridge of IL - Natural gas combustion	756461.00	4277782.00	423.82	38.0	341.0	25.781	2.7	3.94E+00	0.00E+00	0.00E+00
IL136014	DEFAULT	Touchette Regional Hospital - 2 Boilers	751890.00	4273014.00	415.94	39.0	800.0	6.560	3.7	2.26E+00	0.00E+00	0.00E+00
IL136018	DEFAULT	Upchurch Ready Mix Concrete Company - Boiler	749859.00	4276616.00	418.44	30.0	376.1	29.684	3.7	0.00E+00	3.00E-01	3.00E-01

Off-Site Point Source Model Input (NAD83, Zone 15)

Source ID		Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	Potential Emissions (lb/hr)		
										CO	SOx	SO2 (1-hour)
IL136098	DEFAULT	Safety Kleen Systems, Inc. - Pipe still (heat exchanger)	749786.00	4276425.00	420.28	15.0	170.0	0.295	1.0	0.00E+00	1.38E+00	1.38E+00
IL136125	DEFAULT	Milam Recycling and Disposal Facility - Open flare	750434.00	4282812.00	420.54	42.0	1800.1	10.070	1.0	1.83E+01	6.00E+00	6.00E+00
IL136129	DEFAULT	Village of Freeburg - Engine #6	769352.00	4257578.00	509.42	24.0	749.9	24.239	1.8	3.93E+00	0.00E+00	0.00E+00
IL136130	DEFAULT	Village of Freeburg - Engine #4	769352.00	4257578.00	509.42	25.0	550.0	87.871	1.3	9.60E+00	0.00E+00	0.00E+00
IL136131	DEFAULT	Village of Freeburg - Engine #7	769352.00	4257578.00	509.42	22.0	900.1	18.926	2.7	4.50E+01	4.43E+00	4.43E+00
IL136169	DEFAULT	Darling Ingredients, Inc. - Continuous rendering process	747472.00	4281438.00	414.93	44.0	74.9	84.854	4.0	6.67E+00	1.43E+00	1.43E+00
IL136187	DEFAULT	Asphalt Sales & Products Inc. - Drum mix asphalt plant	772959.00	4275690.00	514.30	33.0	325.0	47.134	4.5	6.49E+01	2.90E+01	2.90E+01
IL136486	DEFAULT	Cerro Flow Products, LLC. - Piercing Mill Furnace #2	746228.00	4275272.00	407.32	25.0	299.9	38.901	2.0	8.65E-01	0.00E+00	0.00E+00
IL136547	DEFAULT	Christ Bros Products, LLC - Drum mix asphalt plant	747162.00	4269805.00	448.72	36.0	315.1	86.592	3.5	1.34E+01	5.91E+00	5.91E+00
IL142809	DEFAULT	Magnesium Elektron North America - Combustion units	746452.00	4285724.00	415.49	60.0	450.1	30.537	2.0	1.02E+01	4.44E+00	4.44E+00
IL143317	DEFAULT	Waterloo City Light Plant - Engine #11	748326.00	4246769.00	640.45	17.0	936.1	84.854	1.0	1.50E+01	3.60E+00	3.60E+00
IL143319	DEFAULT	Waterloo City Light Plant - Engine #7	748326.00	4246769.00	640.45	33.0	749.9	84.854	2.0	3.41E+01	0.00E+00	0.00E+00
IL143320	DEFAULT	Waterloo City Light Plant - Engine #8	748326.00	4246769.00	640.45	27.0	680.1	84.230	2.3	1.87E+01	1.36E+00	1.36E+00
IL145809	DEFAULT	ConocoPhillips Co. - Crude heaters (STK5-3)	754415.00	4303016.00	445.93	311.9	530.0	87.970	14.0	7.81E+01	1.98E+01	1.98E+01
IL145820	DEFAULT	ConocoPhillips Co. - Sulfur recovery unit #1 (STK3-1)	752928.00	4303077.00	428.41	125.0	965.9	17.712	7.2	0.00E+00	4.05E+01	4.05E+01
IL145826	DEFAULT	ConocoPhillips Co. - Supplemental air compressor engine CCU-1	754240.00	4303144.00	443.47	15.0	117.1	20.369	1.5	7.10E-01	1.74E+00	1.74E+00
IL145838	DEFAULT	ConocoPhillips Co. - Sulfur recovery unit #2 (STK3-2)	752929.00	4303071.00	428.38	125.0	965.9	17.712	7.2	0.00E+00	4.05E+01	4.05E+01
IL145850	DEFAULT	ConocoPhillips Co. - Flare for major effluent treatment project	754240.00	4303144.00	443.47	30.0	78.0	14.006	9.2	4.51E+00	0.00E+00	0.00E+00
IL147845	DEFAULT	Mayco Mfg, LLC - Britt kettles combustion stack	747189.00	4286970.00	421.78	34.0	250.1	2.362	1.1	2.00E-01	0.00E+00	0.00E+00
IL147846	DEFAULT	Mayco Mfg, LLC - Mixed metals A-II dross baghouse discharge stack	747189.00	4286970.00	421.78	30.0	95.1	52.611	5.0	5.77E-01	0.00E+00	0.00E+00
IL148354	DEFAULT	ConocoPhillips Co. - Catalytic cracking unit #1 (STK6-2)	754864.00	4302895.00	442.88	199.9	175.0	49.954	11.0	2.32E+01	3.84E+01	3.84E+01
IL149873	DEFAULT	City of Alton - Incinerator	749456.00	4310990.00	446.33	25.0	1400.1	53.038	1.0	1.40E+00	0.00E+00	0.00E+00
IL149908	DEFAULT	Charles E. Mahoney - Drum mix asphalt plant	749517.00	4309892.00	443.14	25.0	295.1	66.289	4.0	5.74E+01	2.56E+01	2.56E+01
IL154190	DEFAULT	Milam Recycling and Disposal Facility - Engine #1	750544.00	4282853.00	411.88	26.0	820.0	86.231	0.8	6.93E+00	1.78E+00	1.78E+00
IL154191	DEFAULT	Milam Recycling and Disposal Facility - Engine #2	750538.00	4282852.00	412.01	26.0	820.0	86.231	0.8	6.93E+00	1.78E+00	1.78E+00
IL154192	DEFAULT	Milam Recycling and Disposal Facility - Engine #3	750548.00	4282855.00	411.81	26.0	820.0	86.231	0.8	7.14E+00	1.84E+00	1.84E+00
IL155302	DEFAULT	Alton Steel Inc. - Ladle Furnace	747753.00	4307832.00	433.07	74.0	275.1	87.215	3.0	2.24E+01	1.12E+01	1.12E+01
IL155304	DEFAULT	Precoat Metals - Boiler B1	749469.00	4292538.00	424.97	24.0	700.1	20.730	1.6	8.80E-01	0.00E+00	0.00E+00
IL155305	DEFAULT	Granite City Pickling & Warehousing - Boiler	746973.00	4286890.00	422.41	50.0	331.1	15.449	2.7	7.06E-01	0.00E+00	0.00E+00
IL155307	DEFAULT	Kraft Heinz Co. - Boiler B	748105.00	4289580.00	423.56	40.0	380.0	68.946	2.0	1.44E+00	0.00E+00	0.00E+00
IL155437	DEFAULT	Southwestern Illinois Correctional Center - 2 Boilers	753202.00	4278290.00	421.46	32.0	450.1	15.285	1.5	7.06E-01	0.00E+00	0.00E+00
IL155441	DEFAULT	Asphalt Sales & Products Inc. - Asphalt heaters and boilers	772959.00	4275690.00	514.30	33.0	341.0	18.368	3.2	0.00E+00	2.80E+00	2.80E+00
IL156624	DEFAULT	US Air Force/Scott Air Force Base - Boilers and Heaters	774337.00	4270862.00	440.32	30.0	331.1	23.288	2.2	4.81E+00	0.00E+00	0.00E+00
IL156970	DEFAULT	Olin Winchester, LLC - Package Boiler (B-6)	750906.00	4308625.00	436.06	35.0	400.0	84.854	2.0	0.00E+00	4.60E+00	4.60E+00
IL159940	DEFAULT	Afton Chemical Corp. - 258 Sulfonation Stack	746513.00	4276305.00	407.05	158.0	70.1	41.820	1.0	0.00E+00	5.59E+00	5.59E+00
IL159942	DEFAULT	Afton Chemical Corp. - Unit 266: Flare 36-0011/36-0610	746653.00	4276356.00	410.10	100.0	700.1	59.368	0.7	8.55E+00	4.90E+01	4.90E+01
IL159965	DEFAULT	Afton Chemical Corp. - Flare 36-0219	746513.00	4276305.00	407.05	146.0	1000.0	42.837	0.4	3.84E+00	2.74E+01	2.74E+01
IL160741	DEFAULT	Brady McCasland, Inc. - Compaction plant	748518.00	4276987.00	413.75	17.0	1521.1	65.469	1.8	5.20E-01	0.00E+00	0.00E+00
IL160742	DEFAULT	Darling Ingredients, Inc. - Kewanee boiler	747472.00	4281438.00	414.93	35.0	450.1	54.448	2.6	1.96E+00	1.51E+01	1.51E+01
IL160799	DEFAULT	ConocoPhillips Co. - Supplemental air compressor engine CCU-2	754240.00	4303144.00	443.47	48.0	117.1	20.369	1.5	0.00E+00	1.74E+00	1.74E+00
IL160898	DEFAULT	Afton Chemical Corp. - Boiler 500-15-0110	746653.00	4276489.00	405.22	45.0	350.0	17.318	7.0	4.89E+00	0.00E+00	0.00E+00
IL165120	DEFAULT	BFI Waste Systems of North America, Inc. - Flare	758882.00	4264336.00	574.97	35.0	1600.1	23.485	0.8	6.80E+00	0.00E+00	0.00E+00
IL166479	DEFAULT	Union Electric Co. - Turbine CT02A	745573.00	4283620.00	420.60	30.0	850.0	18.860	11.4	7.73E+01	2.73E+01	2.73E+01
IL166491	DEFAULT	Enable Mississippi River Transmission, LLC - Turbine SN-03	782556.00	4285336.00	492.29	30.0	749.9	86.854	2.5	9.56E+00	0.00E+00	0.00E+00
IL167781	DEFAULT	Amsted Rail Co., Inc. - Pouring and casting (PR/CST-1)	747025.00	4287611.00	424.80	101.0	251.0	34.768	9.7	0.00E+00	6.70E-01	6.70E-01
IL167787	DEFAULT	Amsted Rail Co., Inc. - Ladle Preheater (LDP-1)	747039.00	4287611.00	424.93	82.0	505.0	31.488	6.1	6.50E+00	2.20E-01	2.20E-01
IL167858	DEFAULT	ConocoPhillips Co. - Scot unit	754240.00	4303144.00	443.47	16.0	115.1	15.580	9.0	0.00E+00	1.72E+02	1.72E+02
IL169226	DEFAULT	Messer, LLC - 2 Boilers	752309.00	4301220.00	434.42	15.0	800.0	0.525	1.4	2.52E+00	0.00E+00	0.00E+00
IL172707	DEFAULT	St. Anthony's Hospital - Boiler #4	745097.00	4310364.00	584.58	64.0	400.0	58.614	2.3	0.00E+00	6.02E+00	6.02E+00
IL179611	DEFAULT	Highland Electric Light Plant - Engine IC-1	788126.93	4293320.17	534.65	12.0	656.0	86.920	1.2	1.44E+01	0.00E+00	0.00E+00
IL179671	DEFAULT	Village of Freeburg - Engine #1	769352.00	4257578.00	509.42	30.0	500.1	40.311	1.0	8.55E+00	8.25E-01	8.25E-01
IL179672	DEFAULT	Village of Freeburg - Engine #2	769352.00	4257578.00	509.42	30.0	500.1	40.311	1.0	8.55E+00	8.25E-01	8.25E-01
IL179673	DEFAULT	Village of Freeburg - Engine #3a	769352.00	4257578.00	509.42	25.0	500.1	55.170	1.0	5.92E+00	0.00E+00	0.00E+00
IL181173	DEFAULT	ConocoPhillips Co. - Loading rack	752292.00	4299987.00	429.92	40.0	1800.1	87.510	2.0	1.53E+00	0.00E+00	0.00E+00
IL183733	DEFAULT	Veolia ES Technical Solutions, LLC - Hazardous waste incinerator #4 (rotary kiln)	745532.00	4275942.00	414.76	57.0	650.9	32.570	2.8	3.17E+00	1.16E+01	1.16E+01

Off-Site Point Source Model Input (NAD83, Zone 15)

Source ID		Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	Potential Emissions (lb/hr)		
										CO	SOx	SO2 (1-hour)
IL189069	DEFAULT	US Air Force/Scott Air Force Base - Diesel generators	774337.00	4270862.00	440.32	37.0	402.0	29.389	1.3	5.83E+01	0.00E+00	0.00E+00
IL190090	DEFAULT	Contract Services, LLC - 3 Boilers	746767.00	4275755.00	417.81	40.0	310.0	50.381	4.2	8.53E+00	5.14E+00	5.14E+00
IL192953	DEFAULT	Midwest Metal Coatings, LLC - Chemical coater/infrared oven (CC/ IRO)	748281.00	4290395.00	423.88	34.0	110.0	18.926	3.0	2.90E-01	0.00E+00	0.00E+00
IL192964	DEFAULT	Midwest Metal Coatings, LLC - Afterburner	748281.00	4290395.00	423.88	34.0	900.1	23.780	5.0	3.28E-01	0.00E+00	0.00E+00
IL192967	DEFAULT	Midwest Metal Coatings, LLC - Boiler (B1)	748281.00	4290395.00	423.88	34.0	400.0	67.338	1.5	2.12E+00	0.00E+00	0.00E+00
IL198552	DEFAULT	Christ Bros Products, LLC - Drum mix asphalt plant	778702.00	4276345.00	439.34	35.0	297.1	62.254	3.8	2.95E+01	1.32E+01	1.32E+01
IL201652	DEFAULT	Empire Comfort Systems - Stack	763529.00	4266192.00	477.26	25.0	800.0	14.334	1.0	2.69E+00	0.00E+00	0.00E+00
IL204833	DEFAULT	Milam Recycling and Disposal Facility - 3 Passive solar flares	750550.00	4282537.00	594.06	20.0	1800.1	57.138	0.7	4.23E+00	4.38E+00	4.38E+00
IL207740	DEFAULT	Chemtrade Solutions, LLC - Scrubber C007	753339.00	4281367.00	422.21	30.0	70.1	0.394	0.3	0.00E+00	2.00E-01	2.00E-01
IL208343	DEFAULT	Center Point Terminal Co. - Asphalt and polymer modified blend tank (T-9)	746361.00	4289240.00	416.44	33.0	185.1	0.951	1.5	1.00E-01	0.00E+00	0.00E+00
IL209238	DEFAULT	Concrete Supply, LLC - Natural gas combustion	757768.00	4302270.00	444.69	20.0	341.0	25.781	2.7	9.69E-01	0.00E+00	0.00E+00
IL209433	DEFAULT	Alton Water Treatment Facility - Stack	742583.00	4309460.00	488.98	22.0	400.0	85.083	0.7	0.00E+00	5.50E-01	5.50E-01
IL211274	DEFAULT	Kienstra-Illinois, LLC - Natural gas combustion	764550.00	4296982.00	575.95	20.0	341.0	25.781	2.7	7.68E-01	0.00E+00	0.00E+00
IL211772	DEFAULT	Center Point Terminal Co. - Incinerator/waste heat boiler	746361.00	4289240.00	416.44	18.0	650.0	7.970	2.0	1.83E-01	1.05E+00	1.05E+00
IL212692	DEFAULT	Chain of Rocks Recycling & Disposal - Open flare	746945.00	4293274.00	431.59	20.0	1400.1	47.265	0.7	6.92E+00	1.06E+00	1.06E+00
IL212881	DEFAULT	Koch Fertilizer, LLC - Ammonia heater	750008.00	4305316.00	428.15	25.0	250.1	42.443	1.0	2.43E+00	5.30E-01	5.30E-01
IL213573	DEFAULT	Illinois Department of Transportation - R and K model 367-1 incinerator	732106.00	4332182.00	623.79	15.0	736.1	30.865	2.8	2.88E+00	0.00E+00	0.00E+00
IL213834	DEFAULT	Darling Ingredients, Inc. - Johnson boiler	747472.00	4281438.00	414.93	33.0	450.1	46.937	2.8	1.96E+00	1.51E+01	1.51E+01
IL213854	DEFAULT	Solvay Fluorides, LLC - Boiler	750245.00	4276115.00	419.72	30.0	361.0	7.314	2.8	1.44E+00	0.00E+00	0.00E+00
IL215315	DEFAULT	Madison County Sand, LLC - Drum mix asphalt plant	758921.00	4289026.00	422.01	32.0	245.0	64.452	4.1	1.63E+01	5.00E-01	5.00E-01
IL217756	DEFAULT	Phillips 66 Pipeline, LLC - Truck loading racks	744935.00	4274152.00	407.25	20.0	70.1	10.594	2.0	1.10E+01	0.00E+00	0.00E+00
IL218530	DEFAULT	ConocoPhillips Co. - North property ground flare (FLR1-2)	754486.00	4303322.00	445.08	195.0	1800.1	2.394	3.0	1.41E+01	0.00E+00	0.00E+00
IL218537	DEFAULT	Custom Steel Processing - Scrubber	746335.00	4286043.00	416.99	55.0	70.1	49.036	4.2	0.00E+00	1.00E-01	1.00E-01
IL218539	DEFAULT	Custom Steel Processing - Sulfuric acid storage tank	746335.00	4286043.00	416.99	35.0	127.0	0.000	2.4	0.00E+00	1.00E-01	1.00E-01
IL218569	DEFAULT	Contract Services, LLC - Boiler #4	746767.00	4275755.00	417.81	40.0	310.0	49.036	3.7	1.30E+01	1.64E+00	1.64E+00
IL218687	DEFAULT	ConocoPhillips Co. - Gas plant sour water stripper	754240.00	4303144.00	443.47	15.0	128.9	11.382	2.9	1.06E+00	0.00E+00	0.00E+00
IL218995	DEFAULT	Asphalt Sales & Products Inc. - Asphalt silos and truck loadout	772959.00	4275690.00	514.30	32.0	86.1	84.854	1.5	1.26E+00	0.00E+00	0.00E+00
IL219420	DEFAULT	Crown Textile Services - Boiler	744287.00	4259382.00	466.40	24.0	450.1	35.227	1.7	1.03E+00	0.00E+00	0.00E+00
IL220266	DEFAULT	American Colloid Co. - Sand drying	746862.00	4287239.00	419.91	72.0	491.1	28.766	3.3	1.29E+00	0.00E+00	0.00E+00
IL220267	DEFAULT	American Colloid Co. - Space Heaters	746862.00	4287239.00	419.91	35.0	198.1	21.484	1.4	2.30E-01	0.00E+00	0.00E+00
IL220618	DEFAULT	Asphalt Sales & Products Inc. - Drum mix asphalt plant	757560.00	4299901.00	441.63	32.0	280.0	68.322	4.3	7.61E+01	3.40E+01	3.40E+01
IL220849	DEFAULT	ConocoPhillips Co. - Alkylation unit flare (FLR6-1)	755035.00	4303081.00	442.55	199.9	1800.1	2.034	2.5	1.85E+01	0.00E+00	0.00E+00
IL222033	DEFAULT	Waterloo City Light Plant - Dual fuel-fired Turbine GT1	748326.00	4246769.00	640.45	39.0	612.1	41.590	4.8	1.77E+01	0.00E+00	0.00E+00
IL222134	DEFAULT	Asphalt Sales & Products Inc. - Asphalt silo loading	757560.00	4299901.00	441.63	26.0	123.0	4.986	1.7	7.00E-01	0.00E+00	0.00E+00
IL222135	DEFAULT	Asphalt Sales & Products Inc. - Asphalt heaters and boilers	757560.00	4299901.00	441.63	35.0	361.0	26.896	3.7	0.00E+00	2.80E+00	2.80E+00
IL222988	DEFAULT	Apex Oil Co., Inc. - Thermal oxidizers	752471.00	4302667.00	431.07	18.0	820.0	43.985	2.3	2.98E+00	0.00E+00	0.00E+00
IL223796	DEFAULT	Union Electric Co. - Turbine CT03	745735.00	4282930.00	420.96	38.0	603.1	74.948	3.4	4.90E+01	1.30E+00	1.30E+00
IL223797	DEFAULT	Union Electric Co. - Turbine CT04	745776.00	4282947.00	421.16	38.0	603.1	74.948	3.4	4.90E+01	1.30E+00	1.30E+00
IL223798	DEFAULT	Union Electric Co. - Turbine CT05	745538.00	4283620.00	420.90	38.0	603.1	74.948	3.4	6.90E+01	9.00E-01	9.00E-01
IL224167	DEFAULT	Interurban ILAWC - Emergency generator	757265.00	4276109.00	482.38	29.0	880.1	51.463	1.3	1.10E+01	4.60E+00	0.00E+00
IL224416	DEFAULT	Belleville Landfill, Inc. - Flare	760402.00	4264040.00	571.88	35.0	1600.1	8.659	0.8	1.22E+01	0.00E+00	0.00E+00
IL224592	DEFAULT	Christ Bros Products, LLC - Drum mix asphalt plant	755685.00	4299823.00	431.10	32.0	251.0	53.628	4.1	3.09E+01	1.38E+01	1.38E+01
IL224594	DEFAULT	Christ Bros Products, LLC - Asphalt tank heaters and boilers	755701.00	4299841.00	427.46	10.0	416.0	42.443	1.0	1.18E+00	2.80E+00	2.80E+00
IL224838	DEFAULT	Enable Mississippi River Transmission, LLC - Compressor engine SN-01	750039.00	4285426.00	410.47	22.0	1125.1	66.453	1.1	5.67E+00	0.00E+00	0.00E+00
IL224839	DEFAULT	Enable Mississippi River Transmission, LLC - Compressor engine SN-02	750044.00	4285416.00	410.24	22.0	1125.1	66.453	1.1	5.67E+00	0.00E+00	0.00E+00
IL224840	DEFAULT	Enable Mississippi River Transmission, LLC - Compressor engine SN-03	750049.00	4285406.00	410.37	22.0	1125.1	66.453	1.1	5.67E+00	0.00E+00	0.00E+00
IL224841	DEFAULT	Enable Mississippi River Transmission, LLC - Compressor engine SN-04	750054.00	4285397.00	410.30	22.0	1125.1	66.453	1.1	5.67E+00	0.00E+00	0.00E+00
IL224901	DEFAULT	Premcor Refining Group, Inc. - Thermal oxidizer	752775.00	4302414.00	429.95	20.0	342.1	49.462	0.8	7.40E-01	0.00E+00	0.00E+00
IL225166	DEFAULT	Metro Crematory - Crematory	754120.00	4290785.00	417.29	18.0	736.1	84.854	1.0	1.50E+00	0.00E+00	0.00E+00
IL225832	DEFAULT	ConocoPhillips Co. - Startup/malfunction/breakdown	754240.00	4303144.00	443.47	103.0	623.9	21.681	4.6	2.86E+01	1.91E+02	1.91E+02
IL225843	DEFAULT	City of O'Fallon - 400 kW (591 HP) Diesel generator	774612.00	4277280.00	434.42	13.0	500.1	86.592	0.7	3.37E+00	0.00E+00	0.00E+00
IL225844	DEFAULT	City of O'Fallon - 900 kW (1 322 HP) Diesel generator	774612.00	4277280.00	434.42	17.0	500.1	86.592	0.7	7.55E+00	0.00E+00	0.00E+00
IL225960	DEFAULT	Waterloo City Light Plant - Engine #4	748326.00	4246769.00	640.45	37.0	680.1	87.904	2.5	3.32E+01	0.00E+00	0.00E+00
IL226013	DEFAULT	Milam Recycling and Disposal Facility - 325 HP Tub grinder	750550.00	4282537.00	594.06	7.0	627.0	74.030	0.3	2.20E+00	8.00E-01	8.00E-01
IL226014	DEFAULT	Milam Recycling and Disposal Facility - Enclosed flare	750476.00	4282825.00	419.62	55.0	1400.1	0.656	12.0	2.40E+01	6.08E+00	6.08E+00

Off-Site Point Source Model Input (NAD83, Zone 15)

Source ID		Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	Potential Emissions (lb/hr)		
										CO	SOx	SO2 (1-hour)
IL226015	DEFAULT	Milam Recycling and Disposal Facility - 760 HP Tub grinder	750550.00	4282537.00	594.06	8.0	627.0	70.881	0.7	5.10E+00	1.90E+00	1.90E+00
IL226184	DEFAULT	GBC Metals, LLC (d/b/a Olin Brass) - 1F Mix muller (MM-3) Low profile turbine (LF-1) and Induction form stat	750075.00	4306259.00	432.32	41.0	209.9	36.080	2.1	2.00E+00	0.00E+00	0.00E+00
IL226204	DEFAULT	GBC Metals, LLC (d/b/a Olin Brass) - Strip anneal #4 (SA-4)	750150.00	4308388.00	431.10	90.0	350.0	41.426	1.6	9.33E+01	0.00E+00	0.00E+00
IL226256	DEFAULT	GBC Metals, LLC (d/b/a Olin Brass) - Strip Anneal #3 (SA-3)	750439.00	4308328.00	433.83	100.0	350.0	62.746	1.3	9.83E+01	0.00E+00	0.00E+00
IL226257	DEFAULT	GBC Metals, LLC (d/b/a Olin Brass) - #7 Strip Anneal (SA-7)	750222.00	4308335.00	433.20	89.0	850.0	38.671	1.5	1.18E+02	0.00E+00	0.00E+00
IL226352	DEFAULT	Olin Winchester, LLC - Hammermill 1 2 and 3 (HM-1 HM-2 and HM-3)	750495.00	4308287.00	434.42	21.0	160.1	19.647	1.8	8.03E+00	0.00E+00	0.00E+00
IL226612	DEFAULT	Solutia Inc. - Santoflex process: Thermal oxidizer 2770934	746325.00	4275822.00	405.12	112.0	865.0	16.794	12.6	1.50E+01	0.00E+00	0.00E+00
IL226783	DEFAULT	Schildknecht Funeral Home, Inc. - Crematory	769033.00	4275796.00	549.57	17.0	1241.0	13.612	1.7	1.20E+00	0.00E+00	0.00E+00
IL227030	DEFAULT	ConocoPhillips Co. - #4 Crude unit heater H-24 (STK9-5)	753051.00	4302413.00	428.81	179.9	550.0	26.207	8.5	2.27E+01	0.00E+00	0.00E+00
IL227032	DEFAULT	ConocoPhillips Co. - Hydrogen plant #1 flare (FLR12-2)	755194.00	4302793.00	443.67	130.0	1800.1	7.970	1.7	1.62E+01	0.00E+00	0.00E+00
IL227034	DEFAULT	ConocoPhillips Co. - Sulfur operation	754240.00	4303144.00	443.47	158.0	590.1	37.753	3.4	0.00E+00	3.00E+01	3.00E+01
IL227035	DEFAULT	ConocoPhillips Co. - Process heater HP-1 (STK12-6)	755194.00	4302793.00	443.67	127.0	360.1	27.093	7.5	6.97E+00	0.00E+00	0.00E+00
IL227038	DEFAULT	ConocoPhillips Co. - SZU Charge heater H-3	755219.00	4302667.00	442.29	150.0	567.1	25.518	5.0	5.75E+00	0.00E+00	0.00E+00
IL227333	DEFAULT	Waterloo City Light Plant - Engine SG5	750635.00	4249410.00	628.97	8.0	924.0	61.172	0.7	1.40E+00	0.00E+00	0.00E+00
IL227400	DEFAULT	Collinsville Wastewater Treatment Plant - Emergency diesel generator (2922 HP/2180 kW)	758289.00	4283982.00	419.36	36.0	692.0	67.371	2.0	1.72E+01	1.20E+00	0.00E+00
IL227432	DEFAULT	Totall Metal Recycling, Inc. - Safety certification unit	748030.00	4289120.00	422.74	6.0	587.0	8.069	1.2	1.00E-01	0.00E+00	0.00E+00
IL227590	DEFAULT	Illinois Electric Works - 3 Burn off ovens	747872.00	4288124.00	423.20	46.0	250.1	41.230	2.4	1.17E+00	6.90E-02	6.90E-02
IL227679	DEFAULT	Union Electric Co. - Diesel generator	745516.00	4283326.00	430.38	26.0	490.0	60.811	1.4	1.30E+00	1.60E-01	1.60E-01
IL228119	DEFAULT	St. Clair Crematory - Human crematory	773291.00	4275644.00	507.28	17.0	1241.0	13.612	1.7	1.20E+00	0.00E+00	0.00E+00
IL228260	DEFAULT	Center Ethanol Co. - West boiler	745888.00	4275662.00	412.66	75.0	428.1	43.460	3.0	3.23E+00	0.00E+00	0.00E+00
IL228262	DEFAULT	Center Ethanol Co. - East boiler	745888.00	4275662.00	412.66	75.0	428.1	45.428	3.0	3.23E+00	0.00E+00	0.00E+00
IL228263	DEFAULT	Center Ethanol Co. - RTO	745888.00	4275662.00	412.66	50.0	310.0	70.684	5.5	6.85E+00	0.00E+00	0.00E+00
IL228294	DEFAULT	ConocoPhillips Co. - Distilling west refinery flare (FLR10-1)	753647.00	4302546.00	430.31	197.0	1800.1	6.626	3.0	2.51E+01	0.00E+00	0.00E+00
IL228295	DEFAULT	ConocoPhillips Co. - SZU Regenerator vent	755209.00	4302720.00	442.32	44.0	135.1	32.341	2.0	1.78E+00	2.35E+00	2.35E+00
IL229921	DEFAULT	Christ Bros Products, LLC - 8 Heaters and boilers	754160.00	4283243.00	419.46	37.0	400.0	20.664	1.8	1.18E+00	2.80E+00	2.80E+00
IL229922	DEFAULT	Christ Bros Products, LLC - Silo filling	754160.00	4283243.00	419.46	25.0	74.0	0.262	0.4	5.10E-01	0.00E+00	0.00E+00
IL229923	DEFAULT	Christ Bros Products, LLC - Truck loading	754160.00	4283243.00	419.46	29.0	135.1	48.052	2.0	5.80E-01	0.00E+00	0.00E+00
IL230300	DEFAULT	Afton Chemical Corp. - Flare 36-0090	746478.00	4276293.00	407.28	45.0	1600.1	0.656	8.0	2.20E+00	0.00E+00	0.00E+00
IL230350	DEFAULT	Village of Freeburg - Engine #10	769352.00	4257578.00	509.42	28.0	929.9	87.674	1.5	1.28E+01	3.20E+00	3.20E+00
IL230355	DEFAULT	Asphalt Sales & Products Inc. - Truck loadout	757560.00	4299901.00	441.63	28.0	135.1	43.198	1.9	7.90E-01	0.00E+00	0.00E+00
IL231259	DEFAULT	Village of Freeburg - Engine #11	769352.00	4257578.00	509.42	28.0	929.9	87.674	1.5	1.28E+01	3.20E+00	3.20E+00
IL231260	DEFAULT	Village of Freeburg - Engine #12	769352.00	4257578.00	509.42	28.0	929.9	87.674	1.5	1.28E+01	3.20E+00	3.20E+00
IL231291	DEFAULT	Kurrus Funeral Home - 2 Crematories	759066.00	4271234.00	547.11	18.0	787.0	13.186	1.1	2.70E+00	0.00E+00	0.00E+00
IL232739	DEFAULT	ConocoPhillips Co. - Benzene extraction unit #3 (STK6-4)	754923.00	4302930.00	442.59	185.0	470.0	16.138	9.7	1.22E+01	0.00E+00	0.00E+00
IL232785	DEFAULT	Roxana Landfill, Inc. - Enclosed flare	759153.00	4301368.00	619.62	35.0	1600.1	20.008	12.0	2.31E+01	1.76E+00	1.76E+00
IL233294	DEFAULT	Gateway Terminals, LLC. - Marine vapor combustion unit (MVCU)	744607.00	4275093.00	422.70	74.0	514.0	25.158	3.3	1.69E+01	0.00E+00	0.00E+00
IL233295	DEFAULT	Gateway Terminals, LLC. - Truck/Rail vapor destruction unit (TRCU)	744607.00	4275093.00	422.70	74.0	514.0	25.158	3.3	8.39E+00	0.00E+00	0.00E+00
IL235261	DEFAULT	Gulfstream Aerospace Services Corp. - Make-up air unit 19-3	747629.00	4273560.00	410.10	42.0	577.0	29.356	2.5	1.63E+00	0.00E+00	0.00E+00
IL235939	DEFAULT	GBC Metals, LLC (d/b/a Olin Brass) - Strip anneal #5 (SA-5)	750151.00	4308373.00	430.91	90.0	450.1	54.087	1.4	1.07E+02	0.00E+00	0.00E+00
IL235940	DEFAULT	GBC Metals, LLC (d/b/a Olin Brass) - Strip anneal #6 (SA-6)	750207.00	4308390.00	431.82	110.0	580.0	62.779	1.3	1.07E+02	0.00E+00	0.00E+00
IL236260	DEFAULT	Bunge-SF Grain, LLC. - Grain Dryer	746158.00	4281045.00	417.55	96.0	105.0	87.904	8.2	5.06E+00	1.71E+01	1.71E+01
IL236359	DEFAULT	City of Belleville - 2 Emergency generators (1500 kW each)	763544.00	4265595.00	474.70	28.0	627.0	73.767	1.2	2.57E+01	1.84E+00	0.00E+00
IL236927	DEFAULT	Kraft Heinz Co. - Boiler C	748105.00	4289580.00	423.56	40.0	380.0	68.946	2.0	1.44E+00	0.00E+00	0.00E+00
IL236928	DEFAULT	Kraft Heinz Co. - Boiler D	748105.00	4289580.00	423.56	40.0	380.0	68.946	2.0	1.44E+00	0.00E+00	0.00E+00
IL236929	DEFAULT	Kraft Heinz Co. - Boiler E	748105.00	4289580.00	423.56	40.0	380.0	68.946	2.0	1.44E+00	0.00E+00	0.00E+00
IL236930	DEFAULT	National Maintenance and Repair - Cleaver Brooks boiler (Stack 2 of 2)	750920.00	4300904.00	402.46	34.0	450.1	23.321	2.0	1.90E+00	5.00E+00	5.00E+00
IL237099	DEFAULT	Union Electric Co. - Turbine CT02B	745573.00	4283613.00	419.69	30.0	850.0	18.860	11.4	7.74E+01	2.73E+01	2.73E+01
IL237182	DEFAULT	Highland Electric Light Plant - Engine IC-6	788126.93	4293320.17	534.65	28.0	612.1	84.854	2.0	1.32E+01	0.00E+00	0.00E+00
IL237183	DEFAULT	Highland Electric Light Plant - Engine IC-8	788126.93	4293320.17	534.65	57.0	734.1	61.762	11.4	2.57E+01	0.00E+00	0.00E+00
IL237340	DEFAULT	Charles E. Mahoney - Asphalt silo filling	749517.00	4309892.00	443.14	25.0	74.0	0.262	0.4	5.30E-01	0.00E+00	0.00E+00
IL237341	DEFAULT	Charles E. Mahoney - Truck loadout	749517.00	4309892.00	443.14	27.0	136.0	42.050	1.9	6.00E-01	0.00E+00	0.00E+00
IL237362	DEFAULT	Charles E. Mahoney - Asphalt heaters and boilers	749517.00	4309892.00	443.14	10.0	350.0	69.995	1.0	1.18E+00	2.80E+00	2.80E+00
IL237659	DEFAULT	Green Plains Madison, LLC - Boiler #1	745256.00	4285477.00	414.14	71.0	284.1	22.960	3.3	1.29E+00	5.00E-01	5.00E-01
IL237660	DEFAULT	Green Plains Madison, LLC - Fire Pump back-up Engine (460 HP)	745191.00	4285409.00	413.85	13.0	627.0	86.231	0.8	4.80E-01	9.40E-01	0.00E+00
IL237661	DEFAULT	Green Plains Madison, LLC - Electrical system backup Engine (1495 HP)	745144.00	4285537.00	415.88	28.0	627.0	73.767	1.2	3.54E+00	1.21E+01	0.00E+00

Off-Site Point Source Model Input (NAD83, Zone 15)

Source ID		Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	Potential Emissions (lb/hr)		
										CO	SOx	SO2 (1-hour)
IL237679	DEFAULT	Green Plains Madison, LLC - Indirect dryer #1	745191.00	4285468.00	415.12	71.0	387.1	12.136	4.6	7.97E+00	4.10E-01	4.10E-01
IL237866	DEFAULT	Amsted Rail Co., Inc. - Curing oven	746913.00	4287625.00	419.23	39.0	258.0	27.978	1.9	2.52E-01	0.00E+00	0.00E+00
IL237899	DEFAULT	Center Ethanol Co. - Emergency generator	745888.00	4275662.00	412.66	28.0	627.0	73.767	1.2	3.30E+00	0.00E+00	0.00E+00
IL237903	DEFAULT	Center Ethanol Co. - Ethanol loadout Rack	745888.00	4275662.00	412.66	19.0	99.1	7.806	0.7	8.86E-01	0.00E+00	0.00E+00
IL238199	DEFAULT	Solutia Inc. - An in-situ soil vapor extraction system	746325.00	4275822.00	405.12	15.0	70.1	73.406	0.2	4.00E-01	0.00E+00	0.00E+00
IL238839	DEFAULT	Waterloo City Light Plant - Turbine Generator (GT2)	748326.00	4246769.00	640.45	39.0	965.9	87.937	4.8	1.78E+01	0.00E+00	0.00E+00
IL238942	DEFAULT	ConocoPhillips Co. - Rental Boiler #3	754240.00	4303144.00	443.47	20.0	550.0	46.412	4.0	1.65E+00	0.00E+00	0.00E+00
IL239395	DEFAULT	Amsted Rail Co., Inc. - Sand dryer	746975.00	4287537.00	422.05	39.0	284.1	23.157	2.0	1.24E+00	0.00E+00	0.00E+00
IL239396	DEFAULT	Amsted Rail Co., Inc. - Thermal sand reclaimer	746975.00	4287537.00	422.05	39.0	284.1	23.157	2.0	3.70E-01	0.00E+00	0.00E+00
IL239899	DEFAULT	Shell Oil Products US - RTO	753758.00	4303650.00	442.59	19.0	200.0	33.948	2.5	0.00E+00	8.47E-01	8.47E-01
IL240053	DEFAULT	Westwood Lands, Inc. - Process heater DFH-1	748864.00	4285684.00	412.99	39.0	284.1	23.157	2.0	8.30E-01	0.00E+00	0.00E+00
IL240359	DEFAULT	Afton Chemical Corp. - Boiler 500-15-0210	746660.00	4276488.00	405.74	45.0	350.0	17.318	7.0	4.89E+00	0.00E+00	0.00E+00
IL240360	DEFAULT	Afton Chemical Corp. - Boiler 500-15-0310	746674.00	4276485.00	407.25	45.0	350.0	17.318	7.0	4.91E+00	0.00E+00	0.00E+00
IL241300	DEFAULT	ConocoPhillips Co. - VOC Flare (West - FLR4-1)	753428.00	4303073.00	428.81	30.0	1800.1	26.174	0.7	1.43E+00	0.00E+00	0.00E+00
IL241301	DEFAULT	ConocoPhillips Co. - VOC Flare (East - FLR4-2)	753441.00	4303073.00	428.77	30.0	1800.1	26.174	0.7	1.43E+00	0.00E+00	0.00E+00
IL241302	DEFAULT	ConocoPhillips Co. - Coker north flare (FLR1-3)	754947.00	4303684.00	444.23	139.0	911.0	26.535	5.4	0.00E+00	3.08E+01	3.08E+01
IL241303	DEFAULT	ConocoPhillips Co. - VF-5 Heater (H350H4 - STK1-1)	754937.00	4303459.00	444.98	150.0	650.0	26.765	12.0	0.00E+00	1.35E+01	1.35E+01
IL241304	DEFAULT	ConocoPhillips Co. - Coker north heater (H351H2 - STK1-2)	754953.00	4303305.00	444.85	150.0	500.1	22.304	10.0	0.00E+00	7.37E+00	7.37E+00
IL241305	DEFAULT	ConocoPhillips Co. - Coker north heater (H351H1 - STK1-3)	754986.00	4303306.00	444.82	150.0	500.1	22.304	10.0	0.00E+00	7.38E+00	7.38E+00
IL241312	DEFAULT	ConocoPhillips Co. - Heater HP-2 (STK7-1)	755263.00	4302920.00	443.86	118.0	400.0	45.002	10.8	0.00E+00	2.87E+01	2.87E+01
IL241405	DEFAULT	Procter & Gamble Distributing - Emergency diesel generator #1	756504.00	4295421.00	425.00	26.0	490.0	60.811	1.4	1.68E+01	0.00E+00	0.00E+00
IL241449	DEFAULT	Procter & Gamble Distributing - Emergency diesel generator #2	756494.00	4295735.00	424.74	26.0	490.0	60.811	1.4	1.68E+01	0.00E+00	0.00E+00
IL242126	DEFAULT	Center Point Terminals Co. - Tank Heater	746359.00	4289027.00	411.84	49.0	331.1	32.144	2.5	1.03E+00	0.00E+00	0.00E+00
IL245579	DEFAULT	Procter & Gamble Distributing - Emergency diesel generator #3	756198.00	4295409.00	424.97	26.0	490.0	60.811	1.4	1.68E+01	0.00E+00	0.00E+00
IL245580	DEFAULT	Procter & Gamble Distributing - Emergency diesel generator #4	756182.00	4295721.00	424.77	26.0	490.0	60.811	1.4	1.68E+01	0.00E+00	0.00E+00
IL245839	DEFAULT	Milam Recycling and Disposal Facility - Landfill gas conversion plant	750666.00	4282895.00	413.09	55.0	70.1	0.000	4.5	3.80E+00	9.00E-01	9.00E-01
IL246759	DEFAULT	Stookey Township WWTP - 2000 kW Emergency generator	756253.00	4269975.00	518.86	28.0	627.0	73.767	1.2	1.54E+01	0.00E+00	0.00E+00
IL246761	DEFAULT	Omega Partners Hartford, LLC - Truck Rail Marine racks loadout and VCUs	752232.00	4300866.00	430.74	33.0	69.5	0.328	0.3	6.60E+00	0.00E+00	0.00E+00
IL246762	DEFAULT	Omega Partners Hartford, LLC - Boiler 1 and 2	752273.00	4300698.00	430.18	58.0	436.0	27.650	3.4	3.83E+00	0.00E+00	0.00E+00
IL248060	DEFAULT	Kraft Heinz Co. - Boiler F	748105.00	4289580.00	423.56	26.0	380.0	34.407	2.0	1.44E+00	0.00E+00	0.00E+00
IL248262	DEFAULT	Olin Winchester, LLC - New Rotary retort process (RDR-2)	750495.00	4308287.00	434.42	16.0	119.9	26.634	1.7	9.62E+00	0.00E+00	0.00E+00
IL248799	DEFAULT	Gateway Terminals, LLC. - 600 HP Boiler	744607.00	4275093.00	422.70	26.0	440.0	39.557	2.2	2.11E+00	0.00E+00	0.00E+00
IL249480	DEFAULT	Highland Electric Light Plant - Engine IC-2	788126.93	4293320.17	534.65	57.0	734.1	61.762	11.4	1.44E+01	0.00E+00	0.00E+00
IL249481	DEFAULT	Highland Electric Light Plant - Engine IC-3	788126.93	4293320.17	534.65	57.0	734.1	61.762	11.4	1.25E+01	0.00E+00	0.00E+00
IL249482	DEFAULT	Highland Electric Light Plant - Engine IC-9	788126.93	4293320.17	534.65	57.0	734.1	61.762	11.4	1.50E+01	0.00E+00	0.00E+00
IL249483	DEFAULT	Highland Electric Light Plant - Engine IC-10	788126.93	4293320.17	534.65	57.0	734.1	61.762	11.4	1.50E+01	0.00E+00	0.00E+00
IL249499	DEFAULT	Roxana Landfill, Inc. - Zink ultra-Low emissions (Zule) Flare	759153.00	4301368.00	619.62	60.0	1800.1	46.838	13.0	1.25E+01	1.55E+01	1.55E+01
IL250343	DEFAULT	Mayco Mfg, LLC - Natural gas combustion	747189.00	4286970.00	421.78	39.0	284.1	23.157	2.0	1.74E+00	0.00E+00	0.00E+00
IL250892	DEFAULT	ConocoPhillips Co. - Lift station pump (21028)	754240.00	4303144.00	443.47	26.0	490.0	60.811	1.4	1.40E+00	4.90E-01	4.90E-01
IL250893	DEFAULT	ConocoPhillips Co. - Lift station pump (21029)	754240.00	4303144.00	443.47	26.0	490.0	60.811	1.4	1.30E+00	4.60E-01	4.60E-01
IL250894	DEFAULT	ConocoPhillips Co. - Non-emergency air compressor #1	754240.00	4303144.00	443.47	26.0	490.0	60.811	1.4	6.01E+00	2.12E+00	2.12E+00
IL250895	DEFAULT	ConocoPhillips Co. - Non-emergency air compressor #2	754240.00	4303144.00	443.47	26.0	490.0	60.811	1.4	6.01E+00	2.12E+00	2.12E+00
IL250896	DEFAULT	ConocoPhillips Co. - Non-emergency air compressor #3	754240.00	4303144.00	443.47	26.0	490.0	60.811	1.4	5.98E+00	2.10E+00	2.10E+00
IL250897	DEFAULT	ConocoPhillips Co. - Non-emergency air compressor #4	754240.00	4303144.00	443.47	26.0	490.0	60.811	1.4	6.01E+00	2.12E+00	2.12E+00
IL250898	DEFAULT	ConocoPhillips Co. - Non-emergency air compressor #5	754240.00	4303144.00	443.47	26.0	490.0	60.811	1.4	6.01E+00	2.12E+00	2.12E+00
IL250899	DEFAULT	ConocoPhillips Co. - Non-emergency air compressor #6	754240.00	4303144.00	443.47	26.0	490.0	60.811	1.4	5.98E+00	2.10E+00	2.10E+00
IL251099	DEFAULT	Amsted Rail Co., Inc. - Annealing Furnace 18	747071.00	4287670.00	426.02	39.0	284.1	23.157	2.0	1.12E+00	1.00E-01	1.00E-01
IL251286	DEFAULT	Premcor Refining Group, Inc. - Vapor Combustion Unit	752775.00	4302414.00	429.95	53.0	289.0	24.830	2.9	1.00E+01	0.00E+00	0.00E+00
IL251735	DEFAULT	ConocoPhillips Co. - Diesel engine (605 HP)	754240.00	4303144.00	443.47	15.0	69.5	0.328	0.3	3.50E+00	0.00E+00	0.00E+00
IL251754	DEFAULT	Chain of Rocks Recycling & Disposal - Passive flare #1	746944.00	4293274.00	431.79	10.0	841.0	4.756	0.5	4.95E-01	0.00E+00	0.00E+00
IL253107	DEFAULT	Allnex USA, Inc. - Natural gas combustion	749698.00	4276478.00	418.37	58.0	436.0	27.650	3.4	3.26E+00	0.00E+00	0.00E+00
IL253166	DEFAULT	Cerro Flow Products, LLC. - Generators	746228.00	4275272.00	407.32	26.0	490.0	60.811	1.4	9.23E-01	2.82E-01	2.82E-01
IL253167	DEFAULT	City of Belleville - Emergency diesel generator (1500 kW)	762469.00	4266351.00	468.70	26.0	490.0	60.811	1.4	1.16E+01	0.00E+00	0.00E+00
IL253300	DEFAULT	Phillips 66 Pipeline, LLC - Engines (insignificant activities)	744935.00	4274152.00	407.25	26.0	490.0	60.811	1.4	9.23E-01	0.00E+00	0.00E+00
IL253361	DEFAULT	Amsted Rail Co., Inc. - Sand regeneration process (combustion)	746975.00	4287537.00	422.05	39.0	284.1	23.157	2.0	2.80E-01	2.80E-01	2.80E-01

Off-Site Point Source Model Input (NAD83, Zone 15)

Source ID		Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	Potential Emissions (lb/hr)		
										CO	SOx	SO2 (1-hour)
IL253367	DEFAULT	Green Plains Madison, LLC - Boiler #2	745258.00	4285486.00	414.27	71.0	284.1	22.960	3.3	1.29E+00	5.00E-01	5.00E-01
IL253368	DEFAULT	Green Plains Madison, LLC - Boiler #3	745260.00	4285491.00	414.24	71.0	284.1	22.960	3.3	1.29E+00	5.00E-01	5.00E-01
IL253369	DEFAULT	Green Plains Madison, LLC - Boiler #4	745262.00	4285500.00	414.21	71.0	284.1	22.960	3.3	1.29E+00	5.00E-01	5.00E-01
IL253370	DEFAULT	Green Plains Madison, LLC - Indirect dryer #2	745164.00	4285430.00	414.60	81.0	387.1	8.430	5.5	7.97E+00	4.10E-01	4.10E-01
IL253386	DEFAULT	GBC Metals, LLC (d/b/a Olin Brass) - Engines (insignificant activities)	750423.00	4308352.00	434.28	26.0	490.0	60.811	1.4	9.23E-01	0.00E+00	0.00E+00
IL253738	DEFAULT	Milam Recycling and Disposal Facility - 2000 scfm Utility Flare	750550.00	4282537.00	594.06	36.0	852.0	18.565	4.6	1.83E+01	7.32E+00	7.32E+00
IL253769	DEFAULT	Veolia ES Technical Solutions, LLC - 2 Emergency generators	745532.00	4275942.00	414.76	26.0	490.0	60.811	1.4	7.41E-01	0.00E+00	0.00E+00
IL254175	DEFAULT	Chain of Rocks Recycling & Disposal - Passive flare #2	746944.00	4293274.00	431.79	10.0	841.0	4.756	0.5	4.95E-01	0.00E+00	0.00E+00
IL254176	DEFAULT	Chain of Rocks Recycling & Disposal - Passive flare #3	746944.00	4293274.00	431.79	10.0	841.0	4.756	0.5	4.95E-01	0.00E+00	0.00E+00
IL254177	DEFAULT	Chain of Rocks Recycling & Disposal - Passive flare #4	746944.00	4293274.00	431.79	10.0	841.0	4.756	0.5	4.95E-01	0.00E+00	0.00E+00
IL254178	DEFAULT	Chain of Rocks Recycling & Disposal - Passive flare #5	746944.00	4293274.00	431.79	10.0	841.0	4.756	0.5	4.95E-01	0.00E+00	0.00E+00
IL254179	DEFAULT	Chain of Rocks Recycling & Disposal - Passive flare #6	746944.00	4293274.00	431.79	10.0	841.0	4.756	0.5	4.95E-01	0.00E+00	0.00E+00
IL254699	DEFAULT	HSHS St. Elizabeth's Hospital - 2 Emergency generators	767237.00	4275111.00	541.01	28.0	627.0	73.767	1.2	1.93E+01	0.00E+00	0.00E+00
IL255341	DEFAULT	Roxana Landfill, Inc. - New open flare	759153.00	4301368.00	619.62	45.0	1800.1	61.434	1.3	3.77E+01	8.17E+00	8.17E+00
IL255527	DEFAULT	Magnesium Elektron North America - Natural gas combustion	746452.00	4285724.00	415.49	39.0	284.1	23.157	2.0	4.20E-01	0.00E+00	0.00E+00
IL255741	DEFAULT	ConocoPhillips Co. - Utility Boiler #19 (BLR-19)	754755.00	4302798.00	442.16	132.0	304.1	46.281	7.0	0.00E+00	1.54E+01	1.54E+01
IL255816	DEFAULT	Mayco Mfg, LLC - Expansion: Natural gas combustion	747189.00	4286970.00	421.78	39.0	284.1	23.157	2.0	1.94E+00	0.00E+00	0.00E+00
IL255953	DEFAULT	Moore Recycling Concrete & Asphalt, LLC. - Drum mix asphalt plant	762178.00	4246660.00	463.19	35.0	251.0	56.908	4.0	1.32E+01	0.00E+00	0.00E+00
IL256624	DEFAULT	PBT Acquisition, LLC - ASR Dryer	748704.00	4280830.00	418.77	32.0	305.0	19.483	1.5	2.53E+00	0.00E+00	0.00E+00
IL257535	DEFAULT	Marathon Ashland Pipe Line, LLC - Marine vapor combustion unit	751239.00	4302663.00	402.85	51.0	810.1	27.749	7.4	2.71E+01	0.00E+00	0.00E+00
SJEFF1	DEFAULT	RIVER CEMENT CO. DBA BUZZI UNICEM USA SELMA PLANT	733431.84	4229131.13	406.36	410.0	370.0	54.081	19.0		1.44E+02	1.44E+02
SJEFF2	DEFAULT	RIVER CEMENT CO. DBA BUZZI UNICEM USA SELMA PLANT	733431.84	4229131.13	406.36	125.0	210.0	59.173	6.6		2.04E-02	2.04E-02
SJEFF3	DEFAULT	RIVER CEMENT CO. DBA BUZZI UNICEM USA SELMA PLANT	733431.84	4229131.13	406.36	10.0	1100.0	23.333	0.5		1.32E-01	0.00E+00
SJEFF15	DEFAULT	SPECIALTY ELECTRONIC MATERIALS US INC THE RIVERSIDE PLANT	728353.47	4240500.97	465.09	52.0	260.0	10.666	2.0		5.09E-03	5.09E-03
SJEFF16	DEFAULT	SPECIALTY ELECTRONIC MATERIALS US INC THE RIVERSIDE PLANT	728353.47	4240500.97	465.09	10.0	1100.0	23.333	0.5		2.29E-01	2.29E-01
SJEFF17	DEFAULT	SPECIALTY ELECTRONIC MATERIALS US INC THE RIVERSIDE PLANT	728353.47	4240500.97	465.09	10.0	1100.0	23.333	0.5		2.40E-03	2.40E-03
SJEFF18	DEFAULT	SPECIALTY ELECTRONIC MATERIALS US INC THE RIVERSIDE PLANT	728353.47	4240500.97	465.09	10.0	1100.0	23.333	0.5		2.29E-01	0.00E+00
SJEFF19	DEFAULT	SPECIALTY ELECTRONIC MATERIALS US INC THE RIVERSIDE PLANT	728353.47	4240500.97	465.09	10.0	1100.0	23.333	0.5		1.80E-03	1.80E-03
SJEFF20	DEFAULT	SPECIALTY ELECTRONIC MATERIALS US INC THE RIVERSIDE PLANT	728353.47	4240500.97	465.09	10.0	1100.0	23.333	0.5		1.20E-03	1.20E-03
SJEFF21	DEFAULT	SPECIALTY ELECTRONIC MATERIALS US INC THE RIVERSIDE PLANT	728353.47	4240500.97	465.09	10.0	1100.0	23.333	0.5		5.40E-04	5.40E-04
SJEFF22	DEFAULT	SPECIALTY ELECTRONIC MATERIALS US INC THE RIVERSIDE PLANT	728353.47	4240500.97	465.09	10.0	1100.0	23.333	0.5		4.80E-04	4.80E-04
SJEFF23	DEFAULT	SPECIALTY ELECTRONIC MATERIALS US INC THE RIVERSIDE PLANT	728353.47	4240500.97	465.09	10.0	1100.0	23.333	0.5		4.20E-04	4.20E-04
SJEFF24	DEFAULT	SPECIALTY ELECTRONIC MATERIALS US INC THE RIVERSIDE PLANT	728353.47	4240500.97	465.09	10.0	1100.0	23.333	0.5		3.00E-04	3.00E-04
SJEFF25	DEFAULT	SPECIALTY ELECTRONIC MATERIALS US INC THE RIVERSIDE PLANT	728353.47	4240500.97	465.09	15.0	1049.0	149.734	0.2		4.80E-04	0.00E+00
SJEFF26	DEFAULT	AMEREN MISSOURI RUSH ISLAND ENERGY CENTER	739491.07	4224078.19	407.87	700.0	270.0	82.001	20.7		1.73E+03	1.73E+03
SJEFF27	DEFAULT	AMEREN MISSOURI RUSH ISLAND ENERGY CENTER	739491.07	4224078.19	407.87	700.0	270.0	82.001	29.0		2.50E+03	2.50E+03
SJEFF28	DEFAULT	AMEREN MISSOURI RUSH ISLAND ENERGY CENTER	739491.07	4224078.19	407.87	30.0	985.0	105.633	1.3		8.52E-06	0.00E+00
SJEFF29	DEFAULT	AMEREN MISSOURI RUSH ISLAND ENERGY CENTER	739491.07	4224078.19	407.87	240.0	600.0	32.999	7.0		3.54E-03	3.54E-03
SJEFF59	DEFAULT	MERCY HOSPITAL JEFFERSON	728195.03	4230846.83	425.75	14.0	392.0	0.003	1.7	3.03E-01	2.17E-03	2.17E-03
SJEFF60	DEFAULT	MERCY HOSPITAL JEFFERSON	728195.03	4230846.83	425.75	14.0	392.0	0.003	1.7	3.03E-01	2.17E-03	2.17E-03
SJEFF61	DEFAULT	MERCY HOSPITAL JEFFERSON	728195.03	4230846.83	425.75	14.0	392.0	0.003	1.7	4.20E-02	3.00E-04	3.00E-04
SJEFF62	DEFAULT	MERCY HOSPITAL JEFFERSON	728195.03	4230846.83	425.75	14.0	392.0	0.000	1.7	1.12E-02	7.98E-05	7.98E-05
SJEFF63	DEFAULT	MERCY HOSPITAL JEFFERSON	728195.03	4230846.83	425.75	27.0	1800.0	10.046	1.5	2.86E-02	1.63E-01	1.63E-01
SJEFF65	DEFAULT	MERCY HOSPITAL JEFFERSON	728195.03	4230846.83	425.75	20.0	0.0	0.000	0.5	1.45E-02	4.34E-04	4.34E-04
SJEFF66	DEFAULT	MERCY HOSPITAL JEFFERSON	728195.03	4230846.83	425.75	20.0	0.0	0.000	0.5	1.40E-02	4.20E-04	4.20E-04
SJEFF67	DEFAULT	MERCY HOSPITAL JEFFERSON	728195.03	4230846.83	425.75	20.0	-459.7	0.003	2.0	8.35E-02	5.97E-04	5.97E-04
SJEFF68	DEFAULT	MERCY HOSPITAL JEFFERSON	728195.03	4230846.83	425.75	20.0	-459.7	0.003	2.0	3.54E-01	2.53E-03	2.53E-03
SJEFF69	DEFAULT	MERCY HOSPITAL JEFFERSON	728195.03	4230846.83	425.75	14.0	-459.7	0.003	2.0	2.51E-01	1.79E-03	1.79E-03
SJEFF70	DEFAULT	MERCY HOSPITAL JEFFERSON	728195.03	4230846.83	425.75	5.0	-459.7	0.003	0.5	1.11E+00	3.37E-01	0.00E+00
SJEFF71	DEFAULT	MERCY HOSPITAL JEFFERSON	728195.03	4230846.83	425.75	5.0	-459.7	0.003	0.5	1.11E+00	3.37E-01	0.00E+00
SJEFF72	DEFAULT	MERCY HOSPITAL JEFFERSON	728195.03	4230846.83	425.75	5.0	-459.7	0.003	0.5	3.32E-01	1.02E-01	0.00E+00
SJEFF73	DEFAULT	MERCY HOSPITAL JEFFERSON	728195.03	4230846.83	425.75	10.0	-459.7	0.003	1.0	1.92E-05	1.37E-07	1.37E-07
SJEFF74	DEFAULT	MERCY HOSPITAL JEFFERSON	728195.03	4230846.83	425.75	10.0	-459.7	0.003	1.0	1.92E-05	1.37E-07	1.37E-07
SJEFF82	DEFAULT	ARDAGH GLASS INC. PEVELY	727306.83	4241579.49	466.57	156.0	611.0	39.902	5.8	7.38E-02	3.77E+00	3.77E+00
SJEFF83	DEFAULT	ARDAGH GLASS INC. PEVELY	727306.83	4241579.49	466.57	156.0	611.0	39.902	5.8	1.96E-01	6.37E+00	6.37E+00

Off-Site Point Source Model Input (NAD83, Zone 15)

Source ID		Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	Potential Emissions (lb/hr)		
										CO	SOx	SO2 (1-hour)
SJEFF86	DEFAULT	ARDAGH GLASS INC. PEVELY	727306.83	4241579.49	466.57	20.0	0.0	0.000	0.5	1.26E-01	9.00E-04	9.00E-04
SJEFF92	DEFAULT	ARDAGH GLASS INC. PEVELY	727306.83	4241579.49	466.57	10.0	1100.0	23.333	0.5		2.17E+00	0.00E+00
SJEFF99	DEFAULT	CARONDELET CORPORATION PEVELY	727491.85	4241725.78	485.56	2.5	170.0	46.499	2.0	5.60E-01	4.25E-02	4.25E-02
SJEFF100	DEFAULT	CARONDELET CORPORATION PEVELY	727491.85	4241725.78	485.56	2.5	170.0	46.499	2.0	1.60E-01	1.14E-03	1.14E-03
SJEFF125	DEFAULT	FRED WEBER, INC. ANTONIA	720102.79	4248877.71	670.57	20.0	250.0	49.249	5.0		5.88E-02	5.88E-02
SJEFF128	DEFAULT	ANIMAL CARE SERVICE INC FESTUS	724479.42	4236856.27	436.22	28.0	1413.0	18.734	2.0		2.33E-01	2.33E-01
SJEFF129	DEFAULT	ANIMAL CARE SERVICE INC FESTUS	724479.42	4236856.27	436.22	18.0	1354.0	25.666	1.0		1.92E-02	1.92E-02
SJEFF130	DEFAULT	ANIMAL CARE SERVICE INC FESTUS	724479.42	4236856.27	436.22	30.0	1448.0	22.418	2.0		9.62E-03	9.62E-03
SJEFF131	DEFAULT	ANIMAL CARE SERVICE INC FESTUS	724479.42	4236856.27	436.22	28.0	1413.0	18.734	2.0		3.50E-01	3.50E-01
SJEFF132	DEFAULT	ANIMAL CARE SERVICE INC FESTUS	724479.42	4236856.27	436.22	28.0	1413.0	18.734	2.0		2.95E-01	2.95E-01
SJEFF133	DEFAULT	ANIMAL CARE SERVICE INC FESTUS	724479.42	4236856.27	436.22	18.0	1347.0	16.316	1.0		1.54E-02	1.54E-02
SJEFF134	DEFAULT	ANIMAL CARE SERVICE INC FESTUS	724479.42	4236856.27	436.22	30.0	1448.0	22.418	2.0		6.01E-03	6.01E-03
SJEFF135	DEFAULT	ANIMAL CARE SERVICE INC FESTUS	724479.42	4236856.27	436.22	18.0	1354.0	25.666	1.0		1.44E-02	1.44E-02
SJEFF136	DEFAULT	ANIMAL CARE SERVICE INC FESTUS	724479.42	4236856.27	436.22	28.0	1600.0	18.734	2.0		7.50E-02	7.50E-02
SJEFF137	DEFAULT	JEFFERSON COUNTY CREMATION SERVICES LC PEVELY	728536.07	4239554.88	583.23	10.0	1100.0	23.333	0.5		9.39E-02	9.39E-02
SJEFF138	DEFAULT	SIMPSON CONSTRUCTION MATERIALS PAULINA HILLS SITE	726459.86	4259186.04	426.64	12.0	885.0	42.441	0.5		1.29E-01	1.29E-01
SJEFF144	DEFAULT	N. B. WEST CONTRACTING CO INC HOUSE SPRINGS ASPHALT	712353.42	4251763.19	532.22	32.0	247.0	0.853	3.7	3.03E+00	1.21E+00	1.21E+00
SJEFF145	DEFAULT	N. B. WEST CONTRACTING CO INC HOUSE SPRINGS ASPHALT	712353.42	4251763.19	532.22	5.0	400.0	0.003	2.0	5.35E-02	3.07E-01	3.07E-01
SJEFF146	DEFAULT	N. B. WEST CONTRACTING CO INC HOUSE SPRINGS ASPHALT	712353.42	4251763.19	532.22	5.0	400.0	0.003	2.0	3.61E-03	9.62E-08	9.62E-08
SSTC1	DEFAULT	AMEREN MISSOURI SIOUX ENERGY CENTER	734752.14	4310260.61	445.64	496.5	138.7	46.759	23.6		2.32E+02	2.32E+02
SSTC2	DEFAULT	AMEREN MISSOURI SIOUX ENERGY CENTER	734752.14	4310260.61	445.64	496.5	136.6	46.844	23.6		2.89E+02	2.89E+02
SSTC3	DEFAULT	AMEREN MISSOURI SIOUX ENERGY CENTER	734752.14	4310260.61	445.64	212.0	325.0	50.000	4.5		8.90E-04	8.90E-04
SSTC4	DEFAULT	AMEREN MISSOURI SIOUX ENERGY CENTER	734752.14	4310260.61	445.64	25.0	1100.0	23.333	1.0		1.42E+00	0.00E+00
SSTC9	DEFAULT	SSM HEALTH ST JOSEPHS HOSPITAL	718499.57	4295433.59	515.16	50.0	1000.0	0.151	2.3		2.23E-04	2.23E-04
SSTC10	DEFAULT	SSM HEALTH ST JOSEPHS HOSPITAL	718499.57	4295433.59	515.16	50.0	1000.0	0.151	2.3		1.70E-03	1.70E-03
SSTC11	DEFAULT	SSM HEALTH ST JOSEPHS HOSPITAL	718499.57	4295433.59	515.16	50.0	1000.0	0.151	2.3		2.23E-04	2.23E-04
SSTC12	DEFAULT	SSM HEALTH ST JOSEPHS HOSPITAL	718499.57	4295433.59	515.16	50.0	1000.0	0.151	2.3		1.70E-03	1.70E-03
SSTC13	DEFAULT	SSM HEALTH ST JOSEPHS HOSPITAL	718499.57	4295433.59	515.16	50.0	1000.0	0.151	2.3		2.23E-04	2.23E-04
SSTC14	DEFAULT	SSM HEALTH ST JOSEPHS HOSPITAL	718499.57	4295433.59	515.16	50.0	1000.0	0.151	2.3		1.70E-03	1.70E-03
SSTC15	DEFAULT	SSM HEALTH ST JOSEPHS HOSPITAL	718499.57	4295433.59	515.16	14.0	1063.0	40.515	0.4		3.59E-01	0.00E+00
SSTC16	DEFAULT	SSM HEALTH ST JOSEPHS HOSPITAL	718499.57	4295433.59	515.16	3.0	1011.0	154.085	0.8		1.08E+00	0.00E+00
SSTC17	DEFAULT	SSM HEALTH ST JOSEPHS HOSPITAL	718499.57	4295433.59	515.16	3.0	1011.0	154.085	0.8		1.06E+00	0.00E+00
SSTC18	DEFAULT	SSM HEALTH ST JOSEPHS HOSPITAL	718499.57	4295433.59	515.16	14.0	1063.0	56.732	0.4		3.66E-01	2.38E-04
SSTC28	DEFAULT	GENERAL MOTORS LLC WENTZVILLE CENTER	689428.03	4299089.70	622.57	250.0	365.0	12.999	10.0		2.16E+01	2.16E+01
SSTC29	DEFAULT	GENERAL MOTORS LLC WENTZVILLE CENTER	689428.03	4299089.70	622.57	250.0	365.0	12.999	10.0		7.21E+02	7.21E+02
SSTC30	DEFAULT	GENERAL MOTORS LLC WENTZVILLE CENTER	689428.03	4299089.70	622.57	250.0	365.0	12.999	10.0		2.16E+01	2.16E+01
SSTC31	DEFAULT	GENERAL MOTORS LLC WENTZVILLE CENTER	689428.03	4299089.70	622.57	53.0	520.0	58.999	1.8		1.33E-01	1.33E-01
SSTC45	DEFAULT	SSM HEALTH ST JOSEPH HOSPITAL WEST	693164.96	4297283.00	533.89	66.0	200.0	0.003	3.0		2.31E+00	2.31E+00
SSTC46	DEFAULT	SSM HEALTH ST JOSEPH HOSPITAL WEST	693164.96	4297283.00	533.89	66.0	200.0	0.003	3.0		2.66E-02	2.66E-02
SSTC47	DEFAULT	SSM HEALTH ST JOSEPH HOSPITAL WEST	693164.96	4297283.00	533.89	10.0	1100.0	23.333	0.5		1.52E+00	0.00E+00
SSTC48	DEFAULT	SSM HEALTH ST JOSEPH HOSPITAL WEST	693164.96	4297283.00	533.89	66.0	200.0	0.003	3.0		1.50E-03	1.50E-03
SSTC57	DEFAULT	BLASTCO INC	690213.84	4297755.23	543.44	20.0	0.0	0.000	0.5		3.96E-04	3.96E-04
SSTC63	DEFAULT	TRUE MANUFACTURING CO O'FALLON	702777.57	4297717.78	496.26	30.0	65.0	16.499	1.5		4.20E-03	4.20E-03
SSTC64	DEFAULT	TRUE MANUFACTURING CO O'FALLON	702777.57	4297717.78	496.26	17.0	450.0	27.631	1.3		4.09E-03	4.09E-03
SSTC65	DEFAULT	TRUE MANUFACTURING CO O'FALLON	702777.57	4297717.78	496.26	20.0	0.0	0.000	0.5		4.10E-03	4.10E-03
SSTC66	DEFAULT	TRUE MANUFACTURING CO O'FALLON	702777.57	4297717.78	496.26	33.0	77.0	33.015	1.5		1.56E-03	1.56E-03
SSTC67	DEFAULT	TRUE MANUFACTURING CO O'FALLON	702777.57	4297717.78	496.26	33.0	77.0	33.015	1.5		8.40E-04	8.40E-04
SSTC68	DEFAULT	TRUE MANUFACTURING CO O'FALLON	702777.57	4297717.78	496.26	33.0	450.0	39.416	1.5		1.44E-03	1.44E-03
SSTC69	DEFAULT	TRUE MANUFACTURING CO O'FALLON	702777.57	4297717.78	496.26	30.0	400.0	29.708	1.0		1.74E-03	1.74E-03
SSTC70	DEFAULT	TRUE MANUFACTURING CO O'FALLON	702777.57	4297717.78	496.26	30.0	450.0	24.803	1.2		4.68E-03	4.68E-03
SSTC71	DEFAULT	TRUE MANUFACTURING CO O'FALLON	702777.57	4297717.78	496.26	28.0	475.0	1.667	0.5		0.00E+00	0.00E+00
SSTC72	DEFAULT	TRUE MANUFACTURING CO O'FALLON	702777.57	4297717.78	496.26	28.0	450.0	27.500	2.3		0.00E+00	0.00E+00
SSTC73	DEFAULT	TRUE MANUFACTURING CO O'FALLON	702777.57	4297717.78	496.26	10.0	1100.0	23.333	0.5		3.07E+00	0.00E+00
SSTC87	DEFAULT	HANSEN'S TREE SERVICE O'FALLON	697357.18	4298189.47	585.40	20.0	0.0	0.000	0.5	2.10E-02	6.31E-04	6.31E-04
SSTC88	DEFAULT	HANSEN'S TREE SERVICE O'FALLON	697357.18	4298189.47	585.40	20.0	0.0	0.000	0.5	3.14E-02	1.73E-04	1.73E-04

Off-Site Point Source Model Input (NAD83, Zone 15)

Source ID		Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	Potential Emissions (lb/hr)		
										CO	SOx	SO2 (1-hour)
SSTC89	DEFAULT	HANSEN'S TREE SERVICE O'FALLON	697357.18	4298189.47	585.40	20.0	0.0	0.000	0.5	1.20E+00	3.65E-01	3.65E-01
SSTC98	DEFAULT	AMERISTAR ST. CHARLES	718432.28	4294005.30	443.64	1.0	-459.7	0.003	1.0	3.87E-01	2.76E-03	2.76E-03
SSTC99	DEFAULT	AMERISTAR ST. CHARLES	718432.28	4294005.30	443.64	1.0	-459.7	0.003	1.0	3.87E-01	2.76E-03	2.76E-03
SSTC100	DEFAULT	AMERISTAR ST. CHARLES	718432.28	4294005.30	443.64	1.0	-459.7	0.003	1.0	3.87E-01	2.76E-03	2.76E-03
SSTC101	DEFAULT	AMERISTAR ST. CHARLES	718432.28	4294005.30	443.64	1.0	-459.7	0.003	1.0	3.87E-01	2.76E-03	2.76E-03
SSTC102	DEFAULT	AMERISTAR ST. CHARLES	718432.28	4294005.30	443.64	1.0	-459.7	0.003	1.0	1.27E-03	9.46E-04	0.00E+00
SSTC103	DEFAULT	AMERISTAR ST. CHARLES	718432.28	4294005.30	443.64	1.0	-459.7	0.003	1.0	1.27E-03	9.46E-04	0.00E+00
SSTC104	DEFAULT	AMERISTAR ST. CHARLES	718432.28	4294005.30	443.64	1.0	-459.7	0.003	1.0	1.27E-03	9.46E-04	0.00E+00
SSTC105	DEFAULT	AMERISTAR ST. CHARLES	718432.28	4294005.30	443.64	1.0	-459.7	0.003	1.0	1.27E-03	9.46E-04	0.00E+00
SSTC106	DEFAULT	AMERISTAR ST. CHARLES	718432.28	4294005.30	443.64	1.0	-459.7	0.003	1.0	1.27E-03	9.46E-04	0.00E+00
SSTC107	DEFAULT	AMERISTAR ST. CHARLES	718432.28	4294005.30	443.64	1.0	-459.7	0.003	1.0	1.27E-03	9.46E-04	0.00E+00
SSTL1	DEFAULT	AMEREN MISSOURI MERAMEC ENERGY CENTER	732736.78	4253752.81	418.24	250.0	326.0	101.627	11.0		2.28E-02	2.28E-02
SSTL2	DEFAULT	AMEREN MISSOURI MERAMEC ENERGY CENTER	732736.78	4253752.81	418.24	250.0	326.0	101.627	11.0		2.20E-02	2.20E-02
SSTL3	DEFAULT	AMEREN MISSOURI MERAMEC ENERGY CENTER	732736.78	4253752.81	418.24	350.0	345.0	135.400	14.0		2.97E+02	2.97E+02
SSTL4	DEFAULT	AMEREN MISSOURI MERAMEC ENERGY CENTER	732736.78	4253752.81	418.24	350.0	374.0	123.284	16.0		4.69E+02	4.69E+02
SSTL5	DEFAULT	AMEREN MISSOURI MERAMEC ENERGY CENTER	732736.78	4253752.81	418.24	40.0	642.0	38.100	1.0		5.46E-03	5.46E-03
SSTL6	DEFAULT	AMEREN MISSOURI MERAMEC ENERGY CENTER	732736.78	4253752.81	418.24	32.0	1050.0	103.799	12.0		4.55E-01	4.55E-01
SSTL7	DEFAULT	AMEREN MISSOURI MERAMEC ENERGY CENTER	732736.78	4253752.81	418.24	32.0	1050.0	103.799	12.0		1.96E+00	1.96E+00
SSTL8	DEFAULT	AMEREN MISSOURI MERAMEC ENERGY CENTER	732736.78	4253752.81	418.24	32.0	1050.0	103.799	12.0		4.55E-01	4.55E-01
SSTL9	DEFAULT	AMEREN MISSOURI MERAMEC ENERGY CENTER	732736.78	4253752.81	418.24	32.0	1050.0	103.799	12.0		2.01E-02	2.01E-02
SSTL10	DEFAULT	AMEREN MISSOURI MERAMEC ENERGY CENTER	732736.78	4253752.81	418.24	32.0	1050.0	103.799	12.0		4.55E-01	4.55E-01
SSTL11	DEFAULT	AMEREN MISSOURI MERAMEC ENERGY CENTER	732736.78	4253752.81	418.24	32.0	1050.0	103.799	12.0		1.10E-02	1.10E-02
SSTL14	DEFAULT	MISSOURI BAPTIST MEDICAL CENTER NORTH BALLAS	722244.75	4279363.47	652.56	99.0	440.0	9.432	4.5	9.84E-01	1.42E+00	1.42E+00
SSTL15	DEFAULT	MISSOURI BAPTIST MEDICAL CENTER NORTH BALLAS	722244.75	4279363.47	652.56	99.0	440.0	9.432	4.5	1.06E-02	7.55E-05	7.55E-05
SSTL16	DEFAULT	MISSOURI BAPTIST MEDICAL CENTER NORTH BALLAS	722244.75	4279363.47	652.56	10.0	1100.0	23.333	0.5	5.03E+00	1.53E+00	0.00E+00
SSTL17	DEFAULT	MISSOURI BAPTIST MEDICAL CENTER NORTH BALLAS	722244.75	4279363.47	652.56	104.0	450.0	7.172	1.2	2.91E+00	4.19E+00	4.19E+00
SSTL18	DEFAULT	MISSOURI BAPTIST MEDICAL CENTER NORTH BALLAS	722244.75	4279363.47	652.56	104.0	450.0	7.172	1.2	9.59E-02	6.85E-04	6.85E-04
SSTL19	DEFAULT	MONSANTO WORLD HEADQUARTERS LINDBERGH BLVD	726250.11	4283348.63	691.57	40.0	315.0	30.098	4.0		2.95E-05	2.95E-05
SSTL20	DEFAULT	MONSANTO WORLD HEADQUARTERS LINDBERGH BLVD	726250.11	4283348.63	691.57	40.0	315.0	30.098	4.0		2.24E-02	2.24E-02
SSTL21	DEFAULT	MONSANTO WORLD HEADQUARTERS LINDBERGH BLVD	726250.11	4283348.63	691.57	10.0	1100.0	23.333	0.5		1.06E+00	0.00E+00
SSTL22	DEFAULT	MONSANTO WORLD HEADQUARTERS LINDBERGH BLVD	726250.11	4283348.63	691.57	10.0	1100.0	23.333	0.5		5.74E-04	0.00E+00
SSTL23	DEFAULT	U. S. SILICA COMPANY PACIFIC	698244.91	4262010.04	471.16	80.0	150.0	50.000	3.0		2.57E+01	2.57E+01
SSTL24	DEFAULT	U. S. SILICA COMPANY PACIFIC	698244.91	4262010.04	471.16	80.0	150.0	50.000	3.0		6.69E-03	6.69E-03
SSTL25	DEFAULT	U. S. SILICA COMPANY PACIFIC	698244.91	4262010.04	471.16	80.0	150.0	50.000	3.0		2.66E-02	2.66E-02
SSTL26	DEFAULT	U. S. SILICA COMPANY PACIFIC	698244.91	4262010.04	471.16	110.0	70.0	0.003	2.7		1.39E-02	1.39E-02
SSTL27	DEFAULT	ST. JOHNS MERCY MEDICAL CNTR/MAINTENANCE NEW BALLAS RD	722224.73	4280414.44	627.82	30.0	400.0	4.951	4.0		1.11E+01	1.11E+01
SSTL28	DEFAULT	ST. JOHNS MERCY MEDICAL CNTR/MAINTENANCE NEW BALLAS RD	722224.73	4280414.44	627.82	30.0	400.0	4.951	4.0		1.95E-02	1.95E-02
SSTL29	DEFAULT	MONSANTO CHESTERFIELD VILLAGE	712608.90	4282124.50	590.78	159.0	300.0	32.667	4.8		3.08E-05	3.08E-05
SSTL30	DEFAULT	MONSANTO CHESTERFIELD VILLAGE	712608.90	4282124.50	590.78	159.0	300.0	32.667	4.8		2.36E-02	2.36E-02
SSTL31	DEFAULT	MONSANTO CHESTERFIELD VILLAGE	712608.90	4282124.50	590.78	10.0	1100.0	23.333	0.5		4.34E-01	0.00E+00
SSTL32	DEFAULT	MONSANTO CHESTERFIELD VILLAGE	712608.90	4282124.50	590.78	10.0	1100.0	23.333	0.5		4.04E-03	0.00E+00
SSTL33	DEFAULT	MONSANTO CHESTERFIELD VILLAGE	712608.90	4282124.50	590.78	10.0	1100.0	23.333	0.5		3.77E+00	0.00E+00
SSTL37	DEFAULT	WASHINGTON UNIVERSITY DANFORTH CAMPUS	734425.40	4281363.46	506.46	175.0	350.0	4.849	9.0	0.00E+00	0.00E+00	0.00E+00
SSTL38	DEFAULT	WASHINGTON UNIVERSITY DANFORTH CAMPUS	734425.40	4281363.46	506.46	175.0	350.0	4.849	9.0	2.24E+00	1.60E-02	1.60E-02
SSTL39	DEFAULT	WASHINGTON UNIVERSITY DANFORTH CAMPUS	734425.40	4281363.46	506.46	21.0	475.0	9.616	1.2	0.00E+00	0.00E+00	0.00E+00
SSTL40	DEFAULT	WASHINGTON UNIVERSITY DANFORTH CAMPUS	734425.40	4281363.46	506.46	21.0	475.0	9.616	1.2	6.04E-01	4.31E-03	4.31E-03
SSTL41	DEFAULT	WASHINGTON UNIVERSITY DANFORTH CAMPUS	734425.40	4281363.46	506.46	10.0	1100.0	23.333	0.5	1.39E+01	2.34E-03	0.00E+00
SSTL42	DEFAULT	WASHINGTON UNIVERSITY DANFORTH CAMPUS	734425.40	4281363.46	506.46	10.0	1100.0	23.333	0.5	2.12E+01	3.78E-02	0.00E+00
SSTL43	DEFAULT	WASHINGTON UNIVERSITY DANFORTH CAMPUS	734425.40	4281363.46	506.46	10.0	1100.0	23.333	0.5	1.59E+01	4.87E+00	0.00E+00
SSTL44	DEFAULT	WASHINGTON UNIVERSITY DANFORTH CAMPUS	734425.40	4281363.46	506.46	55.0	316.0	84.150	0.7	9.13E-02	2.37E+01	2.37E+01
SSTL45	DEFAULT	WASHINGTON UNIVERSITY DANFORTH CAMPUS	734425.40	4281363.46	506.46	55.0	316.0	84.150	0.7	9.02E-02	4.11E+01	4.11E+01
SSTL46	DEFAULT	WASHINGTON UNIVERSITY DANFORTH CAMPUS	734425.40	4281363.46	506.46	55.0	316.0	84.150	0.7	1.05E-01	1.48E+01	1.48E+01
SSTL47	DEFAULT	WASHINGTON UNIVERSITY DANFORTH CAMPUS	734425.40	4281363.46	506.46	55.0	316.0	84.150	0.7	2.86E-01	2.62E+01	2.62E+01
SSTL48	DEFAULT	WASHINGTON UNIVERSITY DANFORTH CAMPUS	734425.40	4281363.46	506.46	55.0	316.0	84.150	0.7		2.04E-03	2.04E-03
SSTL66	DEFAULT	MISSOURI ASPHALT PRODUCTS, LLC WEST LAKE QUARRY MATERIAL CO	721914.39	4294042.31	462.50	20.0	230.5	31.309	5.1		3.27E-01	3.27E-01

Off-Site Point Source Model Input (NAD83, Zone 15)

Source ID		Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	Potential Emissions (lb/hr)		
										CO	SOx	SO2 (1-hour)
SSTL70	DEFAULT	FRED WEBER, INC. ANTIRE	711291.07	4264547.49	448.49	30.0	250.0	58.950	4.0		1.27E+00	1.27E+00
SSTL76	DEFAULT	THE BOEING COMPANY ST. LOUIS	728742.77	4293777.11	545.54	45.0	400.0	44.167	2.5	5.58E+00	8.24E+00	8.24E+00
SSTL77	DEFAULT	THE BOEING COMPANY ST. LOUIS	728742.77	4293777.11	545.54	45.0	400.0	44.167	2.5	1.38E+00	9.87E-03	9.87E-03
SSTL78	DEFAULT	THE BOEING COMPANY ST. LOUIS	728742.77	4293777.11	545.54	38.0	400.0	25.968	2.0	3.02E+00	4.47E+00	4.47E+00
SSTL79	DEFAULT	THE BOEING COMPANY ST. LOUIS	728742.77	4293777.11	545.54	38.0	400.0	25.968	2.0	1.06E+00	7.57E-03	7.57E-03
SSTL80	DEFAULT	THE BOEING COMPANY ST. LOUIS	728742.77	4293777.11	545.54	50.0	461.0	14.616	3.0	2.95E+00	4.36E+00	4.36E+00
SSTL81	DEFAULT	THE BOEING COMPANY ST. LOUIS	728742.77	4293777.11	545.54	50.0	461.0	14.616	3.0	7.02E-01	5.01E-03	5.01E-03
SSTL82	DEFAULT	THE BOEING COMPANY ST. LOUIS	728742.77	4293777.11	545.54	1.0	100.0	12.733	0.1	1.66E+00	1.19E-02	1.19E-02
SSTL83	DEFAULT	THE BOEING COMPANY ST. LOUIS	728742.77	4293777.11	545.54	15.0	955.0	19.800	0.7	2.52E+01	4.49E-02	0.00E+00
SSTL84	DEFAULT	THE BOEING COMPANY ST. LOUIS	728742.77	4293777.11	545.54	7.0	960.0	113.182	0.8	2.50E+01	7.63E+00	0.00E+00
SSTL85	DEFAULT	THE BOEING COMPANY ST. LOUIS	728742.77	4293777.11	545.54	30.0	965.0	31.234	5.0	2.03E-01	1.04E-02	1.04E-02
SSTL86	DEFAULT	THE BOEING COMPANY ST. LOUIS	728742.77	4293777.11	545.54	17.0	72.0	29.882	2.8		5.58E-03	5.58E-03
SSTL88	DEFAULT	CHAMP LANDFILL COMPANY LLC	720845.43	4291144.98	571.46	28.0	1400.0	25.466	1.0		1.01E+00	1.01E+00
SSTL89	DEFAULT	CHAMP LANDFILL COMPANY LLC	720845.43	4291144.98	571.46	38.3	1400.0	21.568	12.0		7.77E-01	7.77E-01
SSTL90	DEFAULT	CHAMP LANDFILL COMPANY LLC	720845.43	4291144.98	571.46	38.0	1400.0	21.568	12.0		6.35E-01	6.35E-01
SSTL92	DEFAULT	BRIDGETON LANDFILL, LLC	722107.35	4294454.70	459.06	40.0	1200.0	61.381	1.1		1.86E-02	1.86E-02
SSTL93	DEFAULT	BRIDGETON LANDFILL, LLC	722107.35	4294454.70	459.06	40.0	1200.0	61.381	1.1		6.98E-02	6.98E-02
SSTL94	DEFAULT	BRIDGETON LANDFILL, LLC	722107.35	4294454.70	459.06	45.0	1200.0	50.226	1.3		1.70E+01	1.70E+01
SSTL95	DEFAULT	BRIDGETON LANDFILL, LLC	722107.35	4294454.70	459.06	45.0	1200.0	50.226	1.3		5.43E+01	5.43E+01
SSTL96	DEFAULT	BRIDGETON LANDFILL, LLC	722107.35	4294454.70	459.06	35.0	1200.0	53.051	1.0		1.22E-01	1.22E-01
SSTL97	DEFAULT	BRIDGETON LANDFILL, LLC	722107.35	4294454.70	459.06	584.0	1450.0	21.923	4.7		1.08E-03	1.08E-03
SSTL98	DEFAULT	BRIDGETON LANDFILL, LLC	722107.35	4294454.70	459.06	584.0	1450.0	21.923	4.7		1.07E-03	1.07E-03
SSTL100	DEFAULT	SSM HEALTH ST MARYS HOSPITAL	734075.92	4279544.88	601.67	17.2	500.0	25.000	3.0		9.06E+00	9.06E+00
SSTL101	DEFAULT	SSM HEALTH ST MARYS HOSPITAL	734075.92	4279544.88	601.67	17.2	500.0	25.000	3.0		7.14E-03	7.14E-03
SSTL102	DEFAULT	SSM HEALTH ST MARYS HOSPITAL	734075.92	4279544.88	601.67	130.0	1009.0	53.156	1.0		2.56E+00	0.00E+00
SSTL106	DEFAULT	SSM HEALTH DEPAUL HOSPITAL - ST. LOUIS BRIDGETON	723046.72	4292134.06	542.16	45.0	450.0	21.932	3.0		6.63E-02	6.63E-02
SSTL107	DEFAULT	SSM HEALTH DEPAUL HOSPITAL - ST. LOUIS BRIDGETON	723046.72	4292134.06	542.16	45.0	450.0	21.932	3.0		1.15E-02	1.15E-02
SSTL108	DEFAULT	SSM HEALTH DEPAUL HOSPITAL - ST. LOUIS BRIDGETON	723046.72	4292134.06	542.16	12.0	900.0	38.100	1.2		8.33E+00	0.00E+00
SSTL109	DEFAULT	SSM HEALTH DEPAUL HOSPITAL - ST. LOUIS BRIDGETON	723046.72	4292134.06	542.16	45.0	450.0	21.932	3.0		1.37E-03	1.37E-03
SSTL111	DEFAULT	VETERANS ADMIN MEDICAL CENTER JEFFERSON BARRACKS DRIVE	736944.98	4264089.51	508.83	45.0	425.0	1.667	2.0	3.02E+00	4.35E+00	4.35E+00
SSTL112	DEFAULT	VETERANS ADMIN MEDICAL CENTER JEFFERSON BARRACKS DRIVE	736944.98	4264089.51	508.83	45.0	425.0	1.667	2.0	4.17E-01	2.98E-03	2.98E-03
SSTL113	DEFAULT	VETERANS ADMIN MEDICAL CENTER JEFFERSON BARRACKS DRIVE	736944.98	4264089.51	508.83	45.0	425.0	1.667	2.0	4.40E-03	6.49E-03	6.49E-03
SSTL114	DEFAULT	VETERANS ADMIN MEDICAL CENTER JEFFERSON BARRACKS DRIVE	736944.98	4264089.51	508.83	45.0	425.0	1.667	2.0	6.81E-01	4.86E-03	4.86E-03
SSTL115	DEFAULT	VETERANS ADMIN MEDICAL CENTER JEFFERSON BARRACKS DRIVE	736944.98	4264089.51	508.83	10.0	1100.0	23.333	0.5	1.02E+02	3.11E+01	0.00E+00
SSTL116	DEFAULT	CHRISTIAN HOSPITAL NORTHEAST DUNN ROAD	739738.60	4295554.78	565.65	35.0	270.0	10.000	4.0	1.45E-01	6.26E-03	6.26E-03
SSTL117	DEFAULT	CHRISTIAN HOSPITAL NORTHEAST DUNN ROAD	739738.60	4295554.78	565.65	35.0	270.0	10.000	4.0	9.17E-01	6.55E-03	6.55E-03
SSTL118	DEFAULT	CHRISTIAN HOSPITAL NORTHEAST DUNN ROAD	739738.60	4295554.78	565.65	15.0	-459.7	0.003	1.0	3.28E+01	3.00E-01	0.00E+00
SSTL120	DEFAULT	BODINE ALUMINUM INC WALTON ROAD	730791.15	4286068.83	618.60	15.0	65.0	7.165	2.2		3.20E-03	3.20E-03
SSTL121	DEFAULT	BODINE ALUMINUM INC WALTON ROAD	730791.15	4286068.83	618.60	16.0	75.0	26.949	1.1		8.96E-03	8.96E-03
SSTL122	DEFAULT	BODINE ALUMINUM INC WALTON ROAD	730791.15	4286068.83	618.60	29.0	600.0	14.167	2.5		4.83E-01	4.83E-01
SSTL123	DEFAULT	BODINE ALUMINUM INC WALTON ROAD	730791.15	4286068.83	618.60	30.0	365.0	12.001	1.2		4.48E-01	4.48E-01
SSTL124	DEFAULT	BODINE ALUMINUM INC WALTON ROAD	730791.15	4286068.83	618.60	29.0	360.0	25.499	0.7		1.63E-01	1.63E-01
SSTL126	DEFAULT	BODINE ALUMINUM INC WALTON ROAD	730791.15	4286068.83	618.60	20.0	0.0	0.000	0.5		1.23E-02	1.23E-02
SSTL127	DEFAULT	REICHHOLD LLC 2 VALLEY PARK	718899.54	4269850.38	422.90	30.0	650.0	11.998	1.3		3.60E-03	3.60E-03
SSTL128	DEFAULT	REICHHOLD LLC 2 VALLEY PARK	718899.54	4269850.38	422.90	30.0	650.0	11.998	1.3		1.79E+01	1.79E+01
SSTL129	DEFAULT	REICHHOLD LLC 2 VALLEY PARK	718899.54	4269850.38	422.90	26.0	650.0	13.264	2.0		2.26E-03	2.26E-03
SSTL130	DEFAULT	REICHHOLD LLC 2 VALLEY PARK	718899.54	4269850.38	422.90	26.0	650.0	13.264	2.0		1.44E+01	1.44E+01
SSTL131	DEFAULT	REICHHOLD LLC 2 VALLEY PARK	718899.54	4269850.38	422.90	54.0	1800.0	17.218	2.3		1.21E-03	1.21E-03
SSTL132	DEFAULT	REICHHOLD LLC 2 VALLEY PARK	718899.54	4269850.38	422.90	10.0	1100.0	23.333	0.5		9.83E-01	9.83E-01
SSTL133	DEFAULT	REICHHOLD LLC 2 VALLEY PARK	718899.54	4269850.38	422.90	10.0	1100.0	23.333	0.5		9.83E-01	9.83E-01
SSTL141	DEFAULT	ST. ANTHONY'S MEDICAL CENTER KENNERLY ROAD	728489.70	4265428.04	633.14	25.0	495.0	4.068	2.5		3.40E+00	3.40E+00
SSTL142	DEFAULT	ST. ANTHONY'S MEDICAL CENTER KENNERLY ROAD	728489.70	4265428.04	633.14	25.0	495.0	4.068	2.5		8.76E-04	8.76E-04
SSTL143	DEFAULT	ST. ANTHONY'S MEDICAL CENTER KENNERLY ROAD	728489.70	4265428.04	633.14	30.0	450.0	0.003	1.5		5.59E-04	5.59E-04
SSTL144	DEFAULT	ST. ANTHONY'S MEDICAL CENTER KENNERLY ROAD	728489.70	4265428.04	633.14	10.0	1100.0	23.333	0.5		4.66E-02	0.00E+00
SSTL147	DEFAULT	MSD, MISSOURI RIVER WWTP MO RIVER WASTERWATER TREATMENT PLANT	718333.79	4290583.38	444.32	25.0	550.0	1.181	0.7	9.18E-01	8.00E-01	8.00E-01

Off-Site Point Source Model Input (NAD83, Zone 15)

Source ID		Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	Potential Emissions (lb/hr)		
										CO	SOx	SO2 (1-hour)
SSTL148	DEFAULT	MSD, MISSOURI RIVER WWTP MO RIVER WASTERWATER TREATMENT PLANT	718333.79	4290583.38	444.32	25.0	550.0	1.181	0.7	1.58E+00	5.47E-03	5.47E-03
SSTL149	DEFAULT	MSD, MISSOURI RIVER WWTP MO RIVER WASTERWATER TREATMENT PLANT	718333.79	4290583.38	444.32	15.2	446.0	19.393	1.7	4.42E-01	2.28E-01	2.28E-01
SSTL150	DEFAULT	MSD, MISSOURI RIVER WWTP MO RIVER WASTERWATER TREATMENT PLANT	718333.79	4290583.38	444.32	15.2	446.0	19.393	1.7	9.14E-02	4.81E-03	4.81E-03
SSTL151	DEFAULT	MSD, MISSOURI RIVER WWTP MO RIVER WASTERWATER TREATMENT PLANT	718333.79	4290583.38	444.32	16.0	77.0	4.774	2.0	2.46E+00	4.74E-01	4.74E-01
SSTL152	DEFAULT	SIMPSON CONSTRUCTION MATERIALS LLC VALLEY PARK	715996.20	4268469.87	430.05	42.0	300.0	38.494	4.2	2.49E+01	5.49E+00	5.49E+00
SSTL153	DEFAULT	SIMPSON CONSTRUCTION MATERIALS LLC VALLEY PARK	715996.20	4268469.87	430.05	26.7	400.0	26.785	0.8	3.84E-03	1.20E-04	1.20E-04
SSTL154	DEFAULT	SIMPSON CONSTRUCTION MATERIALS LLC VALLEY PARK	715996.20	4268469.87	430.05	26.7	400.0	26.785	0.8	4.60E-02	1.44E-03	1.44E-03
SSTL162	DEFAULT	MACLAN INDUSTRIES	742056.49	4291436.76	495.44	14.0	190.0	0.003	0.2		2.29E-01	2.29E-01
SSTL165	DEFAULT	MISSOURI AMERICAN WATER-CENTRAL PLANT CHESTERFIELD	715427.34	4284896.78	451.44	22.0	871.0	24.016	0.8		1.02E-01	1.02E-01
SSTL166	DEFAULT	MISSOURI AMERICAN WATER-CENTRAL PLANT CHESTERFIELD	715427.34	4284896.78	451.44	10.0	871.0	24.016	0.8		2.38E-01	2.38E-01
SSTL169	DEFAULT	SPIRE MISSOURI, EAST INC.	736637.09	4302290.45	525.66	20.0	0.0	0.000	0.5	1.79E-01	1.28E-03	1.28E-03
SSTL170	DEFAULT	SPIRE MISSOURI, EAST INC.	736637.09	4302290.45	525.66	25.0	-459.7	0.003	0.8	2.33E+01	3.69E-03	3.69E-03
SSTL171	DEFAULT	SPIRE MISSOURI, EAST INC.	736637.09	4302290.45	525.66	18.0	-459.7	0.003	4.0	1.61E+00	6.69E-02	6.69E-02
SSTL172	DEFAULT	SPIRE MISSOURI, EAST INC.	736637.09	4302290.45	525.66	15.0	-459.7	0.003	2.0	1.20E-02	8.60E-05	8.60E-05
SSTL173	DEFAULT	SPIRE MISSOURI, EAST INC.	736637.09	4302290.45	525.66	16.0	-459.7	0.003	0.5	9.34E-01	2.85E-01	2.85E-01
SSTL174	DEFAULT	SPIRE MISSOURI, EAST INC.	736637.09	4302290.45	525.66	20.0	0.0	0.000	0.5	4.62E-03	3.30E-05	3.30E-05
SSTL175	DEFAULT	SPIRE MISSOURI, EAST INC.	736637.09	4302290.45	525.66	20.0	0.0	0.000	0.5	4.62E-03	3.30E-05	3.30E-05
SSTL196	DEFAULT	FRED WEBER, INC. FT. BELLE	739499.97	4302900.13	443.27	7.7	25.0	11.788	0.9	3.02E+00	1.28E-01	1.28E-01
SSTL199	DEFAULT	A.G. RECYCLING	734844.18	4284158.21	525.43	10.0	1100.0	23.333	0.5		1.59E-01	1.59E-01
SSTL200	DEFAULT	A.G. RECYCLING	734844.18	4284158.21	525.43	10.0	1100.0	23.333	0.5		7.25E-01	7.25E-01
SSTL209	DEFAULT	MISSOURI-AMERICAN WATER CO FLORISSANT	728394.88	4300010.04	461.78	15.0	896.0	0.000	14.0		9.51E+00	9.51E+00
SSTL214	DEFAULT	THE HARPER COMPANY	731184.93	4292013.86	588.35	10.0	1100.0	23.333	0.5		2.75E-01	0.00E+00
SCITY1	DEFAULT	ANHEUSER-BUSCH INC ST. LOUIS	743002.81	4275906.67	469.19	225.0	330.0	21.217	10.0		2.38E-02	2.38E-02
SCITY2	DEFAULT	ANHEUSER-BUSCH INC ST. LOUIS	743002.81	4275906.67	469.19	100.0	350.0	47.149	3.0		5.80E-02	5.80E-02
SCITY3	DEFAULT	ANHEUSER-BUSCH INC ST. LOUIS	743002.81	4275906.67	469.19	225.0	350.0	18.468	10.0		1.67E+01	1.67E+01
SCITY4	DEFAULT	ANHEUSER-BUSCH INC ST. LOUIS	743002.81	4275906.67	469.19	225.0	350.0	18.468	10.0		1.78E-02	1.78E-02
SCITY5	DEFAULT	ANHEUSER-BUSCH INC ST. LOUIS	743002.81	4275906.67	469.19	225.0	350.0	18.468	10.0		2.53E+01	2.53E+01
SCITY6	DEFAULT	ANHEUSER-BUSCH INC ST. LOUIS	743002.81	4275906.67	469.19	225.0	350.0	18.468	10.0		2.15E-02	2.15E-02
SCITY7	DEFAULT	ANHEUSER-BUSCH INC ST. LOUIS	743002.81	4275906.67	469.19	135.0	950.0	19.367	1.5		1.75E+01	1.75E+01
SCITY8	DEFAULT	ANHEUSER-BUSCH INC ST. LOUIS	743002.81	4275906.67	469.19	20.0	50.0	70.000	1.0		1.69E+00	1.69E+00
SCITY9	DEFAULT	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	70.0	200.0	0.003	5.5	1.33E+00	9.51E-03	9.51E-03
SCITY10	DEFAULT	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	70.0	200.0	0.003	5.5	2.13E+00	1.52E-02	1.52E-02
SCITY11	DEFAULT	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	100.0	145.0	62.500	4.5	2.53E+00	1.81E-02	1.81E-02
SCITY12	DEFAULT	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	100.0	145.0	62.500	4.5	3.20E-01	2.29E-03	2.29E-03
SCITY13	DEFAULT	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	12.0	200.0	0.335	1.0	3.77E+00	1.15E+00	0.00E+00
SCITY14	DEFAULT	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	45.0	150.0	50.400	2.0	3.55E-02	1.07E-03	1.07E-03
SCITY15	DEFAULT	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	45.0	150.0	50.400	2.0	3.07E-02	9.22E-04	9.22E-04
SCITY16	DEFAULT	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	45.0	150.0	69.751	1.7	3.07E-02	9.22E-04	9.22E-04
SCITY17	DEFAULT	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	16.0	77.0	24.600	0.2		1.41E-03	1.41E-03
SCITY18	DEFAULT	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	3.0	800.0	0.335	0.5	1.63E-01	4.98E-02	0.00E+00
SCITY22	DEFAULT	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	20.0	0.0	0.000	0.5	5.72E-03	1.72E-04	1.72E-04
SCITY23	DEFAULT	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	10.0	1100.0	23.333	0.5	6.00E-02	1.83E-02	0.00E+00
SCITY24	DEFAULT	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	10.0	785.0	42.283	0.3	2.11E+00	6.44E-01	0.00E+00
SCITY25	DEFAULT	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	10.0	785.0	42.283	0.3	8.12E-03	4.79E-03	0.00E+00
SCITY26	DEFAULT	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	10.0	1100.0	23.333	0.5	1.73E-02	5.29E-03	0.00E+00
SCITY27	DEFAULT	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	42.0	77.0	3.734	0.2	4.35E-02	1.33E-02	0.00E+00
SCITY28	DEFAULT	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	20.0	200.0	0.335	1.0	1.98E-01	6.04E-02	0.00E+00
SCITY29	DEFAULT	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	8.0	800.0	0.335	0.5	1.07E-01	3.27E-02	0.00E+00
SCITY30	DEFAULT	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	8.0	800.0	0.335	0.5	1.09E-04	3.32E-05	0.00E+00
SCITY31	DEFAULT	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	22.0	212.0	1.296	1.0	5.28E-01	1.61E-01	0.00E+00
SCITY32	DEFAULT	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	90.0	77.0	33.215	2.2	1.09E-04	3.32E-05	0.00E+00
SCITY33	DEFAULT	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	10.0	1100.0	23.333	0.5	3.65E-02	1.12E-02	0.00E+00
SCITY34	DEFAULT	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	8.0	800.0	0.335	0.5	1.98E-01	6.04E-02	0.00E+00
SCITY48	DEFAULT	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	111.0	300.0	72.900	4.0		2.58E-01	2.58E-01
SCITY49	DEFAULT	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	111.0	300.0	72.900	4.0		2.42E-02	2.42E-02

Off-Site Point Source Model Input (NAD83, Zone 15)

Source ID		Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	Potential Emissions (lb/hr)		
										CO	SOx	SO2 (1-hour)
SCITY50	DEFAULT	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	111.0	300.0	72.900	4.0		1.20E+00	1.20E+00
SCITY51	DEFAULT	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	111.0	300.0	72.900	4.0		1.51E-01	1.51E-01
SCITY52	DEFAULT	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	115.0	280.0	41.099	5.0		1.17E+00	1.17E+00
SCITY53	DEFAULT	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	115.0	280.0	41.099	5.0		6.91E-03	6.91E-03
SCITY54	DEFAULT	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	115.0	280.0	41.099	5.0		1.17E+00	1.17E+00
SCITY55	DEFAULT	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	115.0	280.0	41.099	5.0		7.87E-03	7.87E-03
SCITY56	DEFAULT	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	30.0	975.0	237.684	0.8		3.10E-02	0.00E+00
SCITY57	DEFAULT	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	161.0	250.0	34.101	4.0		2.59E+01	2.59E+01
SCITY58	DEFAULT	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	161.0	250.0	34.101	4.0		5.09E+00	5.09E+00
SCITY59	DEFAULT	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	161.0	250.0	34.101	4.0		3.48E-02	3.48E-02
SCITY60	DEFAULT	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	225.0	280.0	35.784	7.3	3.97E-01	3.97E-01	3.97E-01
SCITY61	DEFAULT	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	225.0	280.0	35.784	7.3	3.97E-01	5.32E-02	5.32E-02
SCITY62	DEFAULT	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	225.0	280.0	35.784	7.3	3.00E+00	4.43E+00	4.43E+00
SCITY63	DEFAULT	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	225.0	280.0	35.784	7.3	3.30E+00	2.36E-02	2.36E-02
SCITY64	DEFAULT	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	225.0	280.0	35.784	7.3	3.00E+00	4.43E+00	4.43E+00
SCITY65	DEFAULT	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	225.0	280.0	35.784	7.3	3.20E+00	2.29E-02	2.29E-02
SCITY66	DEFAULT	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	20.0	0.0	0.000	0.5	4.42E+01	1.33E+00	1.33E+00
SCITY67	DEFAULT	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	69.0	318.0	63.035	3.0	4.19E+00	4.64E+00	4.64E+00
SCITY68	DEFAULT	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	69.0	318.0	63.035	3.0	6.11E-01	5.15E-03	5.15E-03
SCITY69	DEFAULT	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	225.0	280.0	35.784	7.3	3.04E+00	4.48E+00	4.48E+00
SCITY70	DEFAULT	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	225.0	280.0	35.784	7.3	1.14E+00	8.17E-03	8.17E-03
SCITY71	DEFAULT	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	10.0	1100.0	23.333	0.5	2.98E-03	4.70E-07	0.00E+00
SCITY72	DEFAULT	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	10.0	1100.0	23.333	0.5	7.05E+00	2.15E+00	0.00E+00
SCITY83	DEFAULT	VETERANS ADMIN MEDICAL CENTER JOHN COCHRAN DIV	741047.52	4280704.99	545.64	50.0	430.0	35.000	2.0		1.14E-04	1.14E-04
SCITY84	DEFAULT	VETERANS ADMIN MEDICAL CENTER JOHN COCHRAN DIV	741047.52	4280704.99	545.64	50.0	430.0	35.000	2.0		4.07E-03	4.07E-03
SCITY85	DEFAULT	VETERANS ADMIN MEDICAL CENTER JOHN COCHRAN DIV	741047.52	4280704.99	545.64	50.0	430.0	35.000	2.0		8.40E-03	8.40E-03
SCITY86	DEFAULT	VETERANS ADMIN MEDICAL CENTER JOHN COCHRAN DIV	741047.52	4280704.99	545.64	50.0	280.0	35.000	2.0		1.14E+00	1.14E+00
SCITY87	DEFAULT	VETERANS ADMIN MEDICAL CENTER JOHN COCHRAN DIV	741047.52	4280704.99	545.64	50.0	280.0	35.000	2.0		4.07E-03	4.07E-03
SCITY88	DEFAULT	VETERANS ADMIN MEDICAL CENTER JOHN COCHRAN DIV	741047.52	4280704.99	545.64	50.0	280.0	35.000	2.0		1.14E+00	1.14E+00
SCITY89	DEFAULT	VETERANS ADMIN MEDICAL CENTER JOHN COCHRAN DIV	741047.52	4280704.99	545.64	50.0	280.0	35.000	2.0		4.07E-03	4.07E-03
SCITY90	DEFAULT	VETERANS ADMIN MEDICAL CENTER JOHN COCHRAN DIV	741047.52	4280704.99	545.64	10.0	1100.0	23.333	0.5		2.47E+00	0.00E+00
SCITY110	DEFAULT	ICL SPECIALTY PRODUCTS INC CARONDELET PLANT	737985.63	4270043.36	414.11	32.0	120.0	15.453	2.0		2.08E-02	2.08E-02
SCITY111	DEFAULT	ICL SPECIALTY PRODUCTS INC CARONDELET PLANT	737985.63	4270043.36	414.11	481.0	200.0	9.432	3.0		5.70E-03	5.70E-03
SCITY112	DEFAULT	ICL SPECIALTY PRODUCTS INC CARONDELET PLANT	737985.63	4270043.36	414.11	56.0	400.0	15.922	4.0		6.81E+01	6.81E+01
SCITY113	DEFAULT	ICL SPECIALTY PRODUCTS INC CARONDELET PLANT	737985.63	4270043.36	414.11	56.0	400.0	15.922	4.0		3.75E-02	3.75E-02
SCITY114	DEFAULT	ICL SPECIALTY PRODUCTS INC CARONDELET PLANT	737985.63	4270043.36	414.11	45.0	122.0	151.818	2.0		1.14E-02	1.14E-02
SCITY115	DEFAULT	ICL SPECIALTY PRODUCTS INC CARONDELET PLANT	737985.63	4270043.36	414.11	80.0	171.0	69.682	2.0		5.14E-03	5.14E-03
SCITY116	DEFAULT	ICL SPECIALTY PRODUCTS INC CARONDELET PLANT	737985.63	4270043.36	414.11	78.0	176.0	88.484	1.2		1.43E-03	1.43E-03
SCITY117	DEFAULT	ICL SPECIALTY PRODUCTS INC CARONDELET PLANT	737985.63	4270043.36	414.11	10.0	1100.0	23.333	0.5		1.91E-03	1.91E-03
SCITY121	DEFAULT	ICL SPECIALTY PRODUCTS INC CARONDELET PLANT	737985.63	4270043.36	414.11	42.0	340.0	37.776	4.0		9.43E+01	9.43E+01
SCITY122	DEFAULT	ICL SPECIALTY PRODUCTS INC CARONDELET PLANT	737985.63	4270043.36	414.11	42.0	340.0	37.776	4.0		5.31E-02	5.31E-02
SCITY123	DEFAULT	ELANTAS PDG, INC. SECOND ST	743167.86	4284941.73	426.35	55.0	700.0	14.738	1.2		6.41E+00	6.41E+00
SCITY124	DEFAULT	ELANTAS PDG, INC. SECOND ST	743167.86	4284941.73	426.35	55.0	700.0	14.738	1.2		7.35E-03	7.35E-03
SCITY125	DEFAULT	ELANTAS PDG, INC. SECOND ST	743167.86	4284941.73	426.35	55.0	700.0	14.738	1.2		1.86E-02	1.86E-02
SCITY126	DEFAULT	ELANTAS PDG, INC. SECOND ST	743167.86	4284941.73	426.35	55.0	700.0	14.738	1.2		5.89E-04	5.89E-04
SCITY127	DEFAULT	ELANTAS PDG, INC. SECOND ST	743167.86	4284941.73	426.35	30.0	140.0	0.125	2.0		1.44E-03	1.44E-03
SCITY128	DEFAULT	ELANTAS PDG, INC. SECOND ST	743167.86	4284941.73	426.35	15.4	752.2	32.451	1.0		7.85E-03	0.00E+00
SCITY129	DEFAULT	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	34.0	1700.0	4.665	2.0		3.72E-03	3.72E-03
SCITY132	DEFAULT	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	34.0	1700.0	6.916	3.3		1.72E-02	1.72E-02
SCITY133	DEFAULT	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	34.0	1700.0	36.601	2.0		3.72E-03	3.72E-03
SCITY136	DEFAULT	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	34.0	1800.0	8.301	3.7		8.58E-03	8.58E-03
SCITY137	DEFAULT	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	42.0	1700.0	4.665	2.0		3.72E-03	3.72E-03
SCITY140	DEFAULT	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	44.0	200.0	47.149	3.0		5.82E-03	5.82E-03
SCITY141	DEFAULT	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	44.0	200.0	47.149	3.0		5.82E-03	5.82E-03
SCITY142	DEFAULT	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	34.0	200.0	39.649	2.8		5.16E-03	5.16E-03

Off-Site Point Source Model Input (NAD83, Zone 15)

Source ID		Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	Potential Emissions (lb/hr)		
										CO	SOx	SO2 (1-hour)
SCITY143	DEFAULT	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	33.0	300.0	20.551	2.2		1.98E-03	1.98E-03
SCITY144	DEFAULT	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	33.0	300.0	20.551	2.2		1.98E-03	1.98E-03
SCITY145	DEFAULT	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	33.0	300.0	20.551	2.2		1.98E-03	1.98E-03
SCITY146	DEFAULT	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	33.0	300.0	20.551	2.2		1.98E-03	1.98E-03
SCITY147	DEFAULT	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	25.0	300.0	14.865	2.0		1.14E-02	1.14E-02
SCITY148	DEFAULT	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	20.0	0.0	0.000	0.5		3.30E-03	3.30E-03
SCITY149	DEFAULT	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	37.0	600.0	38.983	1.2		1.98E-03	1.98E-03
SCITY156	DEFAULT	ST. ALEXIUS HOSPITAL JEFFERSON CAMPUS	741441.37	4274961.73	544.65	115.0	210.0	38.885	5.0		1.19E-02	1.19E-02
SCITY157	DEFAULT	ST. ALEXIUS HOSPITAL JEFFERSON CAMPUS	741441.37	4274961.73	544.65	115.0	210.0	38.885	5.0		1.20E-02	1.20E-02
SCITY158	DEFAULT	ST. ALEXIUS HOSPITAL JEFFERSON CAMPUS	741441.37	4274961.73	544.65	115.0	210.0	38.885	5.0		1.19E-02	1.19E-02
SCITY159	DEFAULT	ST. ALEXIUS HOSPITAL JEFFERSON CAMPUS	741441.37	4274961.73	544.65	14.0	490.0	60.200	0.5		7.80E-01	0.00E+00
SCITY160	DEFAULT	ST. ALEXIUS HOSPITAL JEFFERSON CAMPUS	741441.37	4274961.73	544.65	12.6	200.0	205.400	0.5		7.80E-01	0.00E+00
SCITY162	DEFAULT	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	210.0	260.0	17.733	2.8	2.69E+00	1.16E-01	1.16E-01
SCITY163	DEFAULT	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	210.0	260.0	17.733	2.8	6.20E+00	4.43E-02	4.43E-02
SCITY164	DEFAULT	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	4.20E+00	9.30E-03	0.00E+00
SCITY165	DEFAULT	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	4.18E+00	9.20E-03	0.00E+00
SCITY166	DEFAULT	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	3.77E+00	8.30E-03	0.00E+00
SCITY167	DEFAULT	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	4.12E+00	9.10E-03	0.00E+00
SCITY168	DEFAULT	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	4.01E+00	1.23E+00	0.00E+00
SCITY169	DEFAULT	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	8.15E+00	1.80E-02	0.00E+00
SCITY170	DEFAULT	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	4.90E+00	1.08E-02	0.00E+00
SCITY171	DEFAULT	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	8.52E+00	1.88E-02	0.00E+00
SCITY172	DEFAULT	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	184.2	400.0	1.949	5.5	4.71E+00	2.04E-01	2.04E-01
SCITY173	DEFAULT	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	184.2	400.0	1.949	5.5	1.09E+01	7.76E-02	7.76E-02
SCITY174	DEFAULT	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	184.2	400.0	1.949	5.5	2.50E+00	1.08E-01	1.08E-01
SCITY175	DEFAULT	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	184.2	400.0	1.949	5.5	6.01E+00	4.29E-02	4.29E-02
SCITY176	DEFAULT	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	6.24E+00	1.38E-02	0.00E+00
SCITY177	DEFAULT	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	5.17E+00	1.14E-02	0.00E+00
SCITY178	DEFAULT	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	9.14E+00	2.02E-02	0.00E+00
SCITY179	DEFAULT	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	2.31E+00	9.84E-01	0.00E+00
SCITY180	DEFAULT	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	3.98E+00	8.40E-03	0.00E+00
SCITY181	DEFAULT	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	2.29E-01	3.53E-03	3.53E-03
SCITY183	DEFAULT	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	2.29E-01	2.41E-03	2.41E-03
SCITY185	DEFAULT	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	8.24E-02	5.89E-04	5.89E-04
SCITY187	DEFAULT	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	2.36E-01	1.69E-03	1.69E-03
SCITY189	DEFAULT	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	1.37E+00	4.86E-01	0.00E+00
SCITY190	DEFAULT	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	247.0	190.0	20.417	1.2	5.35E-02	2.31E-03	2.31E-03
SCITY191	DEFAULT	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	247.0	190.0	20.417	1.2	5.00E-01	3.57E-03	3.57E-03
SCITY192	DEFAULT	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	3.69E+01	6.78E-02	0.00E+00
SCITY193	DEFAULT	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	8.48E+00	1.56E-02	0.00E+00
SCITY194	DEFAULT	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	2.09E+01	4.41E-02	0.00E+00
SCITY227	DEFAULT	INDUSTRIAL CONTAINER SERVICES - MO, LLC MANCHESTER	737686.12	4278652.89	459.06	20.0	250.0	18.068	1.0		2.54E-03	2.54E-03
SCITY228	DEFAULT	INDUSTRIAL CONTAINER SERVICES - MO, LLC MANCHESTER	737686.12	4278652.89	459.06	20.0	150.0	22.218	1.0		1.20E+00	1.20E+00
SCITY229	DEFAULT	INDUSTRIAL CONTAINER SERVICES - MO, LLC MANCHESTER	737686.12	4278652.89	459.06	25.0	0.0	0.000	1.0		2.19E-04	2.19E-04
SCITY242	DEFAULT	PQ CORPORATION -THE	739053.43	4285317.19	495.80	60.0	250.0	71.667	1.7		2.39E-03	2.39E-03
SCITY243	DEFAULT	PQ CORPORATION -THE	739053.43	4285317.19	495.80	60.0	400.0	19.833	1.5		4.37E-03	4.37E-03
SCITY244	DEFAULT	PQ CORPORATION -THE	739053.43	4285317.19	495.80	20.0	0.0	0.000	0.5		1.37E-04	1.37E-04
SCITY245	DEFAULT	PQ CORPORATION -THE	739053.43	4285317.19	495.80	55.0	750.0	11.168	4.2		8.16E-03	8.16E-03
SCITY246	DEFAULT	PQ CORPORATION -THE	739053.43	4285317.19	495.80	43.0	500.0	7.467	2.5		7.33E-05	7.33E-05
SCITY247	DEFAULT	PQ CORPORATION -THE	739053.43	4285317.19	495.80	20.0	0.0	0.000	0.5		3.46E-04	3.46E-04
SCITY248	DEFAULT	PQ CORPORATION -THE	739053.43	4285317.19	495.80	36.0	375.0	1.716	2.0		2.48E-03	2.48E-03
SCITY266	DEFAULT	HUMANE SOCIETY OF MISSOURI ST. LOUIS - MACKLIND AVE	737162.32	4278817.40	474.08	24.0	1139.0	15.515	1.7		1.10E-02	1.10E-02
SCITY267	DEFAULT	HUMANE SOCIETY OF MISSOURI ST. LOUIS - MACKLIND AVE	737162.32	4278817.40	474.08	28.0	1800.0	15.584	2.0		6.76E-01	6.76E-01
SCITY275	DEFAULT	ALSCO, INC ST. LOUIS	743334.17	4275818.28	427.92	10.0	1100.0	23.333	0.5		2.33E+01	2.33E+01
SCITY276	DEFAULT	ALSCO, INC ST. LOUIS	743334.17	4275818.28	427.92	10.0	1100.0	23.333	0.5		4.99E-03	4.99E-03

Off-Site Point Source Model Input (NAD83, Zone 15)

Source ID		Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	Potential Emissions (lb/hr) CO	SOx	SO2 (1-hour)
SCITY277	DEFAULT	NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY ST LOUIS	743107.71	4275132.40	439.30	23.5	800.0	0.003	0.5	7.11E-01	1.25E-05	0.00E+00
SCITY278	DEFAULT	NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY ST LOUIS	743107.71	4275132.40	439.30	20.5	250.0	0.003	1.3	3.05E-01	1.28E-04	1.28E-04
SCITY279	DEFAULT	NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY ST LOUIS	743107.71	4275132.40	439.30	20.5	250.0	0.003	1.3	6.87E-01	4.91E-03	4.91E-03
SCITY280	DEFAULT	NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY ST LOUIS	743107.71	4275132.40	439.30	20.5	250.0	0.003	1.3	3.05E-02	1.28E-05	1.28E-05
SCITY281	DEFAULT	NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY ST LOUIS	743107.71	4275132.40	439.30	20.5	250.0	0.003	1.3	6.89E-01	4.92E-03	4.92E-03
SCITY282	DEFAULT	NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY ST LOUIS	743107.71	4275132.40	439.30	22.0	250.0	0.003	1.0	1.22E-01	5.27E-03	5.27E-03
SCITY283	DEFAULT	NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY ST LOUIS	743107.71	4275132.40	439.30	22.0	250.0	0.003	1.0	2.73E-01	1.95E-03	1.95E-03
SCITY284	DEFAULT	NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY ST LOUIS	743107.71	4275132.40	439.30	22.5	250.0	0.003	2.0	6.10E-01	2.56E-04	2.56E-04
SCITY285	DEFAULT	NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY ST LOUIS	743107.71	4275132.40	439.30	22.5	250.0	0.003	2.0	1.38E+00	9.84E-03	9.84E-03
SCITY286	DEFAULT	NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY ST LOUIS	743107.71	4275132.40	439.30	20.5	800.0	0.003	1.5	8.65E-01	1.53E-05	0.00E+00
SCITY287	DEFAULT	NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY ST LOUIS	743107.71	4275132.40	439.30	20.5	800.0	0.003	1.5	7.84E+00	1.38E-04	0.00E+00
SCITY288	DEFAULT	NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY ST LOUIS	743107.71	4275132.40	439.30	20.5	800.0	0.003	1.5	7.84E+00	1.38E-04	0.00E+00
SCITY289	DEFAULT	ARTCO ST. LOUIS-AMERICAN RIVER TRANS CO ST. LOUIS	741227.54	4273049.76	423.52	28.0	400.0	50.535	2.0		2.26E-03	2.26E-03
SCITY290	DEFAULT	ARTCO ST. LOUIS-AMERICAN RIVER TRANS CO ST. LOUIS	741227.54	4273049.76	423.52	28.0	400.0	50.535	2.0		2.91E+01	2.91E+01
SCITY291	DEFAULT	ARTCO ST. LOUIS-AMERICAN RIVER TRANS CO ST. LOUIS	741227.54	4273049.76	423.52	28.0	400.0	50.535	2.0		1.63E-03	1.63E-03
SCITY292	DEFAULT	SOUTHERN METAL PROCESSING	739807.53	4271091.77	426.02	31.0	1590.0	19.255	2.5		1.28E+01	1.28E+01
SCITY293	DEFAULT	SOUTHERN METAL PROCESSING	739807.53	4271091.77	426.02	31.0	1590.0	19.255	2.5		3.47E+00	3.47E+00
SCITY295	DEFAULT	SSM HEALTH ST. LOUIS UNIVERSITY HOSPITAL	740357.18	4278600.20	527.85	220.0	350.0	14.856	5.0	2.14E+00	6.17E+01	6.17E+01
SCITY296	DEFAULT	SSM HEALTH ST. LOUIS UNIVERSITY HOSPITAL	740357.18	4278600.20	527.85	220.0	350.0	14.856	5.0	1.81E+00	1.29E-02	1.29E-02
SCITY297	DEFAULT	SSM HEALTH ST. LOUIS UNIVERSITY HOSPITAL	740357.18	4278600.20	527.85	220.0	350.0	14.856	5.0	8.93E-01	2.57E+01	2.57E+01
SCITY298	DEFAULT	SSM HEALTH ST. LOUIS UNIVERSITY HOSPITAL	740357.18	4278600.20	527.85	220.0	350.0	14.856	5.0	6.62E+00	4.73E-02	4.73E-02
SCITY299	DEFAULT	SSM HEALTH ST. LOUIS UNIVERSITY HOSPITAL	740357.18	4278600.20	527.85	220.0	350.0	14.856	5.0	1.89E+00	5.45E+01	5.45E+01
SCITY300	DEFAULT	SSM HEALTH ST. LOUIS UNIVERSITY HOSPITAL	740357.18	4278600.20	527.85	220.0	350.0	14.856	5.0	7.92E+00	5.66E-02	5.66E-02
SCITY301	DEFAULT	SSM HEALTH ST. LOUIS UNIVERSITY HOSPITAL	740357.18	4278600.20	527.85	220.0	350.0	14.856	5.0	2.14E+00	6.17E+01	6.17E+01
SCITY302	DEFAULT	SSM HEALTH ST. LOUIS UNIVERSITY HOSPITAL	740357.18	4278600.20	527.85	220.0	350.0	14.856	5.0	1.04E+00	7.40E-03	7.40E-03
SCITY303	DEFAULT	SSM HEALTH ST. LOUIS UNIVERSITY HOSPITAL	740357.18	4278600.20	527.85	10.0	1100.0	23.333	0.5	9.62E+00	5.13E+00	0.00E+00
SCITY304	DEFAULT	SSM HEALTH ST. LOUIS UNIVERSITY HOSPITAL	740357.18	4278600.20	527.85	10.0	1100.0	23.333	0.5	5.11E+00	6.08E+00	0.00E+00
SCITY315	DEFAULT	J S ALBERICI CONSTRUCTION	736723.60	4285287.44	575.43	10.0	1100.0	23.333	0.5	6.50E+00	1.98E+00	0.00E+00
SCITY316	DEFAULT	J S ALBERICI CONSTRUCTION	736723.60	4285287.44	575.43	20.0	0.0	0.000	0.5	7.40E-02	2.22E-03	2.22E-03
SCITY317	DEFAULT	J S ALBERICI CONSTRUCTION	736723.60	4285287.44	575.43	20.0	0.0	0.000	0.5	7.40E-02	2.22E-03	2.22E-03
SCITY318	DEFAULT	J S ALBERICI CONSTRUCTION	736723.60	4285287.44	575.43	10.0	1100.0	23.333	0.5	9.62E-01	3.00E-01	3.00E-01
SCITY319	DEFAULT	J S ALBERICI CONSTRUCTION	736723.60	4285287.44	575.43	20.0	0.0	0.000	0.5	2.00E-02	6.00E-04	6.00E-04
SCITY320	DEFAULT	J S ALBERICI CONSTRUCTION	736723.60	4285287.44	575.43	20.0	0.0	0.000	0.5	1.26E-02	3.70E-04	3.70E-04
SCITY321	DEFAULT	NESTLE PURINA PETCARE COMPANY ST. LOUIS	743912.49	4278167.30	467.68	80.0	380.0	33.766	2.0	8.99E-01	3.88E-02	3.88E-02
SCITY322	DEFAULT	NESTLE PURINA PETCARE COMPANY ST. LOUIS	743912.49	4278167.30	467.68	80.0	380.0	33.766	2.0	4.60E-01	3.28E-03	3.28E-03
SCITY323	DEFAULT	NESTLE PURINA PETCARE COMPANY ST. LOUIS	743912.49	4278167.30	467.68	15.0	850.0	73.133	0.7	1.40E-02	3.08E-05	0.00E+00
SCITY324	DEFAULT	NESTLE PURINA PETCARE COMPANY ST. LOUIS	743912.49	4278167.30	467.68	15.0	850.0	73.133	0.7	7.00E-04	1.54E-06	0.00E+00
SCITY325	DEFAULT	NESTLE PURINA PETCARE COMPANY ST. LOUIS	743912.49	4278167.30	467.68	15.0	850.0	73.133	0.7	5.78E-03	1.22E-05	0.00E+00
SCITY326	DEFAULT	NESTLE PURINA PETCARE COMPANY ST. LOUIS	743912.49	4278167.30	467.68	80.0	405.0	33.766	2.0	8.71E-02	3.76E-03	3.76E-03
SCITY327	DEFAULT	NESTLE PURINA PETCARE COMPANY ST. LOUIS	743912.49	4278167.30	467.68	80.0	405.0	33.766	2.0	8.30E-01	5.93E-03	5.93E-03
SCITY328	DEFAULT	NESTLE PURINA PETCARE COMPANY ST. LOUIS	743912.49	4278167.30	467.68	80.0	405.0	33.766	2.0	7.46E-01	3.22E-02	3.22E-02
SCITY329	DEFAULT	NESTLE PURINA PETCARE COMPANY ST. LOUIS	743912.49	4278167.30	467.68	80.0	405.0	33.766	2.0	9.04E-01	6.46E-03	6.46E-03
SCITY330	DEFAULT	NESTLE PURINA PETCARE COMPANY ST. LOUIS	743912.49	4278167.30	467.68	15.0	1007.0	51.050	0.7	4.68E-01	1.03E-03	0.00E+00
SCITY331	DEFAULT	NESTLE PURINA PETCARE COMPANY ST. LOUIS	743912.49	4278167.30	467.68	10.0	1100.0	23.333	0.5	4.06E+00	1.24E+00	0.00E+00
SCITY332	DEFAULT	NESTLE PURINA PETCARE COMPANY ST. LOUIS	743912.49	4278167.30	467.68	10.0	1100.0	23.333	0.5	2.02E-01	1.44E-03	1.44E-03
SCITY333	DEFAULT	NESTLE PURINA PETCARE COMPANY ST. LOUIS	743912.49	4278167.30	467.68	6.0	1157.0	35.000	0.3	8.24E+00	2.52E+00	0.00E+00
SCITY334	DEFAULT	NESTLE PURINA PETCARE COMPANY ST. LOUIS	743912.49	4278167.30	467.68	6.0	1076.0	151.667	0.3	2.56E+00	7.82E-01	0.00E+00
SCITY335	DEFAULT	NESTLE PURINA PETCARE COMPANY ST. LOUIS	743912.49	4278167.30	467.68	8.9	815.0	37.835	0.8	6.13E-01	1.35E-03	0.00E+00
SCITY344	DEFAULT	PAULO PRODUCTS COMPANY	736597.70	4278776.67	501.12	32.0	200.0	2.933	1.2		5.04E-03	5.04E-03
SCITY353	DEFAULT	CHRISTY REFRACTORIES CO L.L.C	738223.37	4278219.85	483.66	1.0	325.0	0.003	1.0		9.60E-02	9.60E-02
SCITY355	DEFAULT	SOUTHWESTERN BELL TELEPHONE COMPANY	744346.61	4279152.95	459.35	290.0	431.0	79.216	2.0		9.54E-01	9.54E-01
SCITY356	DEFAULT	SOUTHWESTERN BELL TELEPHONE COMPANY	744346.61	4279152.95	459.35	290.0	455.0	79.216	2.0		9.54E-01	9.54E-01
SCITY357	DEFAULT	SOUTHWESTERN BELL TELEPHONE COMPANY	744346.61	4279152.95	459.35	290.0	428.0	79.216	2.0		9.54E-01	9.54E-01
SCITY358	DEFAULT	SOUTHWESTERN BELL TELEPHONE COMPANY	744346.61	4279152.95	459.35	565.0	985.0	23.035	0.7		3.05E-01	3.05E-01
SCITY359	DEFAULT	SOUTHWESTERN BELL TELEPHONE COMPANY	744346.61	4279152.95	459.35	565.0	985.0	23.035	0.7		3.05E-01	3.05E-01

Off-Site Point Source Model Input (NAD83, Zone 15)

Source ID		Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	Potential Emissions (lb/hr)		
										CO	SOx	SO2 (1-hour)
SCITY360	DEFAULT	SOUTHWESTERN BELL TELEPHONE COMPANY	744346.61	4279152.95	459.35	565.0	985.0	23.035	0.7		3.05E-01	3.05E-01
SCITY361	DEFAULT	SOUTHWESTERN BELL TELEPHONE COMPANY	744346.61	4279152.95	459.35	660.0	300.0	23.035	1.5		1.09E-03	1.09E-03
SCITY362	DEFAULT	SOUTHWESTERN BELL TELEPHONE COMPANY	744346.61	4279152.95	459.35	660.0	300.0	23.035	1.5		4.92E-03	4.92E-03
SCITY363	DEFAULT	SOUTHWESTERN BELL TELEPHONE COMPANY	744346.61	4279152.95	459.35	390.0	960.0	23.035	9.5		7.17E-01	7.17E-01
SCITY364	DEFAULT	SOUTHWESTERN BELL TELEPHONE COMPANY	744346.61	4279152.95	459.35	390.0	960.0	23.035	9.5		7.17E-01	7.17E-01
SCITY365	DEFAULT	SOUTHWESTERN BELL TELEPHONE COMPANY	744346.61	4279152.95	459.35	290.0	722.0	96.401	2.0		1.19E+00	1.19E+00
SCITY366	DEFAULT	SOUTHWESTERN BELL TELEPHONE COMPANY	744346.61	4279152.95	459.35	290.0	722.0	96.401	2.0		5.13E+00	5.13E+00
SCITY367	DEFAULT	SOUTHWESTERN BELL TELEPHONE COMPANY	744346.61	4279152.95	459.35	290.0	722.0	96.401	2.0		8.24E+00	8.24E+00
SCITY368	DEFAULT	SOUTHWESTERN BELL TELEPHONE COMPANY	744346.61	4279152.95	459.35	290.0	722.0	96.401	2.0		8.24E+00	8.24E+00
SCITY380	DEFAULT	BKEP MATERIALS, LLC ST. LOUIS TERMINAL CO	739332.17	4270413.67	420.93	25.0	450.0	20.000	2.5		2.46E-03	2.46E-03
SCITY381	DEFAULT	BKEP MATERIALS, LLC ST. LOUIS TERMINAL CO	739332.17	4270413.67	420.93	12.0	150.0	8.333	1.0		1.63E-01	1.63E-01
SCITY394	DEFAULT	SAINT LOUIS UNIVERSITY FACILITIES SERVICES	740384.08	4280241.69	507.64	10.0	1100.0	23.333	0.5		2.06E+00	0.00E+00
SCITY395	DEFAULT	SAINT LOUIS UNIVERSITY FACILITIES SERVICES	740384.08	4280241.69	507.64	20.0	0.0	0.000	0.5		9.53E-03	9.53E-03
SCITY396	DEFAULT	SAINT LOUIS UNIVERSITY FACILITIES SERVICES	740384.08	4280241.69	507.64	20.0	0.0	0.000	0.5		1.71E-03	1.71E-03
SCITY401	DEFAULT	SSM CARDINAL GLENNON CHILDRENS HOSPITAL	740376.29	4278334.05	544.29	40.0	200.0	21.667	2.5		9.30E-05	9.30E-05
SCITY402	DEFAULT	SSM CARDINAL GLENNON CHILDRENS HOSPITAL	740376.29	4278334.05	544.29	40.0	200.0	21.667	2.5		4.97E-03	4.97E-03
SCITY403	DEFAULT	SSM CARDINAL GLENNON CHILDRENS HOSPITAL	740376.29	4278334.05	544.29	40.0	200.0	21.667	2.5		5.07E-05	5.07E-05
SCITY404	DEFAULT	SSM CARDINAL GLENNON CHILDRENS HOSPITAL	740376.29	4278334.05	544.29	40.0	200.0	21.667	2.5		2.48E-03	2.48E-03
SCITY405	DEFAULT	SSM CARDINAL GLENNON CHILDRENS HOSPITAL	740376.29	4278334.05	544.29	10.0	1100.0	23.333	0.5		1.83E-02	0.00E+00
SCITY406	DEFAULT	SSM CARDINAL GLENNON CHILDRENS HOSPITAL	740376.29	4278334.05	544.29	23.5	200.0	16.667	2.9		2.55E+00	2.55E+00
SCITY407	DEFAULT	SSM CARDINAL GLENNON CHILDRENS HOSPITAL	740376.29	4278334.05	544.29	23.5	200.0	16.667	2.9		2.87E-02	2.87E-02
CJEFF34	DEFAULT	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	36.6	77.0	20.600	1.8	2.68E-02		
CJEFF35	DEFAULT	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	70.0	350.0	40.000	2.0	2.90E-01		
CJEFF36	DEFAULT	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	70.0	850.0	41.667	2.5	2.07E-01		
CJEFF37	DEFAULT	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	20.0	0.0	0.000	0.5	9.13E-03		
CJEFF43	DEFAULT	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	56.0	370.0	33.333	2.5	1.01E-01		
CJEFF44	DEFAULT	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	70.0	850.0	41.667	2.5	8.06E-01		
CJEFF45	DEFAULT	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	70.0	850.0	112.999	2.5	9.97E-02		
CJEFF46	DEFAULT	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	70.0	850.0	20.600	2.5	2.58E-01		
CSTLC55	DEFAULT	ST. LOUIS AIRPORT AUTHORITY LAMBERT INTERNATIONAL BLVD	728947.29	4291571.16	554.63	34.0	375.0	26.555	2.3	1.68E-02		
CSTLC56	DEFAULT	ST. LOUIS AIRPORT AUTHORITY LAMBERT INTERNATIONAL BLVD	728947.29	4291571.16	554.63	34.0	375.0	26.555	2.3	1.27E+00		
CSTLC57	DEFAULT	ST. LOUIS AIRPORT AUTHORITY LAMBERT INTERNATIONAL BLVD	728947.29	4291571.16	554.63	33.0	428.0	15.669	3.8	1.66E-02		
CSTLC58	DEFAULT	ST. LOUIS AIRPORT AUTHORITY LAMBERT INTERNATIONAL BLVD	728947.29	4291571.16	554.63	33.0	428.0	15.669	3.8	3.85E-01		
CSTLC59	DEFAULT	ST. LOUIS AIRPORT AUTHORITY LAMBERT INTERNATIONAL BLVD	728947.29	4291571.16	554.63	20.0	250.0	2.083	1.0	7.72E-02		
CSTLC60	DEFAULT	ST. LOUIS AIRPORT AUTHORITY LAMBERT INTERNATIONAL BLVD	728947.29	4291571.16	554.63	5.5	1200.0	254.649	0.2	3.28E+00		
CSTLC61	DEFAULT	ST. LOUIS AIRPORT AUTHORITY LAMBERT INTERNATIONAL BLVD	728947.29	4291571.16	554.63	5.5	1200.0	254.649	0.2	1.29E-01		
CSTLC62	DEFAULT	ST. LOUIS AIRPORT AUTHORITY LAMBERT INTERNATIONAL BLVD	728947.29	4291571.16	554.63	5.5	1200.0	254.649	0.2	9.99E-05		
CSTLC63	DEFAULT	ST. LOUIS AIRPORT AUTHORITY LAMBERT INTERNATIONAL BLVD	728947.29	4291571.16	554.63	19.0	425.0	7.047	1.7	6.01E-01		
CSTLC64	DEFAULT	ST. LOUIS AIRPORT AUTHORITY LAMBERT INTERNATIONAL BLVD	728947.29	4291571.16	554.63	24.0	270.0	105.951	2.0	3.24E+00		
CSTLC152	DEFAULT	SIMPSON CONSTRUCTION MATERIALS LLC VALLEY PARK	715996.20	4268469.87	430.05	43.0	-459.7	3.225	1.0	1.38E-01		
CSTLC155	DEFAULT	FRED WEBER INC. - SOUTH ASPHALT BATCH SOUTH ASPHALT	732929.25	4259955.19	424.64	37.0	230.0	51.250	4.2	2.57E+01		
CSTLC156	DEFAULT	FRED WEBER INC. - SOUTH ASPHALT BATCH SOUTH ASPHALT	732929.25	4259955.19	424.64	12.0	355.0	0.804	1.3	4.03E-01		
CSTLC157	DEFAULT	FRED WEBER INC. - NORTH ASPHALT H and B	720614.10	4290798.15	468.70	31.0	230.0	80.499	4.2	3.93E+01		
CSTLC158	DEFAULT	FRED WEBER INC. - NORTH ASPHALT H and B	720614.10	4290798.15	468.70	20.0	300.0	16.667	1.1	2.29E-01		
CSTLC207	DEFAULT	MISSOURI-AMERICAN WATER CO FLORISSANT	728394.88	4300010.04	461.78	15.0	896.0	0.000	14.0	1.61E+02		
CCITY65	DEFAULT	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	100.0	350.0	29.984	1.3	3.08E-02		
CCITY203	DEFAULT	INDUSTRIAL CONTAINER SERVICES - MO, LLC MANCHESTER	737686.12	4278652.89	459.06	20.0	250.0	18.068	1.0	3.56E-01		
CCITY204	DEFAULT	INDUSTRIAL CONTAINER SERVICES - MO, LLC MANCHESTER	737686.12	4278652.89	459.06	20.0	150.0	22.218	1.0	1.68E+02		
CCITY344	DEFAULT	GP RECYCLING, LLC	743830.86	4284034.28	422.18	20.0	0.0	0.000	0.5	1.72E-02		
CCITY368	DEFAULT	GP RECYCLING, LLC	740384.08	4280241.69	507.64	10.0	1100.0	23.333	0.5	6.73E+00		
CCITY369	DEFAULT	SAINT LOUIS UNIVERSITY FACILITIES SERVICES	740384.08	4280241.69	507.64	20.0	0.0	0.000	0.5	1.33E+00		
CCITY370	DEFAULT	SAINT LOUIS UNIVERSITY FACILITIES SERVICES	740384.08	4280241.69	507.64	20.0	0.0	0.000	0.5	5.69E-02		

Off-Site Volume Source Inputs

Source ID	Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Release Height (ft)	Sigma Y (ft)	Sigma Z (ft)	Potential Emissions (lb/hr)		
								CO	SOx	SO2 (1-hour)
SJEFF64	MERCY HOSPITAL JEFFERSON	728195.03	4230846.83	425.75	16.4	3.8	15.3	1.28E-02	9.13E-05	9.13E-05
SJEFF84	ARDAGH GLASS INC. PEVELY	727306.83	4241579.49	466.57	8.2	2.3	7.6	2.29E-01	4.68E-03	4.68E-03
SJEFF85	ARDAGH GLASS INC. PEVELY	727306.83	4241579.49	466.57	8.2	2.3	7.6	2.29E-01	7.06E-03	7.06E-03
SJEFF87	ARDAGH GLASS INC. PEVELY	727306.83	4241579.49	466.57	16.4	3.8	15.3	2.29E-01	1.44E-03	1.44E-03
SJEFF88	ARDAGH GLASS INC. PEVELY	727306.83	4241579.49	466.57	8.2	2.3	7.6	2.29E-01	3.91E-03	3.91E-03
SJEFF89	ARDAGH GLASS INC. PEVELY	727306.83	4241579.49	466.57	8.2	2.3	7.6		1.47E-03	1.47E-03
SJEFF90	ARDAGH GLASS INC. PEVELY	727306.83	4241579.49	466.57	8.2	2.3	7.6		2.29E-01	2.29E-01
SJEFF91	ARDAGH GLASS INC. PEVELY	727306.83	4241579.49	466.57	8.2	2.3	7.6		6.88E-03	6.88E-03
SJEFF93	ARDAGH GLASS INC. PEVELY	727306.83	4241579.49	466.57	8.2	2.3	7.6		1.38E-03	1.38E-03
SJEFF101	CARONDELET CORPORATION PEVELY	727491.85	4241725.78	485.56	8.2	2.3	7.6	4.81E-01	2.40E-02	2.40E-02
SJEFF102	CARONDELET CORPORATION PEVELY	727491.85	4241725.78	485.56	8.2	2.3	7.6	6.41E-01	1.42E-02	1.42E-02
SJEFF103	CARONDELET CORPORATION PEVELY	727491.85	4241725.78	485.56	8.2	2.3	7.6	5.24E-01	6.09E-03	6.09E-03
SJEFF104	CARONDELET CORPORATION PEVELY	727491.85	4241725.78	485.56	8.2	2.3	7.6	1.51E-01	3.75E-03	3.75E-03
SJEFF105	CARONDELET CORPORATION PEVELY	727491.85	4241725.78	485.56	8.2	2.3	7.6		1.08E-03	1.08E-03
SJEFF106	CARONDELET CORPORATION PEVELY	727491.85	4241725.78	485.56	8.2	2.3	7.6		1.14E-03	1.14E-03
SJEFF107	AERO METAL FINISHING	718099.61	4263747.23	613.55	8.2	2.3	7.6		2.43E-01	2.43E-01
SJEFF126	FRED WEBER, INC. ANTONIA	720102.79	4248877.71	670.57	8.2	2.3	7.6		3.08E+00	3.08E+00
SSTC56	BLASTCO INC	690213.84	4297755.23	543.44	8.2	2.3	7.6		1.47E-01	1.47E-01
SSTL67	MISSOURI ASPHALT PRODUCTS, LLC WEST LAKE QUARRY MATERIAL CO	721914.39	4294042.31	462.50	16.4	3.8	15.3		5.88E-04	5.88E-04
SSTL68	MISSOURI ASPHALT PRODUCTS, LLC WEST LAKE QUARRY MATERIAL CO	721914.39	4294042.31	462.50	16.4	3.8	15.3		1.02E+00	1.02E+00
SSTL125	BODINE ALUMINUM INC WALTON ROAD	730791.15	4286068.83	618.60	8.2	2.3	7.6		7.18E-03	7.18E-03
SSTL197	FRED WEBER, INC. FT. BELLE	739499.97	4302900.13	443.27	8.2	2.3	7.6		1.80E-01	1.80E-01
SCITY19	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	8.2	2.3	7.6	8.24E-02	2.47E-02	2.47E-02
SCITY20	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	8.2	2.3	7.6	4.44E-03	7.73E-01	7.73E-01
SCITY21	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	8.2	2.3	7.6	2.59E+00	7.94E-01	7.94E-01
SCITY44	ADM GRAIN COMPANY ST. LOUIS	744141.30	4284932.90	425.39	15.0	0.2	14.0		6.22E-04	6.22E-04
SCITY45	ADM GRAIN COMPANY ST. LOUIS	744141.30	4284932.90	425.39	15.0	0.2	14.0		2.76E-02	2.76E-02
SCITY118	ICL SPECIALTY PRODUCTS INC CARONDELET PLANT	737985.63	4270043.36	414.11	8.2	2.3	7.6		7.50E-05	7.50E-05
SCITY119	ICL SPECIALTY PRODUCTS INC CARONDELET PLANT	737985.63	4270043.36	414.11	8.2	2.3	7.6		4.00E-01	4.00E-01
SCITY120	ICL SPECIALTY PRODUCTS INC CARONDELET PLANT	737985.63	4270043.36	414.11	8.2	2.3	7.6		2.61E-01	2.61E-01
SCITY130	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	8.2	2.3	7.6		3.00E-04	3.00E-04
SCITY131	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	8.2	2.3	7.6		7.40E-02	7.40E-02
SCITY134	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	8.2	2.3	7.6		7.40E-02	7.40E-02
SCITY135	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	8.2	2.3	7.6		3.00E-04	3.00E-04
SCITY138	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	8.2	2.3	7.6		7.40E-02	7.40E-02
SCITY139	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	8.2	2.3	7.6		3.00E-04	3.00E-04
SCITY182	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	16.4	3.8	15.3	3.36E-02	2.40E-04	2.40E-04
SCITY184	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	16.4	3.8	15.3	6.59E-02	4.71E-04	4.71E-04
SCITY186	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	16.4	3.8	15.3	3.36E-02	2.40E-04	2.40E-04
SCITY188	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	16.4	3.8	15.3	4.95E-02	3.53E-04	3.53E-04
SCITY195	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	8.2	2.3	7.6	8.40E-02	6.00E-04	6.00E-04
SCITY241	PQ CORPORATION -THE	739053.43	4285317.19	495.80	8.2	2.3	7.6		2.66E-02	2.66E-02
SCITY340	PAULO PRODUCTS COMPANY	736597.70	4278776.67	501.12	8.2	2.3	7.6		3.60E-04	3.60E-04
SCITY341	PAULO PRODUCTS COMPANY	736597.70	4278776.67	501.12	8.2	2.3	7.6		1.13E-03	1.13E-03
SCITY342	PAULO PRODUCTS COMPANY	736597.70	4278776.67	501.12	8.2	2.3	7.6		1.20E-03	1.20E-03
SCITY343	PAULO PRODUCTS COMPANY	736597.70	4278776.67	501.12	8.2	2.3	7.6		1.20E-02	1.20E-02
CJEFF33	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	1.49E-01		
CJEFF38	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	4.71E-03		
CJEFF39	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	3.22E-03		

Off-Site Volume Source Inputs

Source ID	Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Release Height (ft)	Sigma Y (ft)	Sigma Z (ft)	Potential Emissions (lb/hr)		
								CO	SOx	SO2 (1-hour)
CJEFF40	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	2.01E-01		
CJEFF41	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	1.10E-03		
CJEFF42	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	8.18E-04		
CJEFF47	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	6.55E-02		
CJEFF48	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	6.56E-06		
CJEFF49	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	4.09E-04		
CJEFF50	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	8.48E-04		
CJEFF51	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	5.28E-02		
CJEFF52	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	2.46E-03		
CJEFF53	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	1.53E-01		
CJEFF54	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	1.56E-02		
CJEFF55	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	1.16E-01		
CJEFF56	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	8.45E-03		
CJEFF57	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	3.42E-01		
CJEFF58	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	4.74E-03		
CJEFF59	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	1.92E-01		
CJEFF60	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	1.36E-02		
CSTLC92	THE BOEING COMPANY ST. LOUIS	728742.77	4293777.11	545.54	8.2	2.3	7.6	2.25E-01		
CSTLC151	SIMPSON CONSTRUCTION MATERIALS LLC VALLEY PARK	715996.20	4268469.87	430.05	13.5	1.4	0.7	1.58E-01		
CSTLC195	FRED WEBER, INC. FT. BELLE	739499.97	4302900.13	443.27	13.5	1.4	0.7	5.97E-01		
CCITY343	GP RECYCLING, LLC	743830.86	4284034.28	422.18	8.2	2.3	7.6	5.57E-02		

ATTACHMENT B

MODEL SUMMARY OUTPUT

10-5-22 US Steel CO Scale-up Significant Impacts Analysis Results

Model	File	Pollutant	Average	Group	Rank	Conc/Dep	East (X)	North (Y)	Elev	Hill	Flag		Time	Met File	Sources	Groups	Receptors
AERMOD 22112	Granite City SIL_2019_CO.SUM	CO	1-HR	ALL	1ST	1157.328	746400	4286400	128.82	132.25		0	19020109	STL_LCN19	13	1	14098
AERMOD 22112	Granite City SIL_2016_CO.SUM	CO	1-HR	ALL	1ST	1094.348	750800	4288100	127.44	127.44		0	16121910	STL_LCN16	13	1	14098
AERMOD 22112	Granite City SIL_2018_CO.SUM	CO	1-HR	ALL	1ST	1036.463	745200	4287400	129.9	134.11		0	18112209	STL_LCN18	13	1	14098
AERMOD 22112	Granite City SIL_2020_CO.SUM	CO	1-HR	ALL	1ST	997.1573	746700	4287100	126.89	126.89		0	20010610	STL_LCN20	13	1	14098
AERMOD 22112	Granite City SIL_2017_CO.SUM	CO	1-HR	ALL	1ST	982.0781	748434.9	4287033	127.16	127.16		0	17051502	STL_LCN17	13	1	14098
AERMOD 22112	Granite City SIL_2019_CO.SUM	CO	8-HR	ALL	1ST	691.6775	748481.6	4286378	126.67	126.67		0	19041908	STL_LCN19	13	1	14098
AERMOD 22112	Granite City SIL_2018_CO.SUM	CO	8-HR	ALL	1ST	669.2078	748481.6	4286378	126.67	126.67		0	18111224	STL_LCN18	13	1	14098
AERMOD 22112	Granite City SIL_2017_CO.SUM	CO	8-HR	ALL	1ST	651.0973	750472	4287091	125.7	125.7		0	17090416	STL_LCN17	13	1	14098
AERMOD 22112	Granite City SIL_2016_CO.SUM	CO	8-HR	ALL	1ST	645.9934	748434.9	4287033	127.16	127.16		0	16110108	STL_LCN16	13	1	14098
AERMOD 22112	Granite City SIL_2020_CO.SUM	CO	8-HR	ALL	1ST	618.4866	748434.9	4287033	127.16	127.16		0	20041108	STL_LCN20	13	1	14098

10-5-22 US Steel CO Scale-up Significant Impacts Analysis Results

Pollutant	Average	Group	Rank	Model Conc. (ug/m3)	Significant Impact Level (ug/m3)	% SIL
CO	1-HR	ALL	1ST	1157.3	2,000	58%
CO	8-HR	ALL	1ST	691.7	500	138%

10-5-22 US Steel CO NAAQS Analysis Results

Model	File	Pollutant	Average	Group	Rank	Conc/Dep	East (X)	North (Y)	Elev	Hill	Flag		Time	Met File	Sources	Groups	Receptors
AERMOD 22112	Granite City NAAQS_2016_CO.SUM	CO	8-HR	ALL	2ND	1856.677	748434.9	4287033	127.16	127.16		0	16032208	STL_LCN16	584	1	205
AERMOD 22112	Granite City NAAQS_2017_CO.SUM	CO	8-HR	ALL	2ND	1941.224	748434.9	4287033	127.16	127.16		0	17121624	STL_LCN17	584	1	205
AERMOD 22112	Granite City NAAQS_2018_CO.SUM	CO	8-HR	ALL	2ND	1726.885	748470.1	4287000	126.94	126.94		0	18092424	STL_LCN18	584	1	205
AERMOD 22112	Granite City NAAQS_2019_CO.SUM	CO	8-HR	ALL	2ND	2045.17	748434.9	4287033	127.16	127.16		0	19110908	STL_LCN19	584	1	205
AERMOD 22112	Granite City NAAQS_2020_CO.SUM	CO	8-HR	ALL	2ND	1966.717	748434.9	4287033	127.16	127.16		0	20092408	STL_LCN20	584	1	205

10-5-22 US Steel CO NAAQS Analysis Results

Pollutant	Average	Group	Rank	Model Conc. (ug/m3)	Background Conc. (ug/m3)	Total Conc. (ug/m3)	Standard (ug/m3)	% Standard
CO	8-HR	ALL	2ND	2045.2	1646	3691.2	10,000	37%

Background data from East St. Louis monitor (AQS No. 85-510-029), high second high value from 2016-2018.

REFERENCES

1. Guidelines on Air Quality Models, (Revised). Appendix W of 40 CFR Part 51, 82 FR 5182, January 17, 2017.

2 . Prevention of Significant Deterioration, The Art and Science of PSD Air Quality Analysis, The Modeling Perspective, Illinois Environmental Protection Agency, Modeling Unit, February 27, 2014..

3. AERSCREEN User's Guide. EPA-454/B-15-005, July 2015.

4. Guideline for Determination of Good Engineering Practice Stack Height (Technical Support Document for Stack Height Regulations (Revised). EPA-450/4-80-023R, U.S. Environmental Protection Agency, June 1985.

5. *Sierra Club v. EPA*, No. 10-1413, 2013 WL 216018 (Jan. 22, 2013).

6. Ambient Monitor Guidelines for Prevention of Significant Deterioration, EPA-450/4-87-007, USEPA, May 1987.

7. Ambient Monitor Guidelines for Prevention of Significant Deterioration, EPA-450/4-87-007, USEPA, May 1987.

Appendix D – Copies of Construction Permits

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19506, SPRINGFIELD, ILLINOIS 62794-9506 - (217) 782-2113

PAT QUINN, GOVERNOR JOHN J. KIM, INTERIM DIRECTOR

217/785-1705

CONSTRUCTION PERMIT/PSD APPROVAL
REVISED

PERMITTEE

U.S. Steel Granite City
Attn: Bryan Kresak, Environmental Director
Route 203 and 20th Street
Granite City, Illinois 62040

Application/Permit No.: 95010001 I.D. No.: 119813AAI
Applicant's Designation: Date Orig. Issued: January 25, 1996
Subject: Production Increase
Date Revision Request: May 30, 2012
Date Revision Issued: December 17, 2012 (See Finding 1(c))
Location: Southeastern Granite City

Permit is hereby granted to the above-designated Permittee for an increase in the allowable production rate of iron (from 2,372,500 to 3,165,000 net tons per year) and steel (from 2,774,000 to 3,580,000 net tons per year) as described in the above-referenced application. This permit is subject to standard conditions attached hereto and the following special conditions:

FINDINGS

1a. Various changes have been made to the provisions of this permit for the Basic Oxygen Furnaces (BOF's), at the request of the Permittee, so that the permit will accommodate an emission reduction project that is planned for particulate emissions from the BOFs. In particular, the revised permit does not include requirements for the operation of these BOF's and the existing electrostatic precipitator (ESP) control system that would be inconsistent with the use of a separate control system with a baghouse for secondary emissions of the BOFs, as is now planned (see Construction Permit Application 11050006).

b. Prior to issuance of this revised permit, a draft of the revised permit underwent a public comment period, including a public hearing.

c. This revised permit will become effective 33 days after the date of issuance unless a petition for review is filed, in accordance with 40 CFR Part 124, with the USEPA's Environmental Appeals Board (Board), in which case, this revised permit will only take effect when and if the Board declines the petition for review or the Board issues a decision on the merits of the appeal that does not include a remand of the proceeding.

BLAST FURNACE OPERATIONS

2a. Total combined production of hot metal (a.k.a., iron) from blast furnaces A and B shall not exceed 9,849 net tons per day, averaged over any calendar month, and;

b. Total combined production of hot metal from blast furnaces A and B shall not exceed 3,165,000 net tons per year.

3a. Particulate emissions from the blast furnace casthouse baghouse and iron spout baghouse shall not exceed 0.010 gr/dscf, pursuant to 35 Ill. Adm. Code 212.445(b)(1).

b. The opacity of emissions from the blast furnace casthouse baghouse and the iron spout baghouse shall not exceed 10% on a 6 minute rolling average basis, pursuant to 35 Ill. Adm. Code 212.445(b)(1).

4a. Emissions of particulate matter from any opening in the blast furnace casthouse shall not exceed 20% opacity on a 6-minute rolling average basis beginning from initiation of the opening of the tap hole up to the point where iron and slag stops flowing in the troughs, pursuant to 35 Ill. Adm. Code 212.445(a)(2).

5. Emissions from Blast Furnace operations shall not exceed the limits in attached Tables 1 and 5.

BASIC OXYGEN FURNACE SHOP

6a. Total combined production of liquid steel from the Basic Oxygen Furnaces (BOF's) shall not exceed 11,000 net tons per day, averaged over any calendar month; and

b. Total combined production of liquid steel from the BOF's shall not exceed 3,580,000 net tons per year.

7. The emissions of PM-10 from the BOF stack for the total of all BOF processes (i.e., operations from the beginning of the charging process through the end of the tapping process) shall not exceed 60.0 lbs/hour and 0.225 lbs per ton of steel in process, pursuant to 35 Ill. Adm. Code 212.458(b)(23).

8. Opacity of emissions from any opening in the BOF shop (e.g., roof monitor) shall not exceed 20% on a 3 minute rolling average basis, pursuant to 35 IAC 212.446(c).

9. The Permittee shall operate and maintain the BOF's and associated capture and control systems in accordance with applicable requirements of the National Emission Standards for Hazardous Air Pollutants for Integrated Iron and Steel Manufacturing Facilities, 40 CFR 63 Subpart FFFFF, including requirements for operational monitoring, performance testing for opacity and emissions of particulate matter,* operation of capture and control systems within established limits for operating parameters, implementation of specified operation and maintenance practices, recordkeeping and reporting.

* As related to testing of emissions, if the Permittee is not willing to consider all particulate matter measured by testing to be PM_{10}, as provided for by 35 IAC 212.108(a)(3), performance tests for emissions

of particulate matter shall also include measurements for emissions of PM_{10} in accordance with 35 IAC 212.108(a)(1) or (2).

Note: This condition requires the Permittee to comply with the operating and maintenance requirements of 40 CFR 63 Subpart FFFFF as the means to verify ongoing compliance with the requirements of Conditions 7 and 8 and to address implementation of good air pollution control practice for the BOF's.

(Former Condition 10 has been removed in this revised permit.)

11a. Flame suppression shall be used and maintained during the entire tapping process.

b. The above requirement for flame suppression and the various requirements for the BOF's in Condition 12 and 13 shall end after the Permittee begins operation of a capture and control system for secondary emissions from the BOF's that makes these requirements infeasible or unnecessary, as explicitly recognized by Construction Permit 11050006 or other construction permit issued by the Illinois EPA for a capture and control system for secondary emissions.

12a. Except for purposes of emissions testing as related to the set points for the capture system for the BOF's, this capture system shall be operated at the following minimum set points for gas flow rate in the ESP stack until and unless the Illinois EPA approves lower minimum set point(s) based on a demonstration that a better level of particulate matter capture efficiency would now be achieved by the charging hoods and primary hoods.

b. Set points requirements while only a single BOF vessel is in operation:

i. Minimum set point during charging process: 550,000 cfm.

ii. Minimum set point during refining process: 650,000 cfm.

iii. Minimum set point during tapping process: 200,000 cfm (until one minute after completing alloy addition).

c. i. During dual operation of BOF vessels (a.k.a., overlapping BOF operation), the minimum set point shall be 700,000 cfm.

ii. In addition, overlapping operation of the BOF vessels is subject to the following requirements. These requirements shall be part of the Standard Operating Procedure for the BOFs.

A. The hot metal charge of the second vessel shall be initiated and completed during the time between completion of the blow and start of tap on the first vessel while sufficient draft at the ESP capture system is established and maintained for both vessels.

B. The charge and/or blow on one vessel shall not begin until sufficient draft has been established at the associated ESP capture system (a.k.a., doghouse) and the alloy addition at the vessel tapping has been completed for a least 1 minute.

C. Sufficient draft at the ESP capture system of the vessel being tapped shall be maintained for at least 1 minute after alloy addition has been completed. After such period, the capture system draft may be transferred over to the other.

D. Only overlapping of the hot metal charge of the second vessel after the end of blow and prior to onset of tap of the first vessel and overlapping of tapping of the first vessel, after alloy addition, and the hot metal charge and/or blow on the second vessel are allowed.

13a. i. The Permittee shall operate, maintain and calibrate a continuous operational monitor to ESP stack gas flow rate.

ii. The Permittee shall record for each steel production cycle the various stack gas flow rates for each process (i.e., for each charge, each refine, each tap) of each steel production cycle. That is, the Permittee shall be able to distinguish the measured flow rate of stack gas during each production cycle.

b. i. The Permittee shall operate and maintain a continuous operational monitor for waste gas suction, i.e., the static pressure in the main downcomer duct of the ESP.

ii. The Permittee shall record the waste gas suction for each process (i.e., for each charge, each refine, each tap) of each steel production cycle.

c. These monitoring systems shall be calibrated on at least a quarterly basis.

d. These monitoring systems shall be operated at all times that a BOF is in operation and shall be used as mechanisms to ensure sufficient draft is maintained in the emissions capture hoods and transport ducts.

(Former Conditions 14 through 17 have been removed in this revised permit.)

18. Emissions from the BOF Shop shall not exceed the limits in attached Tables 2 and 5.

(The note that previously accompanied Condition 18 has been removed in this revised permit.)

CONTINUOUS CASTING OPERATIONS

19. The continuous casting operations shall comply with 35 Ill. Adm. Code 212.450 and 212.458(b)(8).

20. Emissions from the continuous casting operations shall not exceed the limits in Tables 3 and 5.

FUEL COMBUSTION

21. Total fuel usage for blast furnace stoves (A and B), boiler house boilers (1-10), blast furnace boilers (11 and 12), ladle drying preheaters and blast furnace gas flares shall not exceed the following limits:

    a. Natural Gas usage: 225 million ft^3 per month and 1,346 million ft^3 per year;

    b. Blast Furnace Gas (BFG) usage: 30,800 million ft^3 per month and 185,030 million ft^3 per year;

    c. Fuel Oil usage: 60 thousand gallons per month and 365 thousand gallons per year.

22. Emissions from the fuel combustion units listed above shall not exceed the limits in Tables 4 and 5.

ON-SITE FUGITIVE DUST CONTROL

(Refer to Attachment B for a table which summarizes the required on-site fugitive dust roadway control measures and maps indicating the referred to road segments)

23. The Permittee shall immediately initiate and maintain the on-site fugitive dust control measures specified in this permit so as eliminate dust spillage on in-plant and out-of-plant roadways.

24a. The Permittee shall sweep or flush at least every day the paved access area below the BOF ESP where ESP dust collection bags are used, stored and transported.

b. The Permittee shall implement a housekeeping program for the non-roadway areas below and around the BOF ESP. This program shall, at a minimum, contain the following:

    i. The ground and other accessible areas where dust may gather shall be swept or cleaned at least every day;

    ii. Cleaning shall be performed in such a manner as to minimize the escape of dust into the atmosphere;

    iii. Dust collection bags shall be inspected at least daily for rips, tears, or insecure connection to the discharge chutes of the ESP hoppers;

    iv. Dust collection bags shall be inspected after removal from, and connection to, the discharge chutes of the ESP hoppers;

v. Ripped or torn bags shall be taken out of service and transported as soon as practicable in a covered truck.

25. Fugitive emissions of particulate matter from any roadway or parking area shall not exceed an opacity of 5%, pursuant to 35 Ill. Adm. code 212.316(e)(1).

26a. UNPAVED ROADS: On unpaved roads that are part of normal traffic patterns as identified in attachment B (including roads B, C, E, N, F-F, and CS(2)) the Permittee shall apply a chemical dust suppressant at least three times a month, with the following exceptions:

i. Road segment G-G, which shall be sprayed at least quarterly;

ii. Road segments P, V, Z, D-D, E-E, and H, which shall be sprayed at least 4 times per month until paving is completed. Paving shall be completed on these roads no later than July 31, 1996;

iii. Road segment L, which shall be sprayed at least 4 times per month.

b. All other unpaved roads shall be treated as necessary.

c. Applications of suppressant may be less frequent than specified above if weather conditions, i.e., precipitation or temperature, interfere with the schedule for spraying, provided each such instance shall be recorded in accordance with the daily records for on-site fugitive dust control required by this permit.

27a. PAVED ROADWAYS AND AREAS: Paved roadways and areas shall be maintained in good condition.

b. On paved roadways and other areas, the Permittee shall sweep or flush as follows:

i. Road segments D, K, M, F, G, J, R, and O shall be swept or flushed at least daily;

ii. Road segments P, V, W, X, Z, D-D, E-E, and CS(1) shall be swept or flushed at least five days per week;

iii. Road segments S and T shall be swept or flushed at least every other day;

iv. Road segments A and H shall be swept or flushed at least once per month;

v. All gate areas leading from the Steelworks area shall be swept or flushed at least daily;

vi. All gate areas leading from the iron making area shall be swept or flushed at least five times per week.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

28. The above on-site dust control measures shall be conducted to maximize their effectiveness by performing said measures when the roads or areas are not normally obstructed by parked vehicles and by preferentially using filter sweeping (e.g., Enviro-Whirl sweeper) for the gate areas, the roads and areas surrounding the BOF and BOF ESP, and other key areas.

29. The Permittee shall maintain daily records relative to the on-site fugitive dust control program which includes the following information as a minimum:

    a. The date (and time for the gate areas) each road or area was treated;

    b. The manner in which the road or area was treated (i.e., filter sweep, conventional sweep, suppressant spray or flush);

    c. Detailed information for use of dust suppressant, including but not limited to the application rate, dilution ratio, type of suppressant used, and the number of gallons of suppressant applied;

    d. Observations, if any, concerning the condition of the roadway, e.g., presence of parked vehicles, detection of potholes;

    e. The amount of precipitation and temperature recorded for each day, and if determination was made to suspend application of suppressant, include name and title of person who made determination to suspend application and explanation;

    f. Any and all suspensions or deviations from the designated control procedures, with date, description, and explanation for suspension of application.

OFF-SITE FUGITIVE DUST CONTROL

30. The Permittee or the Permittee's Agent shall sweep or flush the following Granite City street road areas:

    a. At least weekly, the quarter mile segment of Madison Avenue in front of the 16th street gate (i.e., 1/8 of a mile in either direction);

    b. At least weekly, segment of 20th street between Lee and Quincy roads;

    c. At least monthly, segment of 20th street between Madison and Route 203 (a.k.a. Edwardsville Road).

PM_{10} CONTINGENCY MEASURES

31. The Permittee shall comply with the additional control measures (e.g., PM_{10} contingency plan) required by 35 Ill Adm. Code Part 212 Subpart U.

COMPLIANCE DETERMINATIONS

32a. Compliance with the daily limits of this permit shall be determined from a monthly total of the relevant daily data divided by the number of days in the month.

b. Compliance with the monthly limits of this permit (e.g., fuel usage) shall be determined by direct comparison of monthly data to the applicable limit.

c. i. Compliance with the annual limits of this permit shall be determined based on a calendar year.

ii. A. Compliance with the production limits in conditions 2(b) and 6(b) shall also be determined on a month by month basis by showing that the actual production of iron and steel from the plant did not exceed the scheduled rate of production for a month given in the most recent production schedule provided to the Agency that shows compliance with the following requirements.

B. If no production schedule is submitted to the Agency by the Permittee for a particular year, the scheduled monthly production of iron and steel shall be set at one twelfth of the annual production limits in conditions 2(b) and 6(b).

C. 1. The Permittee may submit a schedule for iron and steel production for each month of the calendar year. Such schedule shall provide the scheduled monthly iron and steel production for each month and the total of such scheduled production shall not exceed the annual production limits in conditions 2(b) and 6(b). This schedule shall be submitted each year no later than December 15th of the preceding year.

2. During the course of the year, the Permittee may submit a revised production schedule which accounts for actual production levels which were below that scheduled for the previous months, provided that in no case shall the scheduled production for prior months in such a revised schedule be lowered to less than actual production levels or raised. Such revised schedule shall be submitted to the Agency no later than 15 days after the first day of the month for which scheduled production has been raised. Such schedule shall be accompanied by data on actual production in preceding months.

(Former Condition 33 has been removed from this revised permit.)

34a. Blast furnace hot metal production shall be measured at the BOF hot metal transfer station, and adjusted by documented slag and iron losses.

b. BOF liquid steel production shall be initially measured by a scale equipped crane and adjusted based upon documented steel production analysis of the continuous casters.

c. BFG usage shall be calculated based on the total BFG produced per net ton hot metal (NTHM) derived by the following formula and adjusted per analysis of documented BFG consumptions:

$$\text{mmft}^3 \text{ BFG per month} = \frac{(4.585277 \text{ NTHM/day} + 498.191)}{80} \times \begin{pmatrix} \text{Number of} \\ \text{days in} \\ \text{that month.} \end{pmatrix}$$

d. Natural gas usage shall be determined by metered volumes.

e. Fuel oil usage shall be determined by tank height differentials.

RECORD KEEPING

35. The Permittee shall keep records of the following items and such other items which may be appropriate to allow the Agency to review compliance:

a. Blast Furnace hot metal production (total combined daily, monthly and annual in tons), including documentation on iron and slag losses;

b. BOF liquid steel production (total combined daily, monthly and annual in tons), including documentation on adjustments made due to production analysis and losses;

c. Fuel usage as follows; Usage of natural gas and BFG (total combined million ft^3 per month and year, each) and fuel oil (total combined gallons/month and year) for the blast furnace stoves (A and B), boiler house boilers (1-10), blast furnace boilers (11 and 12), ladle drying preheaters and blast furnace gas flares.

36. All records and logs required by this permit shall be retained at a readily accessible location at the source for at least three years from the date of entry and shall be made available for inspection and copying by the Agency and USEPA upon request. Any records retained in a computer shall be capable of being retrieved and printed on paper during normal source office hours so as to be able to respond to an Agency request for records during the course of a source inspection.

TESTING

37. The special conditions of this permit supplement the special conditions of any existing operating permits for this source as of January 15, 1996 and supersede such conditions in cases where a conflict exists.

38a. The following tests shall be performed by no later than August 6, 1997 to demonstrate compliance with the conditions of this permit.

i. Fuel Combustion Units testing: The emissions of particulate matter from boiler #12 while burning blast furnace gas shall be measured. This test shall be designed to verify compliance with the requirements of this permit and the emission factor used (i.e., 2.9 lbs particulate emitted per mmcf BFG burned);

b. The test shall be performed by an approved independent testing service during conditions which are representative of maximum emissions and at the maximum production rates allowed, or as close to such rates as reasonable if the Permittee demonstrates to the Agency prior to testing that testing at such production rates within the time constraints of an Agency request to test is not practicable.

c. i. The following methods and procedures shall be used for the testing, unless another method is approved by the Agency: Refer to 40 CFR 60, Appendix A for USEPA test methods;

Location of sample points	USEPA Method 1
Gas flow and velocity	USEPA Method 2
Particulate Matter	USEPA Method 5

ii. All particulate measured shall be considered PM-10 unless emissions are tested by an appropriate USEPA test method for measurement of PM-10, as specified in 35 Ill. Adm. Code 212.110(e).

d. At least 30 days prior to the actual date of testing, a written test plan shall be submitted to the Agency for review and approval. This plan shall describe the specific procedures for testing, including as a minimum:

i. The persons who will be performing sampling and analysis and their experience with similar tests;

ii. The specific conditions under which testing will be performed including a discussion of why these conditions will be representative of maximum emissions and the means by which operating parameters for the source and the emissions capture and control system will be determined;

iii. The specific determinations of emissions and operation which are intended to be made, including sampling and monitoring locations;

iv. The test methods which will be used, with the specific analysis methods;

v. Any proposed use of an alternative test method, with detailed justification;

vii. The format and content of the Source Test Report.

e. The Agency shall be notified before these tests to enable the Agency to observe these tests. Notification for the expected date of testing shall be submitted a minimum of thirty (30) days prior to the expected date. Notification of the actual and expected time of testing shall be submitted a minimum of five (5) working days prior to the actual date of the test. The Agency may at its discretion accept notifications with shorter advance notice provided that the Agency will not accept such notifications if it interferes with the Agency's ability to observe testing.

f. The Final Report of these tests shall include as a minimum:

i. A tabular summary of results which includes:

- process weight rate and/or fuel usage rate
- production rate
- allowable emission limit
- measured emission rate
- determined emission factor
- compliance demonstrated - Yes/No
- any other pertinent information

ii. Description of test methods and procedures used, including description of sampling train, analysis equipment, and test schedule;

iii. Detailed description of test conditions, including,

- pertinent process information (e.g. fuel or raw material consumption)
- control equipment information, i.e. equipment condition and operating parameters during testing;

iv. Data and calculations, including copies of all raw data sheets and records of laboratory analyses, sample calculations, and data on equipment calibration;

g. Copies of the Final Report for these tests shall be submitted to the Agency within 14 days after the test results are compiled and finalized.

h. Submittals of information shall be made as follows:

i. Notice of Test - one copy to Source Emission Test Specialist, one copy to Regional Office, and one copy to Permit Section;

ii. Final Report - one copy to Source Emission Test Specialist, one copy to Regional Office, and one copy to Permit Section.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Pertinent Addresses are:

Illinois Environmental Protection Agency
Division of Air Pollution Control
9511 West Harrison
Des Plaines, Illinois 60016

Illinois Environmental Protection Agency
Division of Air Pollution Control
Regional Office
2009 Mall Street
Collinsville, Illinois 62234

Illinois Environmental Protection Agency
Division of Air Pollution Control
Attn: Permit Section
P.O. Box 19506
Springfield, Illinois 62794-9506

(Condition 38 required emission testing following the initial operation of the source with the expansion that has already been conducted by the Permittee. This revised permit does not require that this testing be repeated.)

REPORTING

39. Unless otherwise provided for by the provisions for reporting of deviations in the Clean Air Act Permit Program (CAAPP) permit for the source, if there is a deviation from the requirements of this permit, the Permittee shall submit a report to the Illinois EPA within 30 days after the deviation. The report shall include a description of the deviation, the probable cause of the deviation, the corrective actions that were taken and any preventative measures taken to prevent similar deviations in the future.

40. The Permittee shall submit the following additional information from the prior calendar year with the Annual Emissions Report, due May 1st of each year:

    a. Iron and steel production (tons/month and tons/year, each);

    b. Natural gas and BFG usage ($mmft^3$/month and $mmft^3$/year, each);

    c. Fuel oil usage (thousand gallons/month and thousand gallons/year, for each type of oil).

APPLICABILITY OF MAJOR SOURCE RULES

41a. As a consequence of the above conditions, this permit is issued based upon the following changes in emissions, as further described in Table 6, accompanying increased production as allowed by this permit:

i. The increases in emissions of lead and VOM are not significant under 35 Ill. Adm. Code Part 203 or 40 CFR 52.21 - Prevention of Significant Deterioration;

ii. The increase in emissions of NO_x are being accompanied by contemporaneous emission decreases provided by the shutdown of equipment and operations such that the net emissions change is not significant under 35 Ill. Adm. Code Part 203 or 40 CFR 52.21 - Prevention of Significant Deterioration.

iii. The increase in emissions of PM and PM-10 are being accompanied by contemporaneous emission decreases provided by additional road dust control and BOF capture and control such that the net emissions change is not significant under 35 Ill. Adm. Code Part 203 or 40 CFR 52.21 - Prevention of Significant Deterioration.

Also, the Permittee has agreed to provide further additional dust control consisting of the sweeping of Granite City public streets and housekeeping measures in the area below and surrounding the BOF ESP. Attachment C is a listing of the emission reductions provided by these control measures.

b. The increases in emissions of SO_2 and CO are significant under 40 CFR 52.21 - Prevention of Significant Deterioration (PSD). Accordingly, the project is considered a major modification and must comply with the requirements of PSD. These requirements include a demonstration of best available control requirements for affected SO2 and CO emission units, an analysis of air quality impacts, an analysis of the impacts of the project on visibility, vegetation's and soils, and the application and proposed permit must undergo a public participation. The Agency has determined that these additional requirements have been met.

c. The changes in emissions pertinent to this project are summarized as follows:

Units = tons/year

- Emission increases which could occur from the project:

PM_{10}	PM	NO_x	SO_2	CO	VOM	Lead
51.6	-52.0	238.8	476.0	5,685	59.3	0.54

- Creditable contemporaneous actual emission decreases:

PM_{10}	PM	NO_x	SO_2	CO	VOM	Lead
58.0	58.0	226.5	0.38	23.31	32.8	0.0

- Other contemporaneous emission increases:

PM_{10}	PM	NO_x	SO_2	CO	VOM	Lead
20.7	20.3	26.0	0.25	11.8	1.6	0.0

- Net emission changes:

PM_{10}	PM	NO_x	SO_2	CO	VOM	Lead
+14.3	-89.2	+38.3	+475.9	+5,673	+28.1	+0.54

- Significant Levels:

PM_{10}	PM	NO_x	SO_2	CO	VOM	Lead
15	25	40	40	100	40	0.6

Explanatory Note:

PM	=	particulate matter = particulate;
PM_{10}	=	particulate matter less than or equal to 10 micrometers in size;
SO_2	=	sulfur dioxide;
NO_x	=	nitrogen oxides;
VOM	=	volatile organic material;
CO	=	carbon monoxide;
mm	=	million;
gr/dscf	=	grains per dry standard cubic foot;
acfm	=	actual cubic feet per minute;
mmcf	=	million cubic feet;
Mgal	=	thousands of gallons.

If you have any questions on this permit, please call Kevin Smith at 217/782-7048.

Edwin C. Bakowski

Edwin C. Bakowski, P.E.
Manager, Permit Section
Division of Air Pollution Control

Date Signed: December 17, 2012

DES:KLS:psj

cc: IEPA, FOS Region 3

TABLE 1

BLAST FURNACE OPERATIONS

Maximum Hot Metal Production = 3,165,000 net tons per year

1. Casthouse Baghouse (furnace tapping) - captured emissions ducted to baghouse, uncaptured emissions emitted through roof, other openings, etc.

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Year)
PM	0.0703	111.19
PM_{10}	0.0703	111.19
SO_2	0.2006	422.00
NO_x	0.0144	22.79
VOM	0.0946	149.68

2. Blast Furnace - uncaptured fugitives

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Year)
PM	0.031	49.06
PM_{10}	0.0155	24.53
SO_2	0.0104	21.94
NO_x	0.0007	1.14
VOM	0.0047	7.42

3. Blast Furnace Charging
Maximum pellets charged = 4,308,581 tons/yr

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Year)
PM	0.0024	5.17
PM_{10}	0.0024	5.17

4. Slag Pits

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Year)
PM	0.00417	6.60
PM_{10}	0.00417	6.60
SO_2	0.0100	15.83

TABLE 1 (cont.)

5. Iron Spout Baghouse- captured emissions controlled by iron spout baghouse.

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Year)
PM	0.02548	40.32
PM_{10}	0.02548	40.32
SO_2	0.0073	13.89

6. Iron Pellet Screen
Maximum pellets charged = 4,308,581 tons/yr

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Year)
PM	0.00279	6.01
PM_{10}	0.00279	6.01

TABLE 2

BOF SHOP

Maximum Liquid Steel Production = 3,580,000 net tons per year

1. BOF ESP Stack

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Year)
PM	0.16	262.80
PM_{10}	0.16	262.80
NO_x	0.0389	69.63
VOM	0.0060	10.74
CO	8.993	16,097.47
Lead	0.01934 lbs/hour	1.26 tons/year

2. BOF Roof Monitor

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Year)
PM	0.0987	176.71
PM_{10}	0.06614	118.40
Lead	0.0129 lbs/hour	0.08 tons/year

3. Desulfurization and Reladling - Hot Metal Transfer

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Year)
PM	0.03721	58.88
PM_{10}	0.03721	58.88
VOM	0.0010	1.58
Lead	0.0133 lbs/hour	0.09 tons/year

4. BOF Additive System (i.e., fluxes) with Baghouse, a.k.a., BOF hopper baghouse

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Year)
PM	0.00032	0.57
PM_{10}	0.00032	0.57

TABLE 2 (cont.)

5. Flux conveyor & transfer pits, bin floor

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Year)
PM	0.0016	2.86
PM_{10}	0.0016	2.86

6. Hot metal charging ladle slag skimmer

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Year)
PM	0.0050	7.94
PM_{10}	0.0050	7.94

TABLE 3

CONTINUOUS CASTING OPERATIONS

Maximum Liquid Steel Throughput = 3,580,000 net tons per year

1. Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy)

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Year)
PM	0.00715	12.80
PM_{10}	0.00715	12.80

2. Deslagging Station and Material HS.

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Year)
PM	0.00355	6.35
PM_{10}	0.00355	6.35

3. Caster Molds - Casting

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Year)
PM	0.006	10.74
PM_{10}	0.006	10.74
NO_x	0.050	89.50

4. Casters Spray Chambers

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Year)
PM	0.00852	15.25
PM_{10}	0.00852	15.25

5. Slab Cut-off

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Year)
PM	0.0071	12.71
PM_{10}	0.0071	12.71

TABLE 3 (cont.)

6. Slab Ripping

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Year)
PM	0.00722	12.92
PM_{10}	0.00722	12.92

TABLE 4

CERTAIN FUEL COMBUSTION UNITS

1. 10 boilers (#'s 1 - 10)
2. 2 boilers (#'s 11 - 12)
3. Blast Furnace Stoves A & B.
4. BFG Flares
5. Ladle Drying Preheaters (5 heaters).

Total combined fuel usage from affected units (i.e., Boilers, BF stoves, BF Flares, ladle drying preheaters)

	Maximum Usage ($mmft^3$/Year)
Natural Gas (Total)	1,346
BFG	185,030
Fuel Oil	365 thousand gallons/year

1. Natural Gas

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Year)
PM	5.1	3.43
PM_{10}	5.1	3.43
SO_2	0.6	0.40
NO_x	306.0	205.94
VOM	2.8	1.88
CO	40.0	26.92

2. BFG

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Year)
PM	2.9	268.29
PM_{10}	2.9	268.29
SO_2	6.65	615.22
NO_x	5.28	488.48
CO	13.7	1,267.46

TABLE 4 (cont.)

3. Fuel Oil

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Year)
PM	9.72	1.77
PM_{10}	9.72	1.77
SO_2	141.3	25.79
NO_x	55.0	10.04
VOM	0.28	0.05
CO	5.0	0.91
Lead	0.336	0.06 (waste oil)

TABLE 5

LIMITS ON EMISSIONS FROM MAJOR PROCESSES AND ACTIVITIES

Units = tons/year

	PM	PM_{10}	SO_2	NO_x	VOM	CO	Lead
Blast Furnace Operations	218	194	474	24	157	---	---
BOF Shop	510	451	---	70	12	16,097	1.43
Continuous Casting Operations	71	71	---	90	---	---	---
Certain Fuel Combustion Units[A]	274	274	641	706	2	1,295	0.06
Roadways	27	27	---	---	---	---	---
Material Handling	2	2	---	---	---	---	---
Total	1,102	1,019	1,115	890	171	17.392	1.49

[A] Blast furnace stoves (A and B), boiler house boilers (1-10), blast furnace boilers (11 and 12), ladle drying preheaters and blast furnace gas flares.

TABLE 6

EMISSIONS SUMMARY

Units = tons/year

- Emission increases which could occur from the project:

PM_{10}	PM	NO_x	SO_2	CO	VOM	Lead
51.6	-52.0	238.8	476.0	5,685	59.3	0.54

- Creditable contemporaneous actual emission decreases:

PM_{10}	PM	NO_x	SO_2	CO	VOM	Lead
58.0	58.0	226.5	0.38	23.31	32.8	0.0

- Other contemporaneous emission increases:

PM_{10}	PM	NO_x	SO_2	CO	VOM	Lead
20.7	20.3	26.0	0.25	11.8	1.6	0.0

- Net emission changes:

PM_{10}	PM	NO_x	SO_2	CO	VOM	Lead
+14.3	-89.2	+38.3	+475.9	+5,673	+28.1	+0.54

- Significant Levels:

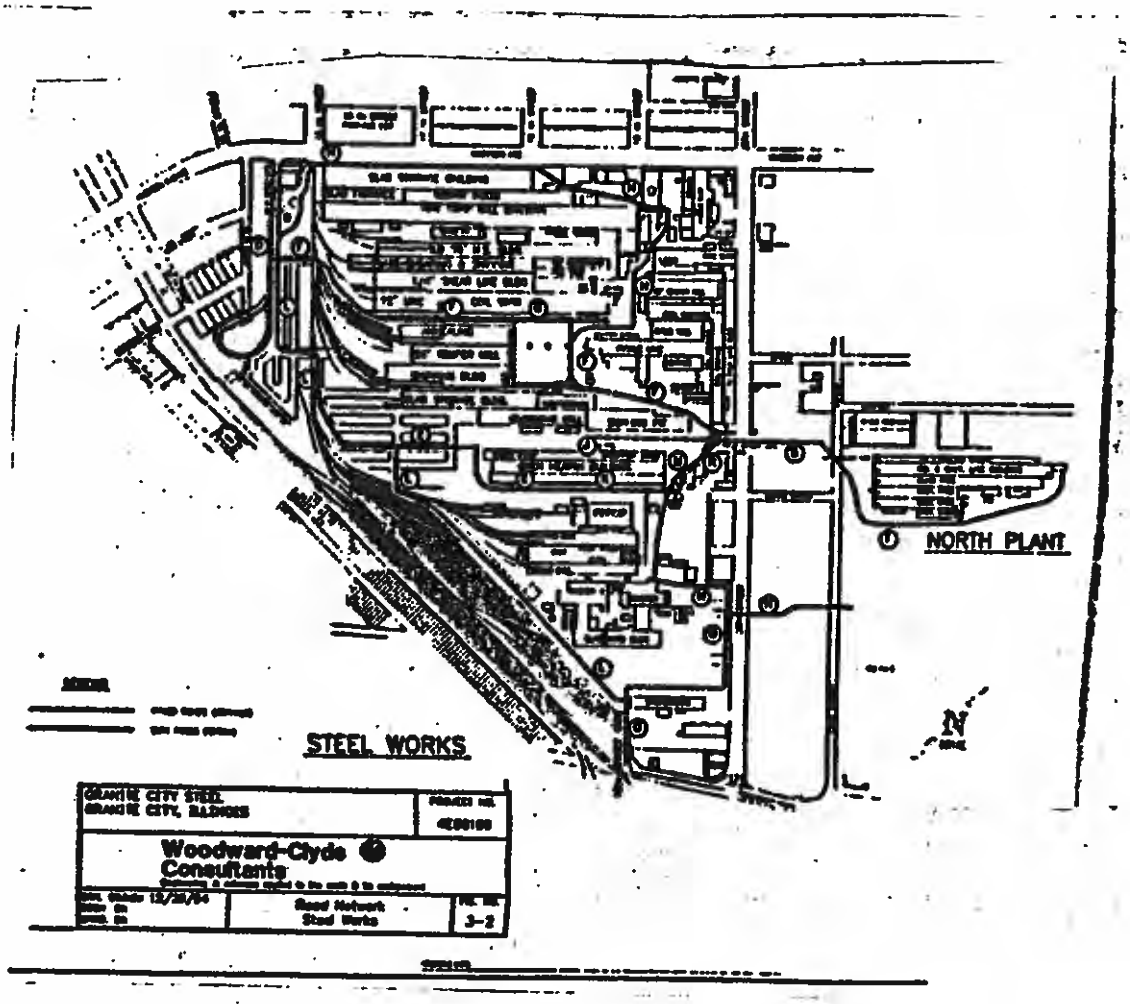
PM_{10}	PM	NO_x	SO_2	CO	VOM	Lead
15	25	40	40	100	40	0.6

ATTACHMENT A

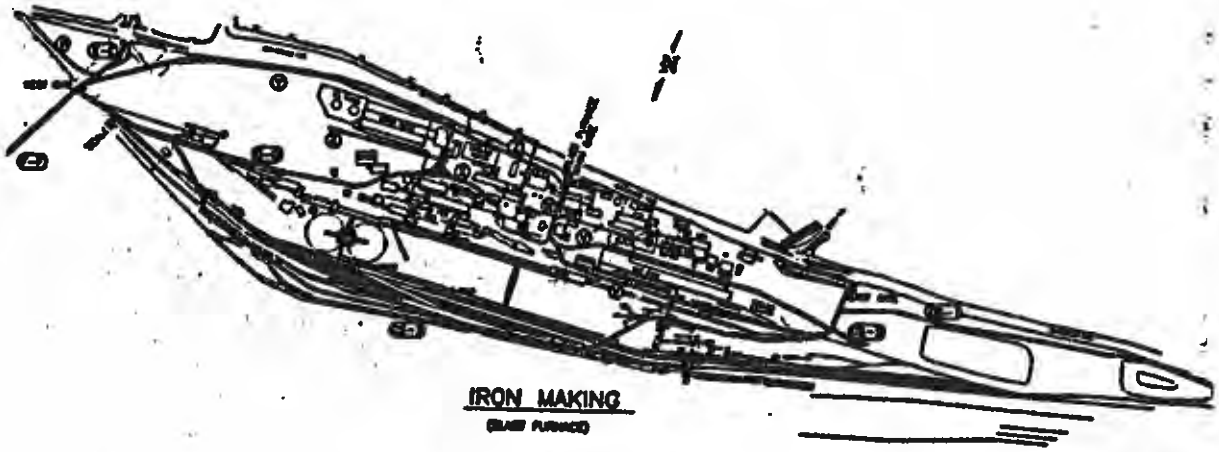
(Former Attachment A has been removed in this revised permit.)

ATTACHMENT B

ON-SITE FUGITIVE DUST ROADWAY CONTROL MEASURES AND MAPS SHOWING THE ROAD SEGMENTS

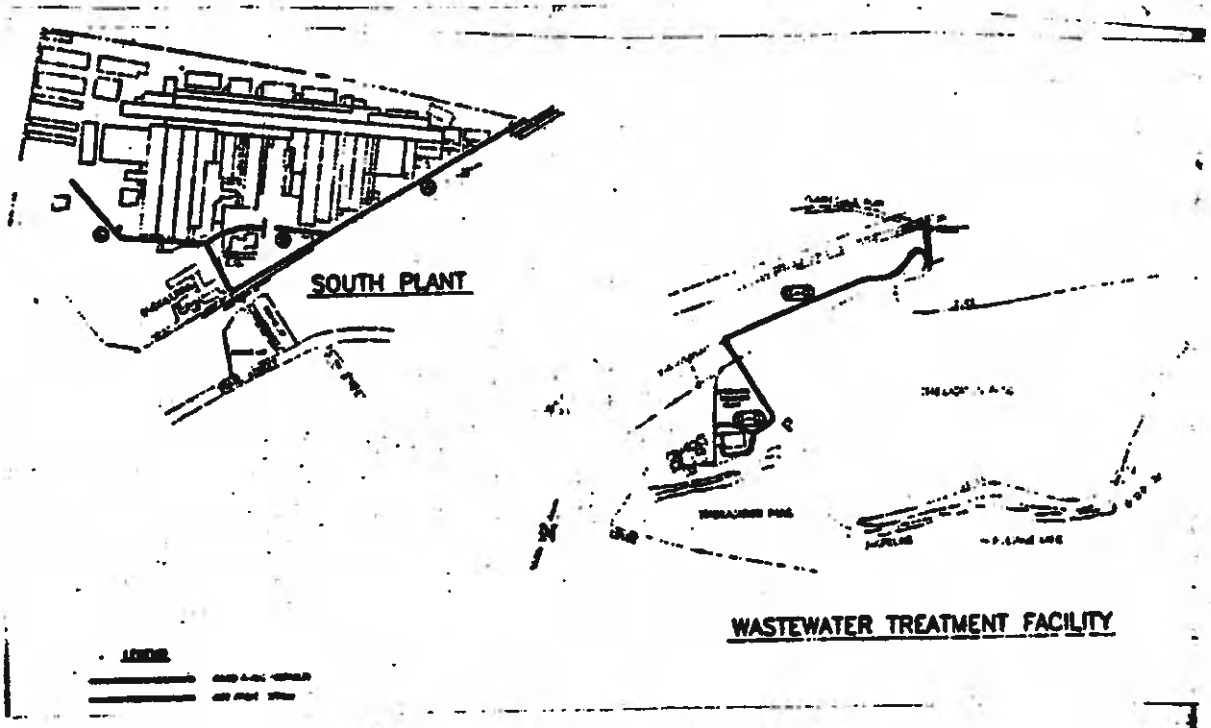


ATTACHMENT B (cont.)



GRANITE CITY STEEL GRANITE CITY, ILLINOIS	PROJECT NO. 4539109
Woodward-Clyde Consultants	
DATE: October 12/20/94 DRAWN BY: CHECK BY:	Flood Network Iron Making Area
	FIG. NO. 3-3

ATTACHMENT B (cont.)



GRANITE CITY STEEL
GRANITE CITY, ILLINOIS

Woodward-Clyde Consultants

Road Network
South Plant & WWTP

ATTACHMENT C

CONTEMPORANEOUS REDUCTIONS IN THE
EMISSIONS OF PM_{10}

- Historic roadway emissions of 428 tons/year, minus future potential roadway emissions of 27 tons/year, equals a resulting reduction in roadway emissions of 401 tons/year

- Historic material handling emissions of 17 tons/year minus future potential material handling emissions of 2 tons/year, equals a resulting reduction in material handling emissions of 15 tons/year.

- Emission reductions resulting from the sweeping of city streets = 52 tons/year*

- Emission reductions resulting from sweeping and housekeeping of areas below and around BOF ESP = 12 tons/year*

Total reductions in the emissions of PM_{10} as a result of the additional dust control measures required by Illinois' SIP and the special conditions of this permit = 480 tons/year

* These are considered reasonable estimates of reductions and are subject to change upon further investigation of the actual reductions which will occur as a result of the control measures required by this permit.

KLS:psj

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

State of Illinois
ENVIRONMENTAL PROTECTION AGENCY

Mary A. Gade, Director
217/782-2113

P. O. Box 19506, Springfield, IL 62794-9506

CONSTRUCTION PERMIT

PERMITTEE

Granite City Division
of National Steel Corporation
Attn: Joseph S. Kocot
20th and State Street
Granite City, Illinois 62040

RECEIVED
JAN 9 1996
COLLINSVILLE OFFICE

Application No.: 95010001 I.D. No.: 119813AAI
Applicant's Designation: Date Received: January 3, 1995
Subject: Production Increase
Date Issued: January 25, 1996
Location: Southeastern Granite City

Permit is hereby granted to the above-designated Permittee for an increase in the allowable production rate of iron (from 2,372,500 to 3,165,000 net tons per year) and steel (from 2,774,000 to 3,580,000 net tons per year) as described in the above-referenced application. This permit is subject to standard conditions attached hereto and the following special conditions:

1. Prior to issuance of this permit, a draft of this permit has undergone a public notice and comment period, and a public hearing was held.

BLAST FURNACE OPERATIONS

2a. Total combined production of hot metal (a.k.a., iron) from blast furnaces A and B shall not exceed 9,849 net tons per day, averaged over any calendar month, and;

b. Total combined production of hot metal from blast furnaces A and B shall not exceed 3,165,000 net tons per year.

3a. Particulate emissions from the blast furnace casthouse baghouse and iron spout baghouse shall not exceed 0.010 gr/dscf, pursuant to 35 Ill. Adm. Code 212.445(b)(1).

b. The opacity of emissions from the blast furnace casthouse baghouse and the iron spout baghouse shall not exceed 10% on a 6 minute rolling average basis, pursuant to 35 Ill. Adm. Code 212.445(b)(1).

4a. Emissions of particulate matter from any opening in the blast furnace casthouse shall not exceed 20% opacity on a 6-minute rolling average basis beginning from initiation of the opening of the tap hole up to the point where iron and slag stops flowing in the troughs, pursuant to 35 Ill. Adm. Code 212.445(a)(2).

5. Emissions from Blast Furnace operations shall not exceed the limits in attached Tables 1 and 5.

BASIC OXYGEN FURNACE SHOP

6a. Total combined production of liquid steel from the Basic Oxygen Furnaces (BOF's) shall not exceed 11,000 net tons per day, averaged over any calendar month, and;

b. Total combined production of liquid steel from the BOF's shall not exceed 3,580,000 net tons per year.

7. The emissions of PM-10 from the BOF ESP stack for the total of all BOF processes (i.e., operations from the beginning of the charging process through the end of the tapping process) shall not exceed 60.0 lbs/hr and 0.225 lbs per ton of steel in process, pursuant to 35 Ill. Adm. Code 212.458(b)(23).

8. Visible emissions from any opening in the BOF shop (e.g., roof monitor) shall not exceed 20% on a 3 minute rolling average basis.

9a. The Permittee shall determine the opacity from the openings BOF shop on at least a weekly basis. Observations shall be conducted for at least an hour or the entire BOF cycle, whichever is greater.

b. The Permittee shall determine the opacity from the BOF ESP stack for at least one hour on any normal work day (i.e., Monday through Friday) that the continuous opacity monitor on the BOF ESP stack has an outage that exceeds two consecutive hours and is still down. The readings shall commence as soon as possible after the opacity monitor has been down for two consecutive hours. If meteorological conditions or lack of visibility preclude these observations from being conducted, then this shall be noted in the log book.

c. The opacity shall be determined in accordance with the observation procedures set out in 40 CFR Part 60, Appendix A, Method 9 including the requirement that readings be taken by a certified observer.

d. These determinations shall be recorded in a log book, which at a minimum shall include the date and time of observations, name and title of observer, individual opacity readings, calculated opacity so as to determine compliance with Section 212.123, and calculated opacity relative to 20% opacity on a three minute rolling average basis.

10. The Permittee shall follow the BOF operating procedures and requirements specified in attachment A. These requirements are designed to ensure proper operation of the BOF control system. These procedures shall be posted in the BOF pulpit (a.k.a., control room).

11. Flame suppression shall be used and maintained during the entire tapping process.

12a. The stack gas pulpit set point of the BOF ESP control system shall be set in accordance with the following, so as to establish sufficient particulate matter capture efficiency of the charging and primary hoods:

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

i. Set point requirements while only a single BOF vessel is in operation;

A. Minimum set point during charging process: 550,000 cfm;

B. Minimum set point during refining process: 650,000 cfm;

C. Minimum set point during tapping process: 200,000 cfm (until one minute after completing alloy addition);

ii. During dual operation of BOF vessels (a.k.a., overlapping BOF operation) the set point shall be set to establish the total draft necessary to control the corresponding portion of the process which is occurring on each vessel during the overlap. For example, minimum set point while charging at one vessel and tapping at the other would be equal to that necessary to establish a flow of 700,000 cfm (i.e., 550,000 + 150,000).

iii. Overlapping operations of the BOF vessels is allowed only as specified in operating permit application number 72080043.

iv. The BOF capture system shall be operated at the above minimum set points until and unless the Agency approves a lower minimum set point based on a demonstration that a better level of particulate matter control will occur, except for purposes of emissions testing as related to the set point.

b. The Permittee shall calibrate, operate, and maintain a continuous strip chart recorder of the ESP stack gas flow rate as measured by the stack gas flow meter during ESP use.

c. The Permittee shall record for each steel production cycle the various stack gas flow rates for each process (i.e., for each charge, each refine, each tap) of each steel production cycle. That is, the Permittee shall be able to distinguish the measured flow rate of stack gas during each production cycle.

d. The stack gas flow meter shall be calibrated on at least a quarterly basis.

13a. Within 270 days of the date issued of this permit, the Permittee shall install, calibrate, operate, and maintain a monitoring device that continually measures and records for each process (i.e., for each charge, each refine, each tap) of each steel production cycle the various exhaust ventilation rates or levels of exhaust ventilation through the main downcommer duct of the ESP emissions capture and transport system.

b. The monitoring system shall be designed to be used as a mechanism to ensure sufficient draft is maintained in the emissions capture hoods and transport ducts so as to maximize emissions capture and transport and minimize uncaptured emissions and emission leaks.

c. The monitoring system shall be operated, tested and maintained to ensure accurate and useful data.

d. The Agency may allow an equivalent system or method instead of the above monitoring system provided the Permittee demonstrates, and the Agency approves, that such system or method will ensure sufficient draft is maintained in the emissions capture hoods and transport ducts so as to maximize emissions capture and transport and minimize uncaptured emissions and emission leaks in an equivalent manner, and that such system or method can be installed and operated within the time period required for the monitoring system as stated in this permit.

14a. The Permittee shall visually inspect at least monthly all visible BOF vessel enclosures, hooding and ducts used to capture and transport emissions for the BOF ESP control system.

b. A log shall maintained of these inspections which includes observations of the physical appearance of the capture system and any noted deficiencies (e.g., the presence of any holes in ductwork or hoods, flow constrictions caused by dents or accumulated dust in ductwork, and fan erosion).

c. Any leaks or areas otherwise noted to be in need of repair, shall be repaired as soon as practicable.

15a. The Permittee shall operate, maintain, and repair the BOF ESP in a manner that assures compliance with the conditions of this permit.

b. An adequate inventory of spare parts for the BOF ESP shall be maintained.

16. Written operating procedures for the BOF ESP shall be maintained and updated describing proper normal process and equipment operating parameters, monitoring and instrumentation for measuring control equipment operating parameters, control equipment inspection and maintenance practices, and the availability of spare parts from inventory, local suppliers and other sources.

17. The Permittee shall keep operating records, a maintenance log, and inspection log for the BOF ESP and associated control systems which includes the following:

a. Operating time of the BOF;

b. Operating time of the capture systems and performance parameters, including air flow and fan amperage through the fan motors, gas temperature at inlet to ESP, damper settings, and steam injection rate;

c. Operating time of the ESP and performance parameters, including voltage and amperage of each transformer/rectifier set, number of sections in use;

d. All routine and nonroutine maintenance performed, including dates and duration of outages, inspection schedule and findings, leaks detected, repair actions, and replacements.

18. Emissions from the BOF Shop shall not exceed the limits in attached Tables 2 and 5.

Note: For purposes of this permit, a BOF cycle is defined as the period from the beginning of the charging process through the end of the tapping process. The cycle is comprised of three main processes which are charging, refining, and tapping.

CONTINUOUS CASTING OPERATIONS

19. The continuous casting operations shall comply with 35 Ill. Adm. Code 212.450 and 212.458(b)(8).

20. Emissions from the continuous casting operations shall not exceed the limits in Tables 3 and 5.

FUEL COMBUSTION

21. Total fuel usage for blast furnace stoves (A and B), boiler house boilers (1-10), blast furnace boilers (11 and 12), ladle drying preheaters and blast furnace gas flares shall not exceed the following limits:

    a. Natural Gas usage: 190 million ft^3 per month and 1,145 million ft3 per year;

    b. Blast Furnace Gas (BFG) usage: 30,800 million ft3 per month and 185,030 million ft3 per year;

    c. Fuel Oil usage: 60 thousand gallons per month and 365 thousand gallons per year.

22. Emissions from the fuel combustion units listed above shall not exceed the limits in Tables 4 and 5.

ON-SITE FUGITIVE DUST CONTROL

(Refer to Attachment B for a table which summarizes the required on-site fugitive dust roadway control measures and maps indicating the referred to road segments)

23. The Permittee shall immediately initiate and maintain the on-site fugitive dust control measures specified in this permit so as eliminate dust spillage on in-plant and out-of-plant roadways.

24a. The Permittee shall sweep or flush at least every day the paved access area below the BOF ESP where ESP dust collection bags are used, stored and transported.

b. The Permittee shall implement a housekeeping program for the non-roadway areas below and around the BOF ESP. This program shall, at a minimum, contain the following:

    i. The ground and other accessible areas where dust may gather shall be swept or cleaned at least every day;

ii. Cleaning shall be performed in such a manner as to minimize the escape of dust into the atmosphere;

iii. Dust collection bags shall be inspected at least daily for rips, tears, or insecure connection to the discharge chutes of the ESP hoppers;

iv. Dust collection bags shall be inspected after removal from, and connection to, the discharge chutes of the ESP hoppers;

v. Ripped or torn bags shall be taken out of service and transported as soon as practicable in a covered truck.

25. Fugitive emissions of particulate matter from any roadway or parking area shall not exceed an opacity of 5%, pursuant to 35 Ill. Adm. code 212.316(e)(1).

26a. UNPAVED ROADS: On unpaved roads that are part of normal traffic patterns as identified in attachment B (including roads B, C, E, N, F-F, and CS(2)) the Permittee shall apply a chemical dust suppressant at least three times a month, with the following exceptions:

i. Road segment G-G, which shall be sprayed at least quarterly;

ii. Road segments P, V, Z, D-D, E-E, and H, which shall be sprayed at least 4 times per month until paving is completed. Paving shall be completed on these roads no later than July 31, 1996;

iii. Road segment L, which shall be sprayed at least 4 times per month.

b. All other unpaved roads shall be treated as necessary.

c. Applications of suppressant may be less frequent than specified above if weather conditions, i.e., precipitation or temperature, interfere with the schedule for spraying, provided each such instance shall be recorded in accordance with the daily records for on-site fugitive dust control required by this permit.

27a. PAVED ROADWAYS AND AREAS: Paved roadways and areas shall be maintained in good condition.

b. On paved roadways and other areas, the Permittee shall sweep or flush as follows:

i. Road segments D, K, M, F, G, J, R, and O shall be swept or flushed at least daily;

ii. Road segments P, V, W, X, Z, D-D, E-E, and CS(1) shall be swept or flushed at least five days per week;

iii. Road segments S and T shall be swept or flushed at least every other day;

iv. Road segments A and H shall be swept or flushed at least once per month;

v. All gate areas leading from the Steelworks area shall be swept or flushed at least daily;

vi. All gate areas leading from the iron making area shall be swept or flushed at least five times per week.

28. The above on-site dust control measures shall be conducted to maximize their effectiveness by performing said measures when the roads or areas are not normally obstructed by parked vehicles and by preferentially using filter sweeping (e.g., Enviro-Whirl sweeper) for the gate areas, the roads and areas surrounding the BOF and BOF ESP, and other key areas.

29. The Permittee shall maintain daily records relative to the on-site fugitive dust control program which includes the following information as a minimum:

a. The date (and time for the gate areas) each road or area was treated;

b. The manner in which the road or area was treated (i.e., filter sweep, conventional sweep, suppressant spray or flush);

c. Detailed information for use of dust suppressant, including but not limited to the application rate, dilution ratio, type of suppressant used, and the number of gallons of suppressant applied;

d. Observations, if any, concerning the condition of the roadway, e.g., presence of parked vehicles, detection of potholes;

e. The amount of precipitation and temperature recorded for each day, and if determination was made to suspend application of suppressant, include name and title of person who made determination to suspend application and explanation;

f. Any and all suspensions or deviations from the designated control procedures, with date, description, and explanation for suspension of application.

<u>OFF-SITE FUGITIVE DUST CONTROL</u>

30. The Permittee or the Permittee's Agent shall sweep or flush the following Granite City street road areas:

a. At least weekly, the quarter mile segment of Madison Avenue in front of the 16th street gate (i.e., 1/8 of a mile in either direction);

b. At least weekly, segment of 20th street between Lee and Quincy roads;

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

c. At least monthly, segment of 20th street between Madison and Route 203 (a.k.a. Edwardsville Road).

PM-10 CONTINGENCY MEASURES

31. The Permittee shall comply with the additional control measures (e.g., PM-10 contingency plan) required by 35 Ill Adm. Code Part 212 Subpart U.

COMPLIANCE DETERMINATIONS

32a. Compliance with the daily limits of this permit shall be determined from a monthly total of the relevant daily data divided by the number of days in the month.

b. Compliance with the monthly limits of this permit (e.g., fuel usage) shall be determined by direct comparison of monthly data to the applicable limit.

c. i. Compliance with the annual limits of this permit shall be determined based on a calendar year.

ii. A. Compliance with the production limits in conditions 2(b) and 6(b) shall also be determined on a month by month basis by showing that the actual production of iron and steel from the plant did not exceed the scheduled rate of production for a month given in the most recent production schedule provided to the Agency that shows compliance with the following requirements.

B. If no production schedule is submitted to the Agency by the Permittee for a particular year, the scheduled monthly production of iron and steel shall be set at one twelfth of the annual production limits in conditions 2(b) and 6(b).

C. 1. The Permittee may submit a schedule for iron and steel production for each month of the calendar year. Such schedule shall provide the scheduled monthly iron and steel production for each month and the total of such scheduled production shall not exceed the annual production limits in conditions 2(b) and 6(b). This schedule shall be submitted each year no later than December 15th of the preceding year.

2. During the course of the year, the Permittee may submit a revised production schedule which accounts for actual production levels which were below that scheduled for the previous months, provided that in no case shall the scheduled production for prior months in such a revised schedule be lowered to less than actual production levels or raised. Such revised schedule shall be submitted to the Agency no later than 15 days

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

after the first day of the month for which scheduled production has been raised. Such schedule shall be accompanied by data on actual production in preceding months.

33a. Compliance with opacity limits and measurements of opacity shall be made by opacity readings taken in accordance with the observation procedures set out in 40 CFR Part 60, Appendix A, Method 9.

b. The Permittee shall have at least two employees or agents experienced in making opacity readings to the extent that it is reasonably possible to do so, who shall be able to make the opacity readings required by this permit.

34a. Blast furnace hot metal production shall be measured at the BOF hot metal transfer station, and adjusted by documented slag and iron losses.

b. BOF liquid steel production shall be initially measured by a scale equipped crane and adjusted based upon documented steel production analysis of the continuous casters.

c. BFG usage shall be calculated based on 0.05846 $mmft^3$ BFG generated per net ton of hot metal produced.

d. Natural gas usage shall be determined by metered volumes.

e. Fuel oil usage shall be determined by tank height differentials.

RECORD KEEPING

35. The Permittee shall keep records of the following items and such other items which may be appropriate to allow the Agency to review compliance:

a. Blast Furnace hot metal production (total combined daily, monthly and annual in tons), including documentation on iron and slag losses;

b. BOF liquid steel production (total combined daily, monthly and annual in tons), including documentation on adjustments made due to production analysis and losses;

c. Fuel usage as follows; Usage of natural gas and BFG (total combined million ft^3 per month and year, each) and fuel oil (total combined gallons/month and year) for the blast furnace stoves (A and B), boiler house boilers (1-10), blast furnace boilers (11 and 12), ladle drying preheaters and blast furnace gas flares.

36. All records and logs required by this permit shall be retained at a readily accessible location at the source for at least three years from the date of entry and shall be made available for inspection and copying by the Agency and USEPA upon request. Any records retained in a computer shall be capable of being retrieved and

printed on paper during normal source office hours so as to be able to respond to an Agency request for records during the course of a source inspection.

STARTUP AND TESTING

37. The special conditions of this permit supplement the special conditions of any existing operating permits for this source, and supersede such conditions in cases where a conflict exists.

38. Operation at the increased production rates specified in this permit is allowed for 270 days from the date issued under this construction permit.

39a. The following tests shall be performed to demonstrate compliance with the conditions of this permit within 270 days from the date issued of this permit:

i. Blast Furnace testing: The emissions of particulate matter, volatile organic material, sulfur dioxide, nitrogen oxides, and the opacity from the blast furnace casthouse stack shall be measured. These tests shall be designed to verify compliance with 35 Ill. Adm. Code 212.445 and the requirements of this permit;

ii. Hot Metal Desulfurization testing: The emissions of particulate matter from the desulfurization baghouse shall be measured. These tests shall be designed to verify compliance with the requirements of this permit and 35 Ill. Adm. Code 212.446(b)(2);

iii. BOF testing: The emissions of particulate matter, carbon monoxide, and lead from the BOF ESP stack, and the opacity from both the BOF ESP stack and BOF Shop shall be measured. These tests shall be designed to verify compliance with 35 Ill. Adm. Code 212.446, 212.458 and the requirements of this permit;

iv. Fuel Combustion Units testing: The emissions of particulate matter from a representative boiler while burning blast furnace gas shall be measured. This test shall be designed to verify compliance with the requirements of this permit and the emission factor used (i.e., 2.9 lbs particulate emitted per mmcf BFG burned);

v. BFG generation testing: The amount of blast furnace gas generated ($mmft^3$) per ton of hot metal produced shall be determined. The Agency may waive this requirement for testing providing the Permittee submit a sufficient explanation of how BFG generation is determined with justification that such determination is appropriate for purposes of compliance determinations with this permit.

b. These tests shall be performed by an approved independent testing service during conditions which are representative of maximum emissions and at the maximum production rates allowed, or as close

to such rates as reasonable if the Permittee demonstrates to the Agency prior to testing that testing at such production rates within the time constraints of an Agency request to test is not practicable.

c. i. The following methods and procedures shall be used for the testing, unless another method is approved by the Agency: Refer to 40 CFR 60, Appendix A for USEPA test methods;

Location of sample points	USEPA Method 1
Gas flow and velocity	USEPA Method 2
Particulate Matter	USEPA Method 5
Sulfur Dioxide	USEPA Method 6
Nitrogen Oxides	USEPA Method 7
Opacity	USEPA Method 9
Carbon Monoxide	USEPA Method 10
Lead	USEPA Method 12

ii. All particulate measured shall be considered PM-10 unless emissions are tested by an appropriate USEPA test method for measurement of PM-10, as specified in 35 Ill. Adm. Code 212.110(e).

d. At least 60 days prior to the actual date of testing of the BOF, a written test plan shall be submitted to the Agency for review and approval. This plan shall be describe the specific procedures for testing the BOF, including as a minimum:

i. The persons who will be performing sampling and analysis and their experience with similar tests;

ii. The specific conditions under which testing will be performed including a discussion of why these conditions will be representative of maximum emissions and the means by which operating parameters for the source and the emissions capture and control system will be determined;

iii. The specific determinations of emissions and operation which are intended to be made, including sampling and monitoring locations;

iv. The test methods which will be used, with the specific analysis methods;

v. Any proposed use of an alternative test method, with detailed justification;

vii. The format and content of the Source Test Report.

e. The Agency shall be notified before these tests to enable the Agency to observe these tests. Notification for the expected date of testing shall be submitted a minimum of thirty (30) days prior to the expected date. Notification of the actual and expected time of testing shall be submitted a minimum of five (5) working days prior to the actual date of the test. The Agency may at its discretion

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

accept notifications with shorter advance notice provided that the Agency will not accept such notifications if it interferes with the Agency's ability to observe testing.

f. The Final Report of these tests shall include as a minimum:

i. A tabular summary of results which includes:

- process weight rate and/or fuel usage rate
- production rate
- allowable emission limit
- measured emission rate
- determined emission factor
- compliance demonstrated - Yes/No
- other pertinent information (e.g., for the BOF, pulpit set point for each process of the BOF cycle - charging, refining, and tapping);

ii. Description of test methods and procedures used, including description of sampling train, analysis equipment, and test schedule;

iii. Detailed description of test conditions, including,

- pertinent process information (e.g. fuel or raw material consumption)
- control equipment information, i.e. equipment condition and operating parameters during testing;

iv. Data and calculations, including copies of all raw data sheets and records of laboratory analyses, sample calculations, and data on equipment calibration;

g. Copies of the Final Report for these tests shall be submitted to the Agency within 14 days after the test results are compiled and finalized and in no case later than upon the submittal of the operating permit application for this production increase.

h. Submittals of information shall be made as follows:

i. Notice of Test - one copy to Source Emission Test Specialist, one copy to Regional Office, and one copy to Permit Section;

ii. Final Report - one copy to Source Emission Test Specialist, one copy to Regional Office, and one copy to Permit Section.

Pertinent Addresses are:

Illinois Environmental Protection Agency
Division of Air Pollution Control
Attn: Source Emission Test Specialist
Intercontinental Center
1701 1st Avenue
Maywood, Illinois 60153

Illinois Environmental Protection Agency
Division of Air Pollution Control
Regional Office
2009 Mall Street
Collinsville, Illinois 62234

Illinois Environmental Protection Agency
Division of Air Pollution Control
Attn: Permit Section
P.O. Box 19506
Springfield, Illinois 62794-9506

REPORTING

40. If there is an exceedance of the requirements of this permit as determined by the records required by this permit, the Permittee shall submit a report to the Agency's Compliance Unit in Springfield, Illinois within 30 days after the exceedance. The report shall include the emissions released in accordance with the record keeping requirements, a copy of the relevant records, and a description of the exceedance or violation, cause of the exceedance, and efforts to reduce emissions and future occurrences. This report shall be sent to:

Illinois EPA
Bureau of Air
Compliance Unit (#39)
P.O. Box 19276
Springfield, Illinois 62794-9276

41. The Permittee shall submit the following additional information from the prior calendar year with the Annual Emissions Report, due May 1st of each year:

a. Iron and steel production (tons/month and tons/yr, each);

b. Natural gas and BFG usage (mmft3/month and mmft3/yr, each);

c. Fuel oil usage (thousand gallons/month and thousand gallons/yr, for each type of oil).

APPLICABILITY OF MAJOR SOURCE RULES

42a. As a consequence of the above conditions, this permit is issued based upon the following changes in emissions, as further described in Table 6, accompanying increased production as allowed by this permit:

i. The increases in emissions of lead and VOM are not significant under 35 Ill. Adm. Code Part 203 or 40 CFR 52.21 - Prevention of Significant Deterioration;

ii. The increase in emissions of NO_x are being accompanied by contemporaneous emission decreases provided by the shutdown of equipment and operations such that the net emissions change is

not significant under 35 Ill. Adm. Code Part 203 or 40 CFR 52.21 - Prevention of Significant Deterioration.

iii. The increase in emissions of PM and PM-10 are being accompanied by contemporaneous emission decreases provided by additional road dust control and BOF capture and control such that the net emissions change is not significant under 35 Ill. Adm. Code Part 203 or 40 CFR 52.21 - Prevention of Significant Deterioration.

Also, the Permittee has agreed to provide further additional dust control consisting of the sweeping of Granite City public streets and housekeeping measures in the area below and surrounding the BOF ESP. Attachment C is a listing of the emission reductions provided by these control measures.

b. The increases in emissions of SO_2 and CO are significant under 40 CFR 52.21 - Prevention of Significant Deterioration (PSD). Accordingly, the project is considered a major modification and must comply with the requirements of PSD. These requirements include a demonstration of best available control requirements for affected SO2 and CO emission units, an analysis of air quality impacts, an analysis of the impacts of the project on visibility, vegetation's and soils, and the application and proposed permit must undergo a public participation. The Agency has determined that these additional requirements have been met.

c. The changes in emissions pertinent to this project are summarized as follows:

Units = tons/year

- Emission increases which could occur from the project:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
51.6	- 52.0	238.8	476.0	5,685	59.3	0.54

- Creditable contemporaneous actual emission decreases:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
58.0	58.0	226.5	0.38	23.31	32.8	0.0

- Other contemporaneous emission increases:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
20.7	20.3	26.0	0.25	11.8	1.6	0.0

- Net emission changes:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
+14.3	-89.2	+38.3	+475.9	+5,673	+28.1	+0.54

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

- Significant Levels:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
15	25	40	40	100	40	0.6

Explanatory Note:

PM	=	particulate matter = particulate;
PM-10	=	particulate matter less than or equal to 10 micrometers in size;
SO_2	=	sulfur dioxide;
NO_x	=	nitrogen oxides;
VOM	=	volatile organic material;
CO	=	carbon monoxide;
mm	=	million;
gr/dscf	=	grains per dry standard cubic foot;
acfm	=	actual cubic feet per minute;
mmcf	=	million cubic feet;
Mgal	=	thousands of gallons.

If you have any questions on this permit, please call Jim Ross at 217/782-2113.

Donald E. Sutton, P.E.
Manager, Permit Section
Division of Air Pollution Control

DES:JRR:jar

cc: IEPA, FOS Region 3

COPY
Original Signed by
Donald E. Sutton, P.E.

Permit Application #95010001

TABLE 1

BLAST FURNACE OPERATIONS

Maximum Hot Metal Production = 3,165,000 net tons per year

1. Casthouse Baghouse (furnace tapping)- captured emissions ducted to baghouse, uncaptured emissions emitted through roof, other openings, etc.

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.0703	111.19
PM-10	0.0703	111.19
SO_2	0.2006	422.0
NO_x	0.0144	22.79
VOM	0.0946	149.68

2. Blast Furnace - uncaptured fugitives

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.031	49.06
PM-10	0.0155	24.53
SO_2	0.0104	21.94
NO_x	0.0007	1.14
VOM	0.0047	7.42

3. Blast Furnace Charging
Maximum pellets charged = 4,308,581 tons/yr

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.0024	5.17
PM-10	0.0024	5.17

4. Slag Pits

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00417	6.60
PM-10	0.00417	6.60
SO_2	0.0100	15.83

Permit Application #95010001

TABLE 1 (cont.)

5. Iron Spout Baghouse- captured emissions controlled by iron spout baghouse.

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.02548	40.32
PM-10	0.02548	40.32
SO_2	0.0073	13.89

6. Iron Pellet Screen
Maximum pellets charged = 4,308,581 tons/yr

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00279	6.01
PM-10	0.00279	6.01

Permit Application #95010001

TABLE 2

BOF SHOP

Maximum Liquid Steel Production = 3,580,000 net tons per year

1. BOF ESP Stack (charge, refine, tap)

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.16	262.80
PM-10	0.16	262.80
NO_x	0.0389	69.63
VOM	0.0060	10.74
CO	8.993	16,097.47
Lead	0.1934 lbs/hr	1.26 tons/yr

2. BOF Roof Monitor

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.0987	176.71
PM-10	0.06614	118.40
Lead	0.0129 lbs/hr	0.08 tons/yr

3. Desulfurization and Reladling - Hot Metal Transfer

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.03721	58.88
PM-10	0.03721	58.88
VOM	0.0010	1.58
Lead	0.0133 lbs/hr	0.09 tons/yr

4. BOF Additive System (i.e., fluxes) with Baghouse, a.k.a., BOF hopper baghouse

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00032	0.57
PM-10	0.00032	0.57

Permit Application #95010001

TABLE 2 (cont.)

5. Flux conveyor & transfer pits, bin floor

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.0016	2.86
PM-10	0.0016	2.86

6. Hot metal charging ladle slag skimmer

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.0050	7.94
PM-10	0.0050	7.94

Permit Application #95010001

TABLE 3

CONTINUOUS CASTING OPERATIONS

Maximum Liquid Steel Throughput = 3,580,000 net tons per year

1. Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy)

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00715	12.80
PM-10	0.00715	12.80

2. Deslagging Station and Material HS.

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00355	6.35
PM-10	0.00355	6.35

3. Caster Molds - Casting

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.006	10.74
PM-10	0.006	10.74
NO_x	0.050	89.50

4. Casters Spray Chambers

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00852	15.25
PM-10	0.00852	15.25

5. Slab Cut-off

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.0071	12.71
PM-10	0.0071	12.71

Permit Application #95010001

TABLE 3 (cont.)

6. Slab Ripping

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00722	12.92
PM-10	0.00722	12.92

Permit Application #95010001

TABLE 4

CERTAIN FUEL COMBUSTION UNITS

1. 10 boilers (#'s 1 - 10)
2. 2 boilers (#'s 11 - 12)
3. Blast Furnace Stoves A & B.
4. BFG Flares
5. Ladle Drying Preheaters (5 heaters).

Total combined fuel usage from affected units (i.e., Boilers, BF stoves, BF Flares, ladle drying preheaters)

	Maximum Usage ($mmft^3/Yr$)
NATURAL Gas (Total)	1,145
BFG	185,030
Fuel Oil	365 thousand gallons/yr

1. Natural Gas

Pollutant	Emission Factor (Lbs/mmcf)	Maximum Emissions (Tons/Yr)
PM	5.1	2.92
PM-10	5.1	2.92
SO_2	0.6	0.34
NO_x	306	175.19
VOM	2.8	1.60
CO	40	22.90

2. BFG

Pollutant	Emission Factor (Lbs/mmcf)	Maximum Emissions (Tons/Yr)
PM	2.9	268.29
PM-10	2.9	268.29
SO_2	6.65	615.22
NO_x	5.28	488.48
CO	13.7	1,267.46

Permit Application #95010001

TABLE 4 (cont.)

3. Fuel Oil

Pollutant	Emission Factor (Lbs/Mgal)	Maximum Emissions (Tons/Yr)
PM	9.72	1.77
PM-10	9.72	1.77
SO_2	141.3	25.79
NO_x	55	10.04
VOM	0.28	0.05
CO	5.0	0.91
Lead	0.336	0.06 (waste oil)

Permit Application #95010001

TABLE 5

LIMITS ON EMISSIONS FROM MAJOR PROCESSES AND ACTIVITIES

Units = tons/year

	PM	PM-10	SO_2	NO_x	VOM	CO	Lead
Blast Furnace Operations	218	194	474	24	157	--	--
BOF Shop	510	451	--	70	12	16,097	1.43
Continuous Casting Operations	71	71	--	90	--	--	--
Certain Fuel Combustion Units[A]	273	273	641	674	2	1,291	0.06
Roadways	27	27	--	--	--	--	--
Material Handling	2	2	--	--	--	--	--
	PM	PM-10	SO_2	NO_x	VOM	CO	Lead
TOTAL	1,101	1,018	1,115	858	171	17,388	1.49

[A] Blast furnace stoves (A and B), boiler house boilers (1-10), blast furnace boilers (11 and 12), ladle drying preheaters and blast furnace gas flares.

Permit Application #95010001

TABLE 6

EMISSIONS SUMMARY

Units = tons/year

- Emission increases which could occur from the project:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
51.6	-52.0	238.8	476.0	5,685	59.3	0.54

- Creditable contemporaneous actual emission decreases:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
58.0	58.0	226.5	0.38	23.31	32.8	0.0

- Other contemporaneous emission increases:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
20.7	20.3	26.0	0.25	11.8	1.6	0.0

- Net emission changes:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
+14.3	-89.2	+38.3	+475.9	+5,673	+28.1	+0.54

- Significant Levels:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
15	25	40	40	100	40	0.6

Permit Application #95010001

ATTACHMENT A

PROCEDURES TO ENSURE PROPER OPERATION
OF BOF ESP CONTROL SYSTEM

1. The emissions control operator shall:

   a. Check on a regular basis and report to the emissions control foreman or melter:

      i. Any ESP fields down;

      ii. Any ESP fields in which the meter readings are showing no current or a fault;

   b. Check on a regular basis that doors on all hopper screws are closed;

   c. Inspect on a regular basis the fans and motors for unusual sounds and/or visual problems. Any abnormalities will be immediately reported to the melter or maintenance foreman for investigation.

2. The melter shall:

   a. Check on a regular basis and report to the emissions control foreman or the area electrician any fields which the pulpit precipitator field short indicators shows as having a short and is able to reset;

   b. Check on a regular basis and report to the emissions control foreman or the maintenance foreman any draft or fan problems;

   c. Check the ESP stack opacity monitor on a regular basis and initiate the following in the event that the stack opacity level, as determined by the opacity monitor, exceeds 30% opacity on a six minute average:

      i. Check the pulpit indicators for proper operation of the steam and spray water system. Report any problems to emission control foreman or maintenance foreman;

      ii. Check the stack gas pulpit set point for proper setting;

      iii. Call the emissions control operator who shall perform the following steps;

         A. Check the AVC operation and power level. Report any problems to electrical maintenance foreman or area electrician;

         B. Check to ensure that doors on all hopper screws are closed;

   d. Check oxygen blow rates and adjust, if necessary;

   e. Check hot metal chemistry;

Permit Application #95010001

ATTACHMENT A (cont.)

f. A log shall be maintained of the above checks and any actions taken as a result.

3. The emission control foreman shall:

   a. Check on a regular basis the opacity monitor exceedances and trends. The control specialist shall be contacted to correct any problems;

   b. Check on a regular basis the draft rate set points;

   c. Check on a regular basis primary and secondary damper settings;

   d. Check on a regular basis ESP operation, including the following:

      i. Fields down;

      ii. Fields indicating shorts and unable to reset;

      iii. Hopper screw doors are closed;

   e. Check on a regular basis blow rates;

   f. Check on a regular basis spray water system operation;

   g. Check on a regular basis steam injection rate;

   h. Contact the area manager regarding electrical maintenance and to schedule the ESP repair work;

   i. Contact the area manger for mechanical maintenance to schedule the isolation of the ESP channel by closing the inlet and outlet gates of that chamber and opening the top hatches for entry into the chamber;

   j. Notify the emissions control operator and melter when isolation work begins;

   k. A log shall be maintained of the above checks and any actions taken as a result.

4. The crane operator shall use the following procedures, as appropriate, to minimize emissions and maximize emissions capture by the hoods:

   a. Use controlled pouring of the hot metal into the BOF vessel;

   b. Use careful positioning of the hot metal ladle with respect to the hood face and furnace mouth;

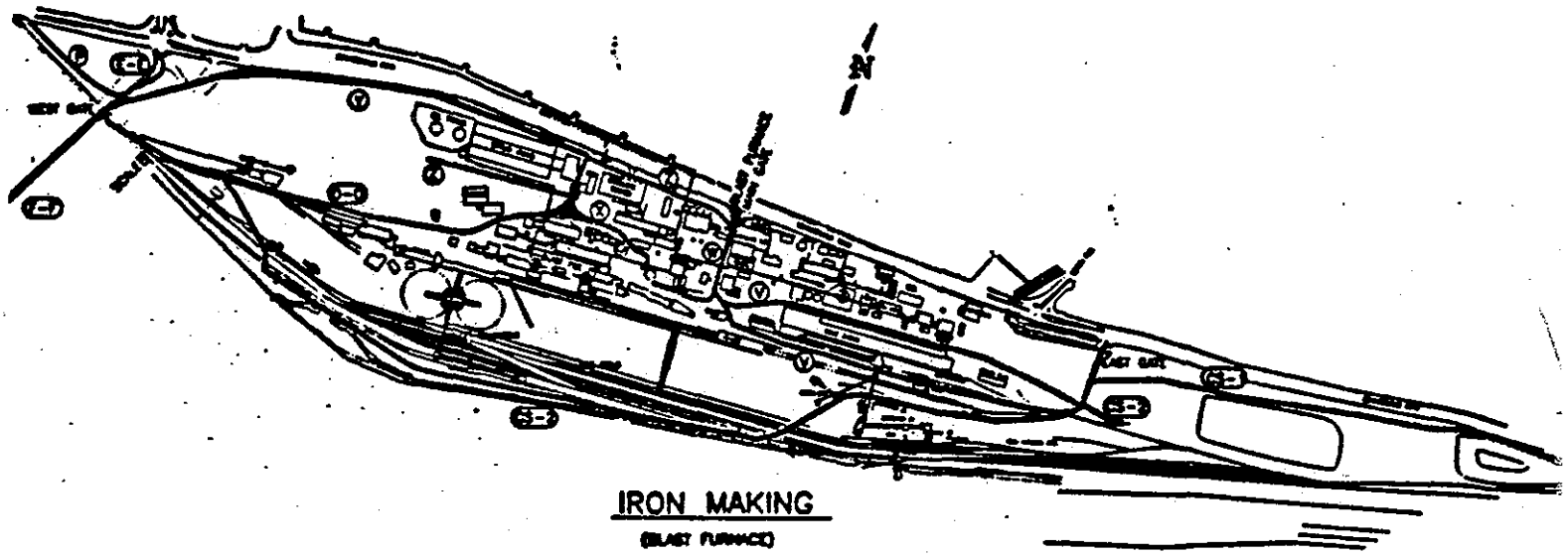
   c. Use the most beneficial furnace tilt angle;

   d. These procedures shall be posted in the crane operator booth.

Permit Application #95010001

ATTACHMENT B

ON-SITE FUGITIVE DUST ROADWAY CONTROL MEASURES AND
MAPS SHOWING THE ROAD SEGMENTS

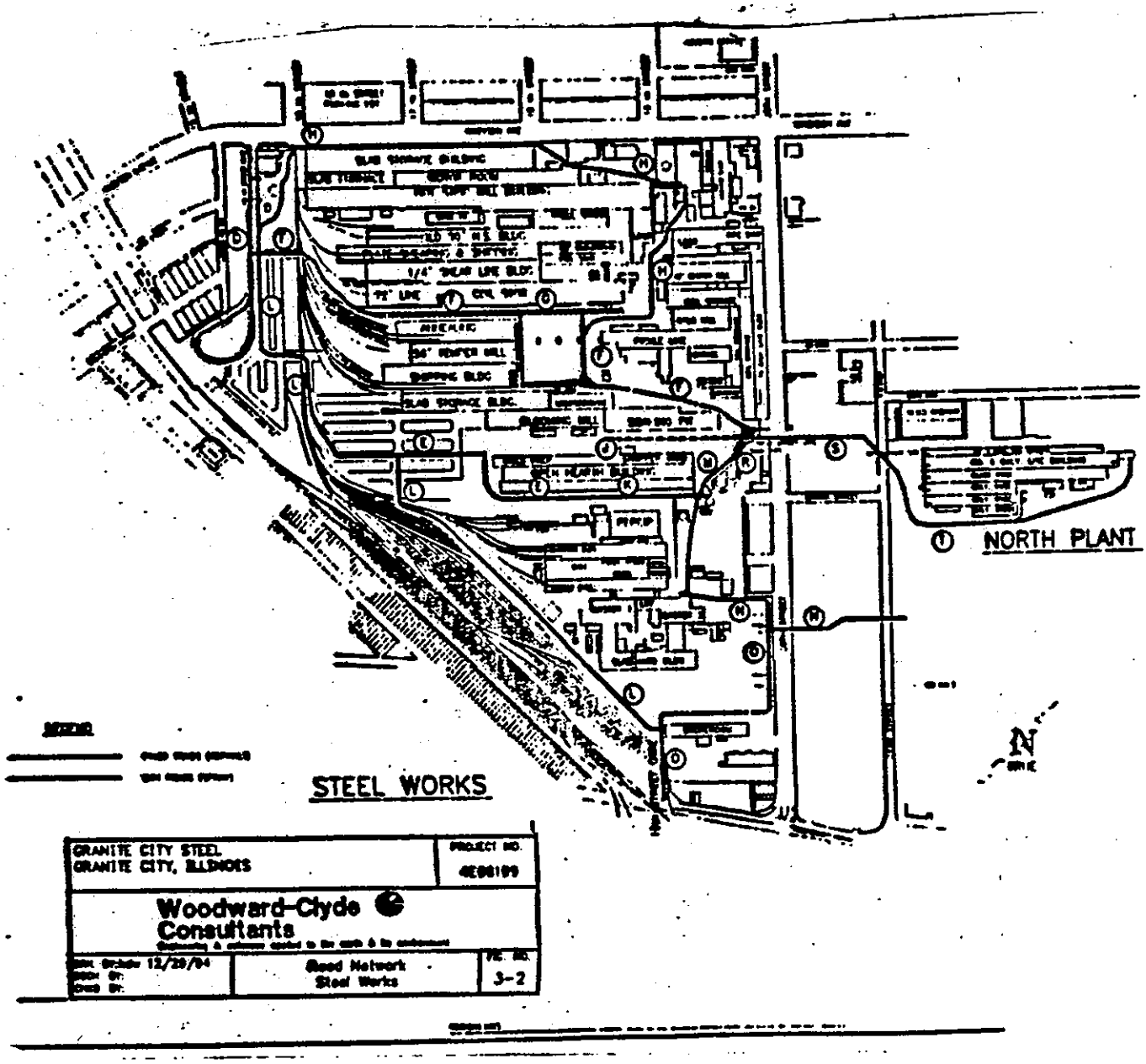


LEGEND

GRANITE CITY STEEL GRANITE CITY, ILLINOIS	PROJECT NO. 4E98109
Woodward-Clyde Consultants	
DRWN. BY: bdw 12/29/94 DESIGN. BY: CHKD. BY:	Road Network Iron Making Area
	FIG. NO. 3-3

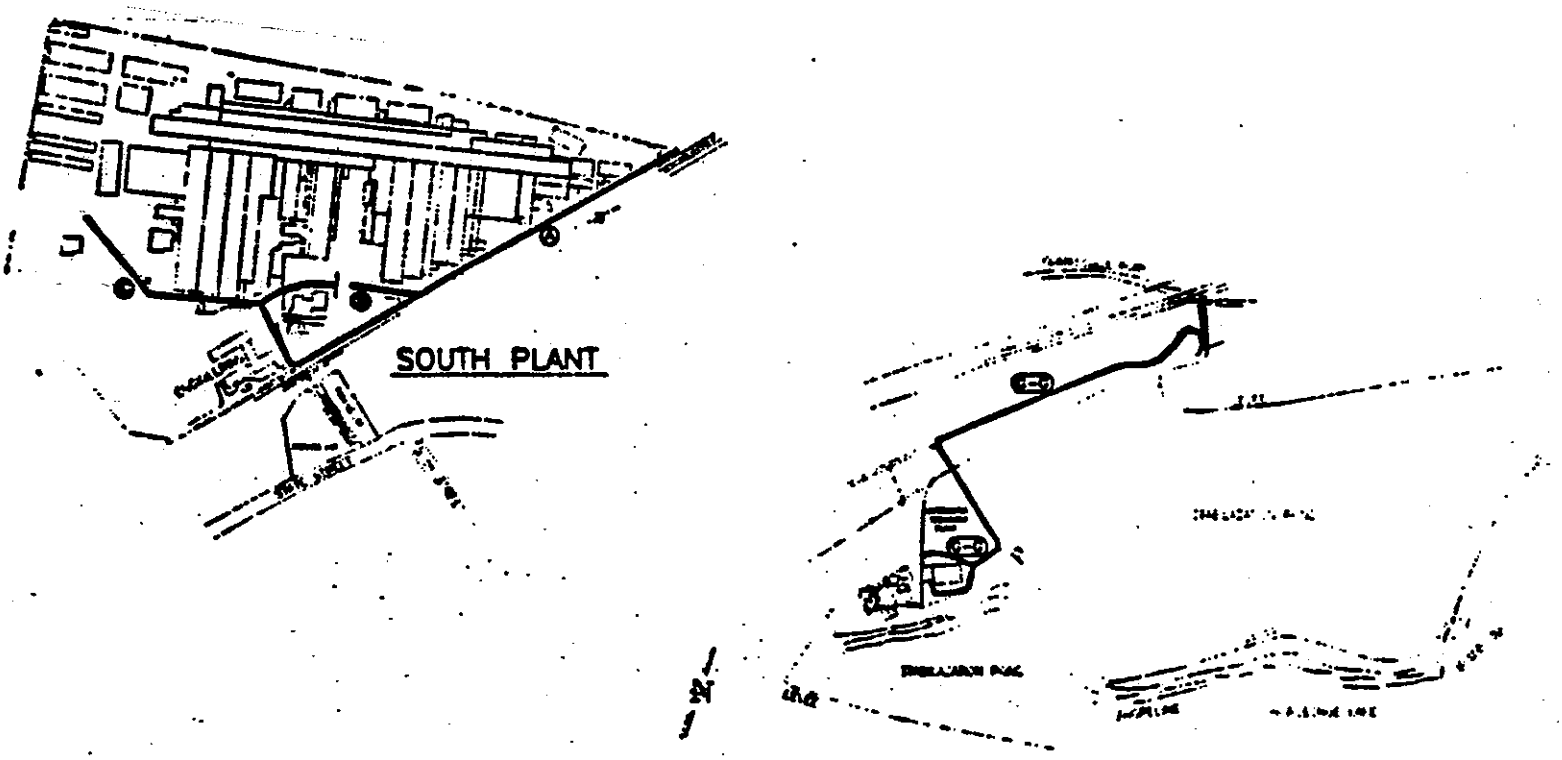
Permit Application #95010001

ATTACHMENT B (cont.)



Permit Application #95010001

ATTACHMENT B (cont.)



GRANITE CITY STEEL GRANITE CITY, ILLINOIS	PROJECT NO. 4E88109
Woodward-Clyde Consultants	
Road Network South Plant & WWTP	FIG. NO. 3-4

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Permit Application #95010001

ATTACHMENT C

CONTEMPORANEOUS REDUCTIONS IN THE
EMISSIONS OF PM-10

- Historic roadway emissions of 428 tons/yr, minus future potential roadway emissions of 27 tons/yr, equals a resulting reduction in roadway emissions of 401 tons/yr
- Historic material handling emissions of 17 tons/yr minus future potential material handling emissions of 2 tons/yr, equals a resulting reduction in material handling emissions of 15 tons/yr.
- Emission reductions resulting from the sweeping of city streets = 52 tons/yr*
- Emission reductions resulting from sweeping and housekeeping of areas below and around BOF ESP = 12 tons/yr*

Total reductions in the emissions of PM-10 as a result of the additional dust control measures required by Illinois' SIP and the special conditions of this permit = 480 tons/yr

* These are considered reasonable estimates of reductions and are subject to change upon further investigation of the actual reductions which will occur as a result of the control measures required by this permit.

JRR:jar

Appendix E – Copies of EPA Determinations

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

IN RE SHELL OFFSHORE, INC.

OCS Appeal Nos. 11-05, 11-06 & 11-07

ORDER DENYING PETITIONS FOR REVIEW

Decided March 30, 2012

Syllabus

This decision addresses petitions for review that challenge an Outer Continental Shelf ("OCS") Permit to Construct and Title V Air Quality Operating Permit ("Permit") Region 10 ("Region") of the U.S. Environmental Protection Agency ("EPA" or "Agency") issued to Shell Offshore, Inc. ("Shell"). The Region issued the Permit on October 21, 2011, pursuant to Clean Air Act ("CAA or "Act") section 328, 42 U.S.C. § 7627, and applicable regulations governing air emissions from OCS sources at 40 C.F.R. part 55, and pursuant to Title V of the CAA, 42 U.S.C. § 7661, and implementing regulations at 40 C.F.R. part 71, as well as applicable Alaska code and regulatory provisions. The Permit authorizes Shell to "construct and operate the Conical Drilling Unit *Kulluk* and associated air emission units and to conduct other air pollutant emitting activities" within Shell's lease blocks in the Beaufort Sea off the North Slope of Alaska. The Permit also provides for the use of an associated fleet of support ships, including icebreakers, supply ships, and oil spill response vessels in addition to the *Kulluk*.

The Board received three petitions for review of the Permit. One petition was filed by Resisting Environmental Destruction of Indigenous Lands ("REDOIL"), Alaska Wilderness League, Center for Biological Diversity, Natural Resources Defense Council, Northern Alaska Environmental Center, Oceana, Pacific Environment, Sierra Club, and the Wilderness Society (collectively, "REDOIL Petitioners"). A second petition was filed by the Inupiat Community of the Arctic Slope ("ICAS"). The third petition was filed by Mr. Daniel Lum.

The three petitions collectively raise seven issues for review: (1) Have Petitioners demonstrated that the Region clearly erred in establishing limitations to restrict the *Kulluk* drilling unit's potential to emit? (2) Have REDOIL Petitioners demonstrated that the Region clearly erred in declining to require prevention of significant deterioration ("PSD") increment consumption analyses for the *Kulluk's* proposed emissions as part of the Title V permitting process? (3) Did REDOIL Petitioners raise below their contention that Shell's ambient air quality analysis was flawed in that it failed to conform to applicable Agency guidance? (4) Have REDOIL Petitioners demonstrated that the Region clearly erred in its ambient air exemption determination? (5) Have Petitioners demonstrated that the Region failed to satisfy its obligation to consider environmental justice under Executive Order 12898 and comply with applicable Board precedent? (6) Has ICAS demonstrated that the Region clearly erred or abused its discretion in providing forty-six days to comment on the draft permit and in denying ICAS's request for non-overlapping comment periods? (7) Has ICAS demonstrated that the Region clearly erred in its public hearing procedures or that any alleged procedural deficiencies otherwise warrant review?

Held: The Board denies review of the Permit. Petitioners have not met their burden of demonstrating that review is warranted on any of the grounds presented.

(1) Limitations on Potential to Emit. The Board concludes that Petitioners have failed to demonstrate that the Region erred in establishing limitations to restrict the potential to emit nitrogen dioxide ("NO_2"), carbon monoxide ("CO"), sulfur dioxide ("SO_2"), and greenhouse gases ("GHGs") for emission units located on the *Kulluk* and on the Associated Fleet when operating within twenty-five miles of the *Kulluk* while it is an OCS source. The Region exercised its discretion and applied its technical expertise to establish practically enforceable source-wide emission limits that accommodate the substantial and unpredictable variations in emissions based on the atypical nature of Shell's operations. The Region explained in the record its rationale, based on the Region's technical expertise and applied in certain limited circumstances, for supplementing source-specific emission factors derived for most of the emission units or groups of emission units with either AP-42 emission factors, or emission factors derived from source test data Shell submitted to the Region in support of two separate, previously issued OCS PSD permits authorizing Shell to conduct exploratory activities in the Chukchi and Beaufort Seas using the *Discoverer* drillship.

(2) PSD Increment Consumption Analyses. The Board concludes that REDOIL Petitioners failed to demonstrate clear error in the Region's decision not to require PSD increment consumption analyses for the *Kulluk*'s proposed emissions as part of the Title V permitting process. The Board holds that the Region provided a reasonable interpretation of CAA section 504(e), which imposes permitting requirements on "temporary" stationary sources, in its Response to Comments document. The Region determined that "PSD major sources are subject to NAAQS and increment in the permitting process, whereas non-PSD sources are subject only to the NAAQS unless the applicable minor source program also includes the [PSD] increment[s]." The Region concluded that the State of Alaska's minor source preconstruction program does not require permanent minor sources to demonstrate compliance with PSD increments as a condition of construction, so neither would it require such compliance of temporary minor sources. The Board finds REDOIL Petitioners' series of challenges to this basic analysis to be deficient in a variety of ways and therefore upholds the Region's decision.

(3) Ambient Air Quality Analysis. REDOIL Petitioners contend that Shell's ambient air quality analysis was flawed in that it failed to conform to applicable Agency guidance. Upon examination of the administrative record, the Board concludes that REDOIL Petitioners failed to raise this issue during the comment period. This issue, therefore, was not preserved for review.

(4) Ambient Air Exemption Determination. The Board concludes that REDOIL Petitioners have not shown that the Region clearly erred in its decision to exempt the area within a 500 meter radius from the *Kulluk* – the area within the U.S. Coast Guard safety zone – from the definition of "ambient air." The Region, in its Response to Comments, provided a reasonable interpretation of the ambient air regulation and the Agency's longstanding interpretation of that regulation as applied in the OCS context.

(5) Environmental Justice Analysis. The Board concludes that ICAS and Mr. Lum have not demonstrated that the Region failed to satisfy its obligations to comply with Executive Order 12898 and applicable Board precedent. The Region conducted an environmental justice analysis that demonstrated compliance with the NAAQS and endeavored to include and analyze data that is germane to the environmental justice issues raised during the comment period. The Region appropriately determined that it was not required to analyze the mobile source emissions from vessels that operate outside of twenty-five miles from the *Kulluk* while it is an OCS source where, as here, the Title V permit did not address these

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

mobile source emissions, and the record lacked sufficient data for such an analysis. In addition, in the remaining arguments they put forth in their petitions, ICAS and Mr. Lum do not demonstrate how the Region's responses to comments are inadequate, overcome the particularly heavy burden a petitioner must meet to demonstrate that review of the Region's technical decisions is warranted, or raise issues within the Board's jurisdiction.

(6) Public Comment Period. The Board concludes that ICAS has failed to show that the Region clearly erred or abused its discretion in either selecting a 46-day comment period or in denying ICAS's request for nonconcurrent comment periods. The length of time the Region provided for comment on this permit was 16 days more than the 30-day regulatory minimum and 1 day more than the amount of time ICAS had specifically requested. ICAS's attempt to recalculate the length of the comment period based on an unexplained mathematical formula involving the number and lengths of other comment periods is unconvincing. Furthermore, ICAS has not pointed to any regulations that prohibit the Agency from issuing concurrent permits or that require – or even specify – a different comment period length when the Agency does issue concurrent permits. Finally, it is clear from the administrative record that the Region appropriately balanced conflicting considerations in deciding on the length of the comment period for this permit and in denying the request for nonoverlapping periods, and ICAS has failed to demonstrate otherwise.

(7) Public Hearing. The Board concludes that ICAS has failed to demonstrate that the Region clearly erred in its public hearing procedures or that any alleged procedural deficiencies otherwise warrant review. ICAS has not shown that the Region violated any part 71 or 124 procedural regulation. Moreover, the alleged problems ICAS has identified do not, even if the Board were to find them to constitute a deficiency in some way, warrant Board review.

Before Environmental Appeals Judges Charles J. Sheehan, Kathie A. Stein, and Anna L. Wolgast.

Opinion of the Board by Judge Stein:

Table of Contents

SR 0834

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

I. *STATEMENT OF THE CASE*

A group of conservation petitioners ("REDOIL Petitioners"),[1] the Inupiat Community of the Arctic Slope ("ICAS"), and Mr. Daniel Lum each petitioned[2] the Environmental Appeals Board ("Board") to review an Outer Continental Shelf ("OCS") Permit to Construct and Title V Air Quality Operating Permit ("Permit") that U.S. Environmental Protection Agency ("EPA" or "Agency") Region 10 ("Region") had issued to Shell Offshore, Inc. ("Shell"). *See generally* OCS Permit to Construct and Title V Air Quality Operating Permit, Permit No. R10 OCS030000 (Oct. 21, 2011) (Administrative Record ("A.R.") J-2). The Region issued the Permit pursuant to Clean Air Act ("CAA" or "Act") section 328, 42 U.S.C. § 7627, and applicable regulations governing air emissions from OCS sources at 40 C.F.R. part 55, and pursuant to Title V of the CAA, 42 U.S.C. § 7661, and implementing regulations at 40 C.F.R. part 71, as well as applicable Alaska code and regulatory provisions.[3] *See* Permit at 6 (citing all relevant provisions).

The Permit authorizes Shell to construct and operate the *Kulluk* drilling unit and associated air emission drilling units in certain lease blocks within the Beaufort Sea. *Id*. at 1. The Region and Shell each filed a response to the petitions. Thereafter, both REDOIL Petitioners and ICAS filed motions requesting leave to file reply briefs. These motions are currently pending before the Board and are addressed below in Part V. The Board did not hold oral argument in this case. For the reasons discussed below, the Board denies review of the Permit.

---

[1] REDOIL Petitioners include Resisting Environmental Destruction of Indigenous Lands ("REDOIL"), Alaska Wilderness League, Center for Biological Diversity, Natural Resources Defense Council, Northern Alaska Environmental Center, Oceana, Pacific Environment, Sierra Club, and The Wilderness Society.

[2] Mr. Lum's petition was designated as OCS Appeal No. 11-05, REDOIL Petitioners' petition was designated as OCS Appeal No. 11-06, and ICAS's petition was designated as OCS Appeal No. 11-07.

[3] The Permit was issued under multiple CAA and Alaska air pollution provisions because it is a consolidation of three air permits. According to the Region, it consolidated "an OCS/Title V permit under 40 CFR Parts 55 and 71 for operations beyond 25 miles of Alaska's seaward boundary; an OCS/minor permit for air quality protection under 40 CFR Part 55 and 18 Alaska Administrative Code (AAC) 50.502 and for owner requested limitations under 40 CFR Part 55 and 18 AAC 50.508 for operations within 25 miles of Alaska's seaward boundary; and an OCS/Title V permit under 40 CFR Part 55 and 18 AAC 50.326 for operations within 25 miles of Alaska's seaward boundary." Response to Comments for OCS Permit to Construct and Title V Air Quality Operating Permit Conical Drilling Unit Kulluk at 1 (A.R. J-3).

SR 0836

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

II. *ISSUES*

The Board has determined that the three petitions filed in this case, collectively, present the following seven issues for review:

A. Have Petitioners demonstrated that the Region clearly erred in establishing limitations to restrict the *Kulluk* drilling unit's potential to emit?

B. Have REDOIL Petitioners demonstrated that the Region clearly erred in declining to require PSD increment consumption analyses for the *Kulluk*'*s* proposed emissions as part of the Title V permitting process?

C. Did REDOIL Petitioners raise below their contention that Shell's ambient air quality analysis was flawed in that it failed to conform to applicable Agency guidance?

D. Have REDOIL Petitioners demonstrated that the Region clearly erred in its ambient air exemption determination?

E. Have Petitioners demonstrated that the Region failed to satisfy its obligation to consider environmental justice under Executive Order 12898 and comply with applicable Board precedent?

F. Has ICAS demonstrated that the Region clearly erred or abused its discretion in providing 46 days to comment on the draft permit and in denying ICAS's request for nonoverlapping comment periods?

G. Has ICAS demonstrated that the Region clearly erred in its public hearing procedures or that any alleged procedural deficiencies otherwise warrant review?

III. *STANDARD OF REVIEW*

Under the part 124 procedural regulations, which apply to OCS permits,[4] the Board will not ordinarily review a permit unless it is based on a clearly erroneous finding of fact or conclusion of law, or involves a matter of policy or exercise of discretion that warrants review. 40 C.F.R. § 124.19(a); Consolidated Per-

[4] The OCS regulations direct the Agency to follow the applicable part 124 permit regulations in processing OCS permits. 40 C.F.R. § 55.6(a)(3). Accordingly, the part 124 permit appeal provision, 40 C.F.R. § 124.19, applies here. *See In re Shell Gulf of Mex., Inc.*, 15 E.A.D. 470, 476 (EAD 2012) [hereinafter *Shell Discoverer 2012*].

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

mit Regulations, 45 Fed. Reg. 33,290, 33,412 (May 19, 1980). The Board also applies this standard in reviewing Title V permits issued under part 71.[5] *See* 40 C.F.R. § 71.11(*l*)(1); *In re Peabody W. Coal Co.*, 12 E.A.D. 22, 32-33 (EAB 2005). When analyzing permits, the Board is cognizant of the preamble to section 124.19, in which the Agency states that the Board's power of review "should be only sparingly exercised" and that "most permit conditions should be finally determined at the [permit issuer's] level." Consolidated Permit Regulations, 45 Fed. Reg. at 33,412; *accord In re Cardinal FG Co.*, 12 E.A.D. 153, 160 (EAB 2005); *see also Peabody*, 12 E.A.D. at 33 (applying these same principles in the context of a part 71 permit appeal).

The petitioner bears the burden of demonstrating that review is warranted. *See* 40 C.F.R. § 124.19; *id.* § 71.11(l)(1). To meet this burden, the petitioner must satisfy threshold pleading requirements including timeliness, standing, and issue preservation. *See* 40 C.F.R. § 124.19; *id.* § 71.11(l)(1); *In re Russell City Energy Ctr., LLC* ("*Russell City II*"), 15 E.A.D. 1, 10 (EAB 2010), *appeal docketed sub nom. Chabot-Las Positas Cmty. Coll. Dist. v. EPA*, No. 10-73870 (9th Cir. Dec. 20, 2010); *In re BP Cherry Point*, 12 E.A.D. 209, 216 (EAB 2005). For example, a petitioner seeking review must file an appeal of the permit decision within 30 days of service of the decision, and must have filed comments on the draft permit or participated in the public hearing. 40 C.F.R. § 124.19(a); *accord Russell City II*, 15 E.A.D. at 10. In addition, a petitioner must not only specify objections to the permit, but also explain why the permit issuer's previous response to those objections is clearly erroneous or otherwise warrants review. *See* 40 C.F.R. § 124.13 (requiring that all persons who believe a condition of a draft permit is inappropriate "must raise all reasonably ascertainable issues and submit all reasonably available arguments supporting their position by the close of the public comment period"); *id.* § 124.19(a) (stating that a petition for review to the Board "shall include * * * a demonstration that any issues being raised were raised during the public comment period"); *see also In re Avenal Power Ctr., LLC*, 15 E.A.D. 384, 387 (EAB 2011), *appeals docketed sub nom. Sierra Club v. EPA*, No. 11-73342 (9th Cir. Nov. 3, 2011), *El Pueblo Para el Aire y Agua Limpio v. EPA*, No. 11-73356 (9th Cir. Nov. 4, 2011); *BP Cherry Point*, 12 E.A.D. at 216-17. The petitioner's burden is particularly heavy in cases where a petitioner seeks review of an issue that is fundamentally technical or scientific in nature, as the Board will typically defer to a permit issuer's technical expertise and experience on such matters if the permit issuer adequately explains its rationale and supports its reasoning in the administrative record. *See, e.g.*, *In re Dominion Energy Brayton Point, LLC*, 12 E.A.D. 490, 510 (EAB 2006); *Peabody*, 12 E.A.D. at 33-34; *In re NE Hub Partners, L.P.*, 7 E.A.D. 561, 567-68 (EAB

[5] The part 71 regulatory language governing Title V permit appeals is nearly identical to the part 124 regulatory language governing review of other types of permits. *Compare* 40 C.F.R. § 71.11(l)(1) *with* 40 C.F.R. § 124.19; *see also Peabody*, 12 E.A.D. at 33 n.26.

1998), *review denied sub nom. Penn Fuel Gas, Inc. v. EPA*, 185 F.3d 862 (3rd Cir. 1999); *see also In re Ash Grove Cement Co.*, 7 E.A.D. 387, 404 (EAB 1997).

When evaluating a permit appeal, the Board examines the administrative record prepared in support of the permit to determine whether the permit issuer exercised his or her "considered judgment." *Ash Grove Cement*, 7 E.A.D. at 417-18; *accord In re Cape Wind Assocs., LLC*, 15 E.A.D. 327, 330 (EAB 2011); *In re GSX Servs. of S.C., Inc.*, 4 E.A.D. 451, 454 (EAB 1992). The permit issuer must articulate with reasonable clarity the reasons supporting its conclusion and the significance of the crucial facts it relied upon when reaching its conclusion. *E.g.*, *In re Shell Offshore, Inc. (*"*Shell 2007*"), 13 E.A.D. 357, 386 (EAB 2007) (citing *In re Carolina Light & Power Co.*, 1 E.A.D. 448, 451 (Act'g Adm'r 1978)); *Ash Grove Cement*, 7 E.A.D. at 417 (same). As a whole, the record must demonstrate that the permit issuer "duly considered the issues raised in the comments and [that] the approach ultimately adopted by the [permit issuer] is rational in light of all information in the record." *In re Gov't of D.C. Mun. Separate Storm Sewer Sys.*, 10 E.A.D. 323, 342 (EAB 2005); *accord In re City of Moscow*, 10 E.A.D. 135, 142 (EAB 2001); *NE Hub*, 7 E.A.D. at 568.

Finally, the Board endeavors to construe liberally objections raised by parties unrepresented by counsel (i.e., those proceeding pro se), so as to fairly identify the substance of the arguments being raised. *In re Sutter Power Plant*, 8 E.A.D. 680, 687 & n.9 (EAB 1999); *accord In re Shell Gulf of Mex., Inc. (*"*Shell Discoverer 2012*"*)*, 15 E.A.D. 470, 478 (EAB 2012); *Russell City II*, 15 E.A.D. at 12. While the Board does not expect such petitions to contain sophisticated legal arguments or to utilize precise technical or legal terms, the Board nonetheless expects such petitions "to articulate some supportable reason or reasons as to why the permitting authority erred or why review is otherwise warranted." *Sutter*, 8 E.A.D. at 687-88 (citing *In re Beckman Prod. Servs.*, 5 E.A.D. 10, 19 (EAB 1994)).

IV. *SUMMARY OF DECISION*

For all of the reasons stated below, the Board concludes that: (a) Petitioners failed to demonstrate that the Region clearly erred in establishing limits to restrict the *Kulluk*'*s* potential to emit; (b) REDOIL Petitioners failed to demonstrate that the Region clearly erred in declining to require PSD increment consumption analyses for the *Kulluk*'*s* proposed emissions as part of the Title V permitting process; (c) REDOIL Petitioners failed to raise below their contention that Shell's ambient air quality analysis was flawed in that it failed to conform to applicable Agency guidance; (d) REDOIL Petitioners failed to demonstrate that the Region clearly erred in its ambient air exemption determination; (e) Petitioners have not demonstrated that the Region's environmental justice analysis and related conclusions

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

failed to satisfy its obligation to comply with Executive Order 12898 and applicable Board precedent; (f) ICAS failed to demonstrate that the Region clearly erred or abused its discretion in providing 46 days to comment on the draft permit and in denying ICAS's request for nonoverlapping comment periods; and (g) ICAS failed to demonstrate that the Region clearly erred in its public hearing procedures or that any alleged procedural deficiencies otherwise warrant review. Accordingly, the Board denies review of the Permit.

V. *RELEVANT PROCEDURAL AND FACTUAL HISTORY*

On July 22, 2011, the Region issued a draft permit consolidating three permits that regulated air pollution from Shell's proposed exploratory drilling operations on OCS lease blocks in the Beaufort Sea off the North Slope of Alaska, as authorized by the United States Bureau of Ocean Energy Management, Regulation and Enforcement ("BOEMRE").[6] The Region solicited public comment on the draft permit from July 22, 2011, through September 6, 2011. *See* Statement of Basis for Draft OCS Permit to Construct and Title V Air Quality Operating Permit ("Statement of Basis") at 10 (A.R. H-4). In addition, the Region held an informational meeting and public hearing on the draft permit on August 23, 2011, in Barrow, Alaska, and a separate public hearing on August 26, 2011, in Anchorage, Alaska. *Id*. at 11. All of the petitioners submitted comments on the draft permit. *See* E-mail from Daniel Lum to EPA Region 10 (Aug. 10, 2011) (A.R. I-31) [hereinafter Lum Comments]; E-mail from Alaska Wilderness League, Audubon Alaska, Center for Biological Diversity, Defenders of Wildlife, Earthjustice, Eyak Preservation Council, Greenpeace, National Wildlife Federation, Natural Resources Defense Council, Northern Alaska Environmental Center, Ocean Conservancy, Oceana, Pacific Environment, REDOIL, Sierra Club, The Wilderness Society, and World Wildlife Fund to EPA Region 10 (Sept. 6, 2011) (A.R. I-53) [hereinafter REDOIL Comments]; Letter from North Slope Borough, AEWC, and ICAS to Doug Hardesty, Air Permits Project Manager, EPA Region 10 (Sept. 6, 2011) (A.R. I-54) [hereinafter ICAS Comments]; *see also* Lum Petition at 1 (noting that he also provided comments at the public hearing).

On October 21, 2011, the Region issued the Permit. *See* Permit at 1. At the same time, the Region issued a response to both the written comments it had received on the draft permit and the oral comments that had been presented at the public hearings. *See generally* Response to Comments for OCS Permit to Construct and Title V Air Quality Operating Permit Conical Drilling Unit Kulluk ("RTC") (A.R. J-3); *see id.* at 2 (describing comments to which the document responded). The Permit authorizes Shell to conduct air pollutant emitting activities for the purpose of oil exploration with the conical drilling unit *Kulluk* on lease

[6] For a description of the three permits, *see supra* note 3.

blocks in the Beaufort Sea. The Permit provides for the use of an associated fleet of support vessels ("Associated Fleet"), such as icebreakers, oil spill response vessels ("OSRVs"), and a supply ship, in addition to the *Kulluk*.

The Board received three timely petitions for review of the Permit: one from Mr. Lum, one from REDOIL Petitioners, and one from ICAS. The Region and Shell each filed a single response to those petitions. ICAS and REDOIL Petitioners each filed motions requesting leave to file reply briefs and attached their proposed reply briefs. Shell filed an opposition to the motions for leave to file replies. Before addressing the issues raised by the petitions, the Board first considers whether it is appropriate to grant Petitioners' motions.

A petitioner seeking leave to file a reply brief in an appeal of a new source review ("NSR") permit issued pursuant to the CAA, such as the OCS Permit at issue here, must state "with particularity the arguments to which the Petitioner seeks to respond and the reasons the Petitioner believes it is both necessary to file a reply to those arguments * * * and how those reasons overcome the presumption in the Standing Order."[7] *Shell Discoverer 2012*, 15 E.A.D. at 481 (citing Order Governing Petitions for Review of Clean Air Act New Source Review Permits 3 (Apr. 19, 2011) ("Standing Order"), *available at* http://www.epa.gov/eab (click on Standing Orders)).

Upon consideration of Petitioners' motions to file reply briefs and proposed reply briefs, the Board finds that only two select issues within REDOIL Petitioners' and ICAS's reply briefs meet the high threshold required to overcome the presumption against reply briefs that the Board applies in NSR appeals. *See* Standing Order at 3. In particular, in its reply brief, ICAS responds to arguments concerning ICAS's challenge to the public hearing procedures that the Region advances for the first time in the response brief. ICAS could not have responded to these particular arguments prior to the Region's response because a portion of the Region's rationale in its response brief does not appear in the administrative record. In addition, both ICAS and REDOIL Petitioners assert that the Region referenced for the first time in its response a decision by the Administrator as support for the Region's rationale that the Agency has previously concluded that rolling emission limits accompanied by prescribed emission factors and appropriate monitoring and recordkeeping sufficiently restrict a source's potential to emit. *See* Region Response at 17 (citing *In re Pope & Talbot, Inc.*, Petition No. VIII-2006-04 (Adm'r 2007) (A.R. B-24)). ICAS and REDOIL Petitioners did not have an op-

[7] In April 2011, the Board issued a standing order in which it adopted certain procedures intended to facilitate expeditious resolution of petitions requesting review of permits issued under the CAA NSR program, including OCS permits. *See* Standing Order at 1 n.2; *see also* 40 C.F.R. § 124.19. Among other things, the Board will apply a presumption against the filing of reply briefs and sur-replies in NSR appeals. *See* Standing Order at 3. However, the Board maintains discretion to modify these procedures as appropriate on a case-specific basis. *Id.* at 6.

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

portunity to review the Administrator's decision in the context of this appeal or to analyze its relevance to the Region's stated rationale until the Region cited it for support in its response brief. Accordingly, the Board grants, in part, ICAS's and REDOIL Petitioners' motions for leave to file a reply brief. Thus the Board, in reaching its conclusions set forth in this order, has considered the portions of ICAS's reply brief and REDOIL Petitioners' reply brief that address the public process for the permit and the Region's inclusion of the *Pope & Talbot* decision as support for the Region's PTE decisions. *See* ICAS Reply at 3, 6-7; REDOIL Petition at 9-10. The Board denies REDOIL Petitioners' and ICAS's motions for leave to file a reply brief with respect to all other issues.[8]

The Board analyzes the parties' arguments and sets forth its determinations below.

VI. *ANALYSIS*

A. *ICAS and REDOIL Petitioners Have Not Demonstrated That the Region Clearly Erred in Establishing Limitations to Restrict the Kulluk Drilling Unit's PTE*

ICAS and REDOIL Petitioners both challenge the Region's determination of the *Kulluk's* potential to emit ("PTE") and argue that the Region should require Shell to obtain a preconstruction prevention of significant deterioration ("PSD") permit. They complain that the PTE restrictions Shell requested and the Region included in the permit to ensure that the *Kulluk* remains a synthetic minor source for nitrogen oxides ("NO_x"), carbon monoxide ("CO"), greenhouse gases ("GHGs"), and sulfur dioxide ("SO_2") are practically unenforceable.[9] The Region counters that the restrictions it imposed in the permit that reduce Shell's emissions below the PSD threshold levels for all criteria pollutants are practically enforceable and constitute fundamentally technical decisions that are consistent with CAA statutory and regulatory authority as well as Agency guidance and past practice. This PTE question is central to the Board's analysis because the Region uses the potential to emit to determine which provisions of the CAA, including both the Title V permit requirements and the PSD preconstruction permit requirements, apply to the *Kulluk*. The question the Board must resolve, then, is whether the restrictions the Region included in the permit to limit the *Kulluk's* PTE are both

[8] The Board notes that Mr. Lum attempted to file by e-mail a request to file a reply brief and a request for oral argument. *See* E-mail from Daniel Lum to Eurika Durr, Clerk of the Board, Environmental Appeals Board, U.S. EPA (Nov. 4, 2011 6:18 pm EDT). The Board denies Mr. Lum's requests.

[9] While ICAS challenges the Region's PTE limitations for all of these pollutants, REDOIL Petitioners only challenge the Region's PTE limitations with respect to NO_x and CO. *See* ICAS Petition at 10-28; REDOIL Petition at 9-14.

practically enforceable and reasonable in light of the applicable statutory and regulatory authorities as well as Agency guidance and practice, and whether the Region provided adequate support for its decisions in the administrative record.

Before addressing the parties' arguments, a brief review of the relevant statutory and regulatory authorities is warranted.

1. *Statutory and Regulatory Context*

a. *CAA Section 328 and OCS Air Regulations*

Section 328 of the CAA, 42 U.S.C. § 7627, establishes air pollution controls for OCS sources[10] and requires OCS sources to "attain and maintain Federal and State ambient air quality standards" and to comply with the PSD provisions contained in CAA Title I, part C. EPA promulgated the Outer Continental Shelf Air Regulations, 40 C.F.R. part 55, to implement CAA section 328 and established within part 55 "the air pollution control requirements for OCS sources and the procedures for implementation and enforcement of the requirements." 40 C.F.R. § 55.1.

Section 328(a)(1), 42 U.S.C. § 7627(a)(1), also requires that, for OCS sources located within 25 miles of a state's seaward boundary, the requirements shall be the same as would apply if the source were located in the corresponding onshore area ("COA"), including, but not limited to, state and local requirements for emission controls, emission limitations, offsets, permitting, monitoring, testing, and reporting. As the Board has explained before, "OCS sources must obtain

---

[10] Section 328 defines an OCS source as follows:

> The terms "Outer Continental Shelf source" and "OCS source" include any equipment, activity, or facility which –
>
> (i) emits or has the potential to emit any air pollutant,
>
> (ii) is regulated or authorized under the Outer Continental Shelf Lands Act [43 U.S.C. § 1331 et seq.], and
>
> (iii) is located on the Outer Continental Shelf or in or on waters above the Outer Continental Shelf.
>
> Such activities include, but are not limited to, platform and drill ship exploration, construction, development, production, processing, and transportation. For purposes of this subsection, emissions from any vessel servicing or associated with an OCS source, including emissions while at the OCS source or en route to or from the OCS source within 25 miles of the OCS source, shall be considered direct emissions from the OCS source.

CAA § 328(a)(4)(C), 42 U.S.C. § 7627(a)(4)(c).

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

a preconstruction permit from either EPA or an EPA-delegated agency if the OCS source is located within twenty-five miles of a state's seaward boundary and is subject to either federal or state requirements listed in 40 C.F.R. §§ 55.13 or 55.14."[11] *Shell 2007*, 13 E.A.D. at 365 (citing 40 C.F.R. §§ 55.6(b)(1), 55.11 and CAA § 328(a)(3), 42 U.S.C. § 7627(a)(3)). The Agency has retained the authority to implement and enforce section 328 in the OCS off the coast of Alaska as opposed to delegating that authority to the state. Accordingly, as mentioned above, Shell submitted its permit applications to the Region, and the procedural rules contained at 40 C.F.R. part 124 apply. 40 C.F.R. § 55.6(a)(3).

Because requirements for these OCS sources are based on onshore requirements, which may change, section 328(a)(1) and the corresponding regulations in part 55 require EPA to update the OCS requirements as necessary to maintain consistency with onshore requirements. *See* CAA § 328(a)(1), 42 U.S.C. § 7627(a)(1); 40 C.F.R. §§ 55.6(b)(2), 55.12; *see also Shell 2007*, 13 E.A.D. at 364 & n.6. In response to Shell's December 10, 2010, notice of intent submitted to the Agency pursuant to 40 C.F.R. § 55.4, the Agency first proposed in the Federal Register a consistency update on February 10, 2011, and later published the final consistency update on June 27, 2011, subsequent to a public notice and comment period. *See* Outer Continental Shelf Air Regulations Consistency Update for Alaska, 76 Fed. Reg. 37,274 (June 27, 2011) (codified at 40 C.F.R. § 55.14(e) & appx. A); Statement of Basis at 17. This most recent consistency update incorporated, except where specifically noted, Alaska Administrative Code title 18, articles 1 through 5 and article 9, into part 55. 76 Fed. Reg. at 37,279-80; Statement of Basis at 17. In particular, articles 3 and 5 establish the minor source and major source permitting requirements with which the *Kulluk* must comply. *See Shell 2007*, 13 E.A.D. at 364 & n.6.

In addition, because the permit authorizes the *Kulluk* to operate on a group of lease blocks located both within 25 miles and beyond 25 miles of the state's seaward boundary, the permit conditions that refer to lease blocks wholly or partially located beyond 25 miles of the seaward boundary are designated as "outer

---

[11] Section 55.13 states, among other things, that the PSD program applies to OCS sources located within 25 miles of a state's seaward boundary whenever the OCS source requires construction of a new major stationary source or a modification at an existing major source and the COA is classified under the PSD program as in attainment or unclassifiable. 40 C.F.R. § 55.13(d)(1) ("40 C.F.R. [§] 52.21 shall apply to OCS sources [l]ocated within 25 miles of a state's seaward boundary if the requirements of 40 C.F.R. [§] 52.21 are in effect in the COA."); *see also Shell 2007*, 13 E.A.D. at 364.

Section 55.14 incorporates by reference regulatory requirements that states which border the OCS in the Pacific, Atlantic, and Arctic Oceans and the Gulf of Mexico have promulgated to meet the national ambient air quality standards ("NAAQS"). 40 C.F.R. § 55.14(d); CAA § 328(a)(1), 42 U.S.C. § 7627(a)(1) (defining the geographic scope of EPA authority to regulate air pollution from OCS sources). These state regulations are known as state implementation plans ("SIPs") and are created pursuant to CAA § 110, 42 U.S.C. § 7410.

SR 0844

OCS," and conditions that refer to lease blocks wholly or partially located within 25 miles of the seaward boundary are designated as "COA." Permit at 9 (noting that conditions identified with "COA" are those that apply on the "inner OCS," within 25 miles of the state's seaward boundary, and that all other conditions not identified as "COA" or "outer OCS" apply to lease blocks on both the inner and outer OCS); *see also* Statement of Basis at 7.

b. *The PSD Program and PTE*

The PSD program is a preconstruction NSR program that applies to areas designated as either in attainment with the national ambient air quality standards ("NAAQS")[12] or unclassifiable and requires new major stationary sources[13] to limit their impact on ambient air quality by obtaining a PSD permit before construction begins. CAA §§ 160-169, 42 U.S.C. §§ 7470-7479; 40 C.F.R. § 52.21(a)(2).

A source's PTE relates to its inherent ability to emit air pollutants. *Shell 2007*, 13 E.A.D. at 365; *Peabody*, 12 E.A.D. at 30. Under the PSD program, a permitting authority must determine a source's PTE to identify which sources are "major sources" subject to regulation under the applicable PSD requirements, making PTE a technical determination that "is jurisdictional in nature." *Ala. Power Co. v. Costle*, 636 F.3d 323, 352 (D.C. Cir. 1979), *quoted in Peabody*, 12 E.A.D. at 30; *see also* CAA § 165(a), 42 U.S.C. § 7475(a) (requiring a PSD permit for any "major emitting facility"); *Shell Discoverer 2012*, 15 E.A.D. at 515 n.58. The regulations that implement the PSD program define PTE as:

---

[12] The NAAQS are maximum ambient air concentrations for specific pollutants that EPA has determined are necessary to protect public health and welfare. *See* CAA §§ 108(a)(1)(A), 109, 42 U.S.C. §§ 7408(a)(1)(A), 7409; 40 C.F.R. § 50.4-.12.

[13] EPA regulations define a major stationary source as any of certain specifically listed stationary sources that emit or have a potential to emit 100 tons per year ("tpy") or more of any regulated NSR pollutant, *see* 40 C.F.R. § 52.21(b)(50), or any other stationary source that emits, or has the potential to emit, 250 tpy or more of a regulated NSR pollutant. 40 C.F.R. § 52.21(b)(1)(i)(a)-(b); *accord* CAA § 169(1), 42 U.S.C. § 7479(1) (defining a "major emitting facility" in the same way).

Alaska regulations, which incorporate large parts of the federal PSD regulations into title 18 of the Alaska Administrative Code, provide that a new PSD permit is required prior to actual construction of a new major stationary source. Alaska Admin. Code tit. 18, § 50.040 (adopting federal standards by reference); *id.* §§ 50.302(a)(1), 50.306. The Alaska regulations also define a major stationary source as any of certain specifically listed stationary sources that emit or have a potential to emit 100 tpy or more of any regulated NSR pollutant, or any other stationary source that emits, or has the potential to emit, 250 tpy or more of a regulated NSR pollutant. *Id.* § 50.990(52) (incorporating by reference definition of major stationary source from 40 C.F.R. § 51.166(b)(1)); *accord* Alaska Stat. § 46.14.990 (same).

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

> [T]he maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable.

40 C.F.R. § 52.21(b)(4).[14] In sum, PTE reflects a source's maximum emissions capacity considering the application of any emission control equipment, or other capacity-limiting restrictions, that effectively and enforceably limit emissions capacity. *Shell 2007*, 13 E.A.D. at 366; *Peabody*, 12 E.A.D. at 31 (citing Part 71 Rulemaking, 61 Fed.Reg. 34,202, 34,212 (July 1, 1996)).

Alaska regulations require that, under certain circumstances, a stationary source with a PTE of less than 250 tons per year ("tpy") obtain a minor source permit. Alaska Admin. Code tit. 18, § 50.502. Specifically in terms of the *Kulluk*'*s* operations, Alaska regulations require a minor source permit prior to the construction of a new stationary source with the potential to emit more than 40 tpy of NO_x. *Id.* § 50.502(c)(1)(B). Thus, as the Board noted in *Shell 2007*, under the Alaska PSD program, a new stationary source that has a PTE between 40 and 250 tpy of NO_x must obtain a minor source permit before commencing construction, and a stationary source with a PTE greater than 250 tpy of NO_x must obtain a major source permit. 13 E.A.D. at 366.

A source that would otherwise exceed the applicable PSD major source threshold of 250 tpy of any regulated NSR pollutant may, as in this instance, seek to avoid regulation as a major source under the PSD program by requesting that the permitting authority impose enforceable permit restrictions on the source's PTE. *Shell* 2007, 13 E.A.D. at 366, *cited in* RTC at 20; *see also Peabody*, 12 E.A.D. at 26 & n.11, 31. A Title V permit may function as a vehicle for a permitting authority to establish enforceable permit limits that restrict the source's potential to emit air pollutants to a level below the PSD major source threshold, in this instance 250 tpy, allowing the source to qualify instead as a "synthetic minor" source.[15] *Peabody*, 12 E.A.D. at 31 & n.21.

---

[14] The OCS regulations define the term "potential emissions" almost identically to the PTE definition in part 52, with the exception of first sentence, which instead states that "[p]otential emissions means the maximum emissions of a pollutant from an OCS source." 40 C.F.R. § 55.2.

[15] EPA guidance defines the term "synthetic minor" as "air pollution sources whose maximum capacity to emit air pollution under their physical and operational design is large enough to exceed the
Continued

SR 0846

If a source accepts limitations that restrict its potential to emit air pollutants to a level below the PSD threshold, that source will be a synthetic minor source for purposes of the PSD program and will therefore not be subject to PSD permitting requirements "unless future facility modifications increase emission capacity enough to exceed the PSD major source threshold." *Id.* at 31-32. As the Board noted in *Peabody*, in order for a capacity restriction to be cognizable as a PTE limit, it must be practically enforceable, which Agency guidance has interpreted to mean that:

> [T]he permit's provisions must specify: (1) a technically accurate limitation and the portions of the source subject to the limitation; (2) the time period for the limitation (hourly, daily, monthly, and annual limits such as rolling annual limits); and (3) the method to determine compliance including appropriate monitoring, recordkeeping, and reporting.

12 E.A.D. at 32 (quoting Memorandum from John Seitz, Dir., Office of Air Quality Planning & Standards, U.S. EPA, to EPA Reg'l Air Div. Dirs., *Options for Limiting the Potential to Emit (PTE) of a Stationary Source Under Section 112 and Title V of the Clean Air Act* 5-6 (Jan. 25, 1995) [hereinafter *Options for Limiting PTE*] (A.R. B-9)).

In this instance, the pre-permit PTE for units located on the *Kulluk*, and on the Associated Fleet when operating within 25 miles of the *Kulluk* while it is an OCS source,[16] exceeded applicable PSD thresholds for NO_x, CO, SO_2, and GHGs. Statement of Basis at 24-25 & tbl. 2-1.[17] To avoid exceeding the PSD major

---

(continued)
major source threshold but [is] limited by an enforceable emissions restriction that prevents this physical potential from being realized." Memorandum from John Seitz, Dir., Office of Air Quality Planning & Standards, U.S. EPA, & Eric Schaeffer, Dir., Office of Regulatory Enforcement, U.S. EPA, *Potential to Emit Transition Policy for Part 71 Implementation in Indian Country* 2 n.2 (Mar. 7, 1999), *quoted in Shell Discoverer 2012*, 15 E.A.D. at 515-16 n.59, and *Peabody*, 12 E.A.D. at 31 n.21.

Alaska regulations refer to such a limitation as an owner requested limit ("ORL"), which can be used to "avoid one or more permit classifications * * * at a stationary source that will still be subject to at least one permit classification; a limitation approved under an ORL is an enforceable limitation for the purpose of determining * * * a stationary source's potential to emit." Alaska Admin. Code tit. 18, § 50.508(5).

[16] The permit states that the *Kulluk* will be an OCS source at any time it is attached to the seabed at a drill site by at least one anchor. Permit at 8; Statement of Basis at 17, 19-20 (A.R. H-4).

[17] The primary emission sources on the *Kulluk* and the Associated Fleet are internal combustion engines that consume diesel fuel. Statement of Basis at 9, 12-14. Incinerators, heaters, boilers, and seldom used sources on the *Kulluk* and the Associated Fleet also emit pollution but to a far lesser extent. *Id.*

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

source thresholds, Shell requested that the Region include in the permit practically enforceable restrictions that will reduce the *Kulluk's* PTE below PSD threshold levels for each of the four pollutants. *See* Letter from Susan Childs, Alaska Venture Support Integrator Manager, Shell Offshore Inc., to Doug Hardesty, EPA Region 10, attach. 2 (Apr. 29, 2011) (describing Shell's proposed restrictions and how they would affect emissions) (A.R. E-17). The final permit authorizing the *Kulluk* to operate within the Beaufort Sea contains source-wide emission limits, operational restrictions, and monitoring, recordkeeping and reporting requirements intended to ensure that the *Kulluk* can operate as a synthetic minor source. Permit Conditions D.1-D.4.

With this framework in mind, the Board now turns its attention to Petitioners' arguments presented in these appeals.

2. *The Region Did Not Clearly Err in Establishing Source-Wide Emission Limits to Restrict PTE for NO_x and CO*

The Permit restricts emissions from the *Kulluk* and the Associated Fleet to no more than 240 tpy of NO_x and no more than 200 tpy of CO.[18] Permit Conditions D.4.1, D.4.2. For both pollutants, the PTE limits are determined on a rolling 365-day basis by calculating emissions for each day and adding the emissions calculated for the previous 364 days. *Id.* For both NO_x and CO, daily emissions from each emission unit or group of emission units "shall be determined by multiplying the appropriate emission factor (lb/unit) specified in Tables D.2.1 – D.2.2 (until a test-derived emission factor has been determined according to Permit Condition E.2) by the recorded daily operation rate (units/day) and dividing by 2000 lb/ton." *Id.* The Region further explained that "[c]ompliance with the emissions limits for NO_x and CO is determined by applying the relevant emission factor to the amount of fuel combusted by each emission unit (or hours of operation for incinerators)." RTC at 29. The Permit also includes conditions that require source-wide recordkeeping and monitoring to ensure that Shell complies with the source-wide limits. Permit at 56-61 (including operations and fuel monitoring in Permit Condition F.2 as well as selective catalytic reduction ("SCR") and oxida-

[18] ICAS asserts that the Region should include a 5-10% buffer zone between the PSD threshold emissions level of 250 tpy and the *Kulluk's* restricted PTE, and that the NO_x emission limit of 240 tpy does not provide this. ICAS Petition at 15 (citing a comment letter from Region 9 to the Nevada Division of Environmental Protection in which Region 9 "encourage[d] a 5-10% buffer between the permitted emission limits and the federal threshold" for a permit that established a CO synthetic minor limit of 249 tpy). However, the 240 tpy emission limit for NO_x contained in the current Permit represents a 4% buffer between the synthetic minor limit and the PSD threshold emission level of 250 tpy, which is ten times larger than the 0.4% buffer between a 249 tpy emission limit and the PSD threshold of 250 tpy contained in the Nevada permit. The Board agrees with the Region that Congress established specific thresholds to determine when a source would be considered major for purposes of PSD review. *See* RTC at 30. The buffer that ICAS requests is neither a legal requirement nor an established Agency policy, and thus the Region appropriately declined ICAS's request.

tion catalyst ("OxyCat") control device monitoring in Permit Conditions F.3 – F.4).

REDOIL Petitioners and ICAS make several challenges to the Region's decision to restrict the *Kulluk*'*s* PTE for NO_x and CO using source-wide emission limits. Both petitioners assert that the Region's decision to limit CO and NO_x emissions using source-wide limits in effect applies blanket emission limits, which Agency guidance expressly prohibits because they are practically unenforceable, and that the limited exception in the Agency guidance that allows for source-wide limits is inapplicable to the *Kulluk*'*s* operations. REDOIL Petition at 10-11; ICAS Petition at 11. Both petitioners also object to the Region's use of generic emission factors[19] to calculate source-wide emission limits. In particular, both petitioners assert that (1) the Region should have developed source-specific emission factors for all units of the OCS source; (2) the AP-42 emission factors applied to the emergency generator, the OSRVs, and heaters and boilers lead to inaccurate and underestimated emissions for those sources; and (3) the Region did not require Shell to conduct enough stack tests to accurately calculate source-specific emission factors. ICAS Petition at 15-20; REDOIL Petition at 11-14.

The Region responds that Agency guidance documents generally "illustrate that the Clean Air Act and the implementing regulations allow for a flexible, case-by-case evaluation of appropriate methods for ensuring practical enforceability of PTE limits." Region Response at 14-15 (quoting *In re Orange Recycling & Ethanol Prod. Facility*, Pet. No. II-2001-05, at 5 (Adm'r Apr. 8, 2002) (A.R. B-17)). Specifically, the Region asserts that source-wide emission limits for NO_x and CO are indeed practically enforceable and are most appropriate given the uncertainty of a number of factors that otherwise preclude the Region from establishing PTE restrictions based on operational limits. *Id.* at 18; RTC at 26-27, 29-30. In addition, the Region asserts that the emission factors used to calculate NO_x and CO emissions provide reliable emission calculations. Region Response at 19-23. In particular, the Region asserts that it made an appropriate technical determination to apply AP-42 emission factors or emission factors derived from *Discoverer*[20] data rather than source-specific emission factors for certain emission units. *Id*. The Region adds that the permit conditions that apply to source-specific

[19] *See infra* Part VI.A.2.b.

[20] The Region issued Shell two OCS PSD permits to conduct exploratory drilling activities in the Chukchi and Beaufort Seas utilizing the drillship *Discoverer* that were twice appealed to the Board, first in 2010, and then again in 2011 subsequent to a Board remand of the permits to the Region. *See Shell Discoverer 2012*, 15 E.A.D. at 474-75 (describing history of *Discoverer* permit proceedings). In preparing the permit applications for the *Discoverer*'s operations, Shell conducted source-specific emission tests for various emission units on the *Discoverer* and an associated fleet of support ships, including icebreakers, supply ships, and oil spill response vessels. *See id.*, 15 E.A.D. at 479-80 (describing associated fleet).

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

emission factors require source tests that are inadequate in frequency and unrepresentative of the variation in Shell's proposed operations to allow the Region to derive accurate emission factors. *Id.*

a. *Blanket Emission Limits and Practical Enforceability*

ICAS and REDOIL Petitioners correctly assert that the use of blanket emission limits alone, essentially statements that actual emissions of a pollutant will not exceed a particular quantity, is generally prohibited to restrict PTE because such limits are not enforceable as a practical matter. *See United States v. La.-Pac. Corp.*, 682 F. Supp. 1122, 1133 (D. Colo. 1987) ("[C]ompliance with blanket restrictions on actual emissions would be virtually impossible to verify or enforce."), *quoted in* REDOIL Petition at 11; *see also* Office of Air Quality Planning & Standards, U.S. EPA, *New Source Review Workshop Manual* at C.4 (draft Oct. 1990) [hereinafter *NSR Manual*] ("Blanket emissions limits alone (e.g., tons/[year], lb/[hour]) are virtually impossible to verify or enforce, and are therefore not enforceable as a practical matter."), *quoted in* ICAS Petition at 13; Memorandum from Terrell Hunt, Assoc. Enforcement Counsel, U.S. EPA, & John Seitz, Dir., Stationary Source Compliance Div., U.S. EPA, *Guidance on Limiting Potential to Emit in New Source Permitting* 7 (June 13, 1989) (A.R. B-4) [hereinafter *1989 Guidance on Limiting PTE*].[21] However, the Petitioners' characterization of the source-wide emission limits for NO_x and CO contained in the Permit as blanket emission limits must fail. ICAS and REDOIL Petitioners do not acknowledge the Region's explanation in the Response to Comments for why it chose to apply source-wide emission limits in the Permit, nor do they establish that the Region's fundamentally technical determinations contravene Agency guidance.

The Region made clear in the Response to Comments that its decision to employ source-wide emission limits calculated as rolling 365-day limits to restrict NO_x and CO was based in large part on the substantial and unpredictable variations in emissions based on the atypical nature of Shell's operations. RTC at 26-27; Region Response at 18. Variability in Shell's exploratory operations, multiple engines and generators located on both the *Kulluk* and numerous vessels in the Associated Fleet, the state of the weather and the sea, ice thickness, and the changing nature of the activities that Shell may need to conduct all influenced the Region's conclusion that the need for operational flexibility made it impractical to establish unit-specific limits or operating parameters for some pollutants, such as NO_x and CO, that might typically be applied to limit a stationary source's PTE. RTC at 27; *see* Statement of Basis at 38. The Region continued that, in its judgment, the choice to restrict the *Kulluk*'s PTE for NO_x and CO using source-wide emissions limits "accounts for variability in operations and emissions, yet still

[21] Appendix C of the NSR Manual is based largely on the 1989 Guidance on Limiting PTE. *NSR Manual* at C.1 n.1.

provides assurance that limits on potential to emit can be enforced as a practical matter." RTC at 28.

Although the restrictions to limit the PTE of emission units located on the *Kulluk* and the Associated Fleet utilize a rolling 365-day limit, a longer time period than generally recommended in Agency guidance,[22] as the Region points out, the continuous monitoring and recording of fuel usage and the application of source-test derived or specified emission factors have the practical effect of constraining Shell's fuel use, thus ensuring compliance with the PTE limits. Region Response at 15, 17 (citing *In re Pope & Talbot, Inc.*, Petition No. VIII-2006-04 (Adm'r 2007) (A.R. B-24), in which rolling emission limits in addition to prescribed emission factors and appropriate monitoring and recordkeeping were sufficient to restrict PTE).[23] In essence, although the Region could not incorporate more traditional operational limits into the Permit based on the atypical nature of the permitted activities, the daily calculation of NO_x and CO emissions in conjunction with continuous monitoring and recording of fuel usage ensure that the NO_x and CO PTE restrictions can be practically enforced.

Despite the Region's explanation in the Response to Comments regarding the need to consider the facts unique to this Permit, neither ICAS nor REDOIL Petitioners explain why, especially in light of the *Kulluk*'s atypical operations as

---

[22] The 1989 Guidance on Limiting PTE recommends that the time limit over which production or operational limits extend should be "as short term as possible" in order for such limitations to be enforceable as a practical matter, and generally not exceeding one month, but the Guidance also recognizes that in rare circumstances a limit spanning a longer time may be appropriate. *1989 Guidance on Limiting PTE* at 9. The Guidance specifies that a limit spanning a longer time is appropriate if it is rolling and that it should not exceed an annual limit rolled on a monthly basis. *Id.* The Guidance also notes that:

> [P]ermits where longer rolling limits are used to restrict production should be issued only to sources with substantial and unpredictable annual variation in production[] * * * Rolling limits could be used as well for sources which shut down or curtail operation during part of a year on a regular seasonal cycle, but the permitting authority should first explore the possibility of imposing a month-by-month limit.

Id. at 9-10. In this instance, although the Guidance was written prior to Congress authorizing EPA to regulate air emissions from sources located on certain areas of the OCS, *see* Region Response at 17, including the Arctic, the circumstances the Guidance anticipates that would make a longer time limit appropriate apply in this instance to the *Kulluk* permit, where the operations are seasonal and thus variation in production would be substantial. *See 1989 Guidance on Limiting PTE* at 9-10.

[23] Although the Board agrees with Petitioners that the Region did not cite this decision until it submitted its response to the petitions for review, and thus accepts their reply briefs with respect to this point, *see supra* Part V, the Board nonetheless disagrees that this publicly available decision of the Administrator is inapposite to the current appeal. The *Pope & Talbot* decision underscores the Agency's ability to exercise its discretion and its technical expertise in order to craft practically enforceable synthetic minor limits.

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

compared to other stationary sources, the Permit's PTE limits are not practically enforceable. *See* Region Response at 17. Rather, Petitioners hew closely to the language in the 1989 Guidance on Limiting PTE prohibiting blanket emissions, asserting instead that because the Permit does not contain production or operational limits to restrict PTE, the NO_x and CO emission limits constitute blanket emission limits that contravene Agency guidance. ICAS Petition at 11-14; REDOIL Petition at 9-11. The 1989 Guidance on Limiting PTE sets forth the types of limitations that will restrict a source's PTE and states in relevant part:

> To appropriately limit potential to emit * * * permits * * * must contain a production or operational limitation in addition to the emission limitation in cases where the emission limitation does not reflect the maximum emissions of the source operating at full design capacity without pollution control equipment. Restrictions on production or operation that will limit potential to emit include limitations on quantities of raw materials consumed, fuel combusted, hours of operation, or conditions which specify that the source must install and maintain controls that reduce emissions to a specified emission rate or to a specified efficiency level.

1989 Guidance on Limiting PTE at 5-6.[24] In addition, neither ICAS nor REDOIL Petitioners address the operational limits included in the Permit and discussed in

[24] The Guidance also acknowledges that the "particular circumstances of some individual sources make it difficult to state operating parameters for control equipment limits in a manner that is easily enforceable as a practical matter" and lists two exceptions. *1989 Guidance on Limiting PTE* at 7. Although the Guidance preceded EPA's authority to regulate air emissions on parts of the OCS, *see* Region Response at 17, and thus could not have anticipated the circumstances of the permit at issue in these appeals, the Region nonetheless asserts that the circumstances surrounding the current permit are sufficiently analogous to the second exception for volatile organic compound ("VOC") surface coating operations, which contemplates no add-on controls but allows for the restriction of PTE by limiting the VOC contents and quantities of coatings used. *Id.* at 17-19 (referring to *1989 Guidance on Limiting PTE* at 8).

The VOC exception focuses on circumstances where operating and production parameters could not be readily set due to the wide variety of coatings and products and due to the unpredictable nature of the operations. *1989 Guidance on Limiting PTE* at 8. The Region asserted that the rationale informing the VOC surface coating operation exception is sufficiently similar to the present circumstances and analogized that an effective way to restrict NO_x and CO was through source-wide emissions limits supported by test-derived or specified emission factors, similar to the VOC content of coatings, continuous monitoring and recording of operational parameters, and tracking the quantity of VOC coating used. RTC at 30; Region Response at 18. REDOIL Petitioners and ICAS assert that the VOC exception should be construed quite narrowly and that the VOC surface coating operation exception within the 1989 Guidance on Limiting PTE could not apply to the *Kulluk* and the Associated Fleet. *See* ICAS Petition at 20; REDOIL Petition at 13-14. Petitioners do not state more than a differ-

Continued

SR 0852

the Response to Comments. *See* RTC at 29 (discussing hourly operational limits on mudline cellar drilling and overall drilling activity and the installation of SCR and OcyCat controls to limit NO_x emissions).

Finally, ICAS challenges the Region's inclusion of requirements in the Permit to calculate daily emissions for NO_x and CO on a weekly basis, arguing that it is a "critical flaw to enforceability of the permit because it means that Shell will only know where it stands vis-a-vie [sic] its NO_x and CO permit limits once a week." ICAS Petition at 14 (citing Permit Conditions D.1.1, D.1.2). The Board finds ICAS's argument here unavailing in light of the Region's thorough explanation in the Response to Comments. *See* RTC at 44; Region Response at 19, 23. The Region explained that although the calculations of emission limits will be conducted weekly, data is continuously collected and recorded and will eventually be generated in the same terms as the emission limits. *See* RTC at 44; Region Response at 23. Moreover, the Region points out that Shell is required to process data from numerous emission units across multiple vessels for 168 individual hours (24 hours x 7 days). RTC at 44. The permit requirements to continuously monitor and record data necessary to conduct daily emissions calculations ensures, as ICAS raises, the ability to assess and verify compliance immediately should an inspector, the Region, or Shell require it. RTC at 44; Region Response at 23. In this instance, ICAS does not acknowledge the Region's response or address why that response is inadequate and thus warrants review. As this Board has previously stated, "[p]etitions for review may not simply repeat objections made during the comment period; instead they must demonstrate why the permitting authority's response to those objections warrants review." *Peabody*, 12 E.A.D. at 46 n.58; *accord In re Knauf Fiber Glass GmbH, (*"*Knauf II*"*)*, 9 E.A.D. 1, 5 (EAB 2000); *see also* standard of review discussion *supra* Part III.

In addition, as the Board noted above in Part VI.A.1.b, the determination of a source's PTE is inherently an exercise that requires technical expertise. Neither REDOIL Petitioners nor ICAS have met the particularly heavy burden of demonstrating that review of the Region's decisions to employ source-wide emission limits to restrict the *Kulluk*'s PTE is warranted. *See, e.g.*, *Peabody*, 12 E.A.D. at 33; *NE Hub*, 7 E.A.D. at 567 ("When issues raised on appeal challenge a Region's technical judgments, clear error or a reviewable exercise of discretion is not

(continued)
ence of opinion or alternative view on a technical issue. *See NE Hub*, 7 E.A.D. at 567. Without more, petitioners cannot sustain the burden of demonstrating that review of the Region's exercise of its technical judgment is warranted. *See Peabody*, 12 E.A.D. at 33; *In re Teck Cominco Alaska Inc.*, 11 E.A.D. 457, 473 (EAB 2004).

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

established simply because petitioners document a difference in opinion or an alternative theory regarding a technical matter.").

b. *Emission Factors*

An emission factor is a representative value used to relate the quantity of a pollutant released to the atmosphere with an activity associated with the release of that pollutant. U.S. EPA, AP-42, *Compilation of Air Pollutant Emission Factors*, Volume 1: Stationary Point and Area Sources 1 (Jan. 1995) (5th ed.) ("AP-42 Guidance"). Emission factors essentially represent an average of a range of emission rates of the subject sources. *Id.* at 2. As stated above in Part VI.A.2, in this instance compliance with the PTE restrictions for NO_x and CO are determined by calculating daily emissions of each pollutant, which requires multiplying the appropriate emission factor by the recorded daily operation rate and dividing by 2000 lb/ton. Permit Conditions D.4.1, D.4.2.

REDOIL Petitioners and ICAS challenge several aspects of the Region's use of emission factors to assist in calculating compliance with the restricted PTE for both NO_x and CO. Both petitioners challenge the Region's decision to forgo source-specific emission testing to establish emission factors for all emission units on the *Kulluk* and the Associated Fleet and further assert that this will cause the Region and Shell to underestimate the quantities of NO_x and CO emitted by the OCS source. ICAS Petition at 15-19; REDOIL Petition at 11-13. REDOIL Petitioners and ICAS assert that the use of AP-42 emission factors and emission factors derived from *Discoverer* test results for those emission units that will not undergo source-specific testing constitutes clear error because these more generic emission factors will likely lead to an underestimation of emissions from the units to which they are applied. ICAS Petition at 16-18; REDOIL Petition at 11-12 (referring to AP-42 emission factors as "notoriously inaccurate default factors"). Finally, ICAS challenges the frequency and number of stack tests used to develop source-specific emission factors for emission units and further asserts that by Shell's own admission there is a 15% variability in stack test data that results in a less conservative emission factor than the Region claims. ICAS Petition at 16-17.

The Board notes at the outset that the development of emission factors for use in calculating daily emissions to determine compliance with PTE restrictions requires the sort of quintessential technical expertise the permit issuer possesses, here the Region, to which the Board will defer if "the record demonstrates that the Region duly considered the issues raised in the comments and if the approach ultimately selected by the Region is rational in light all of the information in the record." *NE Hub*, 7 E.A.D. at 567-68, *quoted in Peabody*, 12 E.A.D. at 34; *see also Avenal Energy Ctr.*, 15 E.A.D. at 387. As explained more fully below, for each challenge regarding the derivation and use of emission factors set forth in the Permit, REDOIL Petitioners and ICAS have failed to sustain the particularly heavy burden petitioners must overcome to demonstrate that review of a funda-

SR 0854

mentally technical decision is warranted. *See, e.g.*, *Peabody*, 12 E.A.D. at 33; *NE Hub*, 7 E.A.D. at 567-68.

The Region fully explained in the Response to Comments its rationale for supplementing source-specific emission factors derived for most of the emission units or groups of emission units located on the *Kulluk* or the Associated Fleet with either AP-42 emission factors[25] or emission factors derived from *Discoverer* source test data for a minority of units. RTC at 32-33; *see also* Region Response at 20-21. In support of its decision to utilize a mix of source-specific testing for emission factors in addition to using AP-42 and *Discoverer* test data emission factors, the Region stated that it "believes the permit strikes an appropriate balance between the need for accurate emission factors to reliably calculate emis-

---

[25] ICAS's attempt to analogize the situation the Board confronted in *Peabody* to the current permit appeal falls short. Although *Peabody* discusses the use of AP-42 emission factors in a PTE calculation where the source was seeking synthetic minor status, ICAS fails to acknowledge critical factual elements that distinguish *Peabody* from the current appeal.

In *Peabody*, the permittee was a large coal-processing plant built prior to the effective date of the PSD program that requested a PTE limit for particulate matter with a diameter of 10 microns or less ("PM_{10}") in the permittee's Title V permit so that the facility could remain a synthetic minor source for PM_{10} emissions should it conduct any major modifications in the future. *See Peabody*, 12 E.A.D. at 24-34. Of critical importance, the facility's emissions were primarily fugitive, and thus, emission testing to directly measure PM_{10} emissions was not feasible. *Id.* at 34. The permittee consequently submitted a request for a PTE limit based on a quantitative estimate of the facility's capacity to emit PM_{10}, which in turn relied on estimates of uncontrolled emissions from each unit based on the application of AP-42 emission factors that were then used to estimate net emissions by applying assumed emission control efficiencies for the emission control equipment in use. *Id.* at 34-35 & n.31. Peabody's proposed compliance regimen did not include direct measurement of PM_{10} emissions. As the Board stated, "[b]ecause Peabody's approach would rely entirely on the application of emission factors and assumed control efficiencies, for purposes of both estimating maximum emissions capacity and monitoring ongoing compliance, the accuracy and appropriateness of the emission factors and the control efficiency assumptions were the focal point of Region IX's analysis of Peabody's proposal." *Id.* at 35-36.

Contrary to the facility in *Peabody*, in this instance the use of AP-42 factors to calculate compliance with restricted PTE for NO_x and CO was essentially a last resort method for calculating compliance, whereas the emission units that accounted for at least 90% of the NO_x and CO emissions were subject to source-specific emission testing. *See id.* at 32-33. The Region made clear that in the relatively small number of instances where an AP-42 emission factor was employed to calculate compliance with PTE, the Region chose conservatively higher emission factors. In *Peabody*, the Region made a technical determination and "concluded that Peabody had not sufficiently demonstrated that it met the central criteria for establishing [PTE] – technical accuracy and a reliable method of determining compliance." *Id.* at 39. In this instance, the Region made a technical determination that Shell has sufficiently demonstrated that the *Kulluk* could demonstrate compliance with the NO_x and CO PTE limits included in the permit in a manner that is technically accurate, and that the compliance of the emission units can be verified based on source-specific testing. The Region's exercise of its technical expertise to conclude that in limited circumstances AP-42 emission factors were appropriate to demonstrate compliance with the restricted PTE is rational in light of all of the information in the record. Thus, ICAS's contention that *Peabody* governs the appeal currently before the Board is unpersuasive.

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

sions for comparison to permit limits and the complexity of testing numerous emission units in a short period of time." RTC at 33. The Region also noted that, in response to comments received, it decided to require source-specific emission testing for incinerators and that, after that change, the permit will require source testing of emission units that constitute 91% of NO_x and 97% of CO emissions. *Id.* at 32. Of the remaining units that were not required to undergo source testing to develop an emission factor, the Region set forth in detail why it had chosen emission factors derived from *Discoverer* source test data or the AP-42 emission factors, in many instances raising the value of an emission factor to provide a more conservative estimate of emissions.[26] *Id.* at 32-33; *see also* Region Response at 20; Statement of Basis at 38 (noting that testing for source-specific emission factors (Permit Condition E.2) uses a protocol that results in conservatively high unit-specific emission factors that in turn help to ensure compliance with PTE).

[26] The Region explained in the Statement of Basis that an important element of Permit Condition E.2, which catalogues the procedures for conducting tests to determine equipment-specific emission factors, "is the selection of worst[-]case emission factors for each emission unit or group of emission units tested." Statement of Basis at 43; *see also* Permit at 52-56. The record demonstrates that the Region thoughtfully and judiciously employed emission factors derived from *Discoverer* test data and AP-42 emission factors, and consistently chose higher, more conservative emission factors when there was any question or discrepancy. For example, for those NO_x emission units for which the Permit does not require source testing and that rely on emission factors based on *Discoverer* test data, the Region adjusted the emission factor to reflect the conservative 90th percentile (or higher) values from the test data. RTC at 32. The Region further explained that for heaters and boilers – the only remaining group of NO_x emission units that rely on AP-42 for emission factors – the Region expects the AP-42 emission factor to be a conservative representation of actual emissions. *Id.* (noting that while AP-42 predicted an NO_x emission factor for heaters and boilers of 0.02 lb/gal, Shell testing of *Discoverer* boilers shows a range of values between 0.011 lb/gal and 0.015 lb/gal); *see also* RTC at 46 (noting that the boiler and heater NO_x emission factor used in the *Kulluk* permit is "lower than the *Discoverer* BACT limit for similar equipment, but is higher than available test data for a similar source"). ICAS challenged the Region's use of an NO_x emission factor in the Permit that is lower than the one in the *Discoverer* permits, *see* ICAS Petition at 18-19, but ICAS failed in its petition to even acknowledge the Region's response to its comment regarding the NO_x emission factor for heaters and boilers, let alone "substantively confront the permit issuer's subsequent explanation." *Peabody*, 12 E.A.D. at 33 (citing *In re Zion Energy, LLC*, 9 E.A.D. 701, 705 (EAB 2011)).

With respect to emission units that will not undergo source testing to verify CO emission factors, the Region similarly explained that it believed emission factors are reasonable for use in the permit given that AP-42 emission factors will represent only 3% of the total CO emissions. RTC at 32. In addition, the Region notes that the CO emissions from tests conducted for two boilers on the *Discoverer* were nearly identical to the AP-42 emission factor. *Id.* at 33 (explaining that the Region chose the highest, most conservative emission factor of the three). Finally, the Region notes that one of the potential oil spill and response boats has an actual CO emission factor for its propulsion engine that is based on the manufacturer's data and is one tenth of what the AP-42 factor predicts. *Id.*; *see also* Permit Table D.2.2 (demonstrating that the Region chose to include the much higher AP-42 emission factor for the OSRV propulsion engine).

SR 0856

While REDOIL Petitioners[27] and ICAS may disagree with the Region's approach, Petitioners do not demonstrate that the Region's choices in deriving emission factors for emission units will result in an underestimation of pollutants emitted by the *Kulluk* and the Associated Fleet. The Region has demonstrated that it balanced its primary task of accurately calculating NO_x and CO emission factors to ensure that the *Kulluk* and the Associated Fleet will not exceed the restricted PTE with the practical need to calculate emission factors for numerous and varied emission units aboard both the *Kulluk* and the Associated Fleet. The Board has frequently stated that it will not grant review where, as here, the record demonstrates a bona fide difference of opinion or alternative theory regarding a technical matter but the approach the Region ultimately selected is rational in light of all the information in the record. *Peabody*, 12 E.A.D. at 34 (quoting *NE Hub*, 7 E.A.D. at 567).

Finally, ICAS asserts that the *Discoverer* source test data is not sufficient to accurately generate worst-case scenario emission factors for *Kulluk* emission units because similar sources tested on the *Discoverer* were subject to BACT, and further, that in using stack test results from the *Discoverer* to develop emission factors for the *Kulluk* permit, the Region never accounted for "15% variability in Shell's stack tests," resulting in inadequate emission factors. ICAS Petition at 17-19. The Region points out, however, that the *Discoverer* stack tests on which the Region relied to calculate the 90th percentile value and assess the appropriateness of AP-42 factors were not subject to post-combustion controls limiting NO_x or CO and thus provided an appropriate comparison for purposes of deriving emission factors for the *Kulluk*. Region Response at 21 (citing *Discoverer* stack test results and communications discussing them in the administrative record, specifically A.R. B-55, B-63, C-406, and C-489). With respect to the 15% variability in stack test results[28] that ICAS alleges, the Region points to the technical litera-

---

[27] REDOIL Petitioners contend that the Region's recognition that Shell's approach involves "inherent uncertainty" regarding what equipment will be aboard the *Kulluk* and the Associated Fleet, which in turn requires "thorough source testing," coupled with the Region's refusal to require source testing for all equipment, is "internally inconsistent and thus arbitrary and unlawful." REDOIL Petition at 12. However, the Region responded that it used its technical expertise to determine that in this instance, a mix of both source-specific testing to derive emission factors, in addition to using AP-42 factors and emission factors derived from *Discoverer* test data where appropriate, was reasonable and not inconsistent. Region Response at 20-21. The Board agrees with the Region that the decision to use source-specific testing to derive emission factors, in conjunction with the emission factors developed from *Discoverer* data and from AP-42, is inherently technical. In order to effectively exercise its expertise, the Region should not, as REDOIL Petitioners suggest, be cabined by a rigid interpretation of how emission factors should be determined. REDOIL Petitioners have failed to meet the particularly high threshold for demonstrating that Board review of the Region's fundamentally technical decision is warranted. *Peabody*, 12 E.A.D. at 33-34.

[28] ICAS also asserts that stack tests are "conducted once a year for one or two years depending on the source," at three different loads, and even when the worst-case emissions are used, the stack tests fail to account for Shell's varying emissions. ICAS Petition at 16. The Region explained in re-
Continued

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

ture Shell referenced in Shell's comments, which addresses "uncertainty in determining front-half PM [particulate matter] emission rates" and does not directly address procedures for deriving NO_X and CO emission factors. *Id.* at 22-23; *see also* Permit Conditions E.1.2, E.1.7, E.1.14 (requiring Shell to submit a testing plan and follow EPA-approved test methods, and establishing Region's authority to require additional stack tests if necessary). As the Region correctly points out, ICAS has not demonstrated that the worst-case stack test results, which embody the Region's fundamentally technical determinations, will be biased low and underreport emissions. Region Response at 22-23; *see, e.g.*, *Teck Cominco*, 11 E.A.D. at 473 (discussing heavy burden assigned to petitioners seeking review of issues that are essentially technical in nature).

3. *ICAS Has Failed to Demonstrate That the Region Clearly Erred in Restricting the Kulluk and the Associated Fleet's Potential to Emit GHGs*

ICAS also challenges the Permit's GHG emission limit, which restricts Shell's annual GHG emissions to 80,000 tpy of carbon dioxide equivalent ("CO_2e").[29] *See* ICAS Petition at 21-26; *see also* Permit Condition D.4.4; RTC at 28. EPA promulgated regulations, commonly referred to as the "Tailoring Rule," that set forth applicability criteria to determine which GHG emission sources become subject to the PSD and Title V programs under the Act.[30] Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule, 75 Fed. Reg. 31,514, 31,516 (June 3, 2010). In this instance, despite the fact that

---

(continued)
sponse that Permit Condition E.2.1 requires each source-tested unit to be tested prior to each of the first two drilling seasons and subsequently every two or five years depending on any variability observed in the results of the two initial tests. Region Response at 22; *see also* Statement of Basis at 44 (frequency of source-specific emission factor testing after first two years based on variability of results). Further, each test requires three 1-hour runs at each of the three tested operating loads, which results in nine results total for each aggregate source test. Region Response at 22. Without more than its bare assertion that the current source tests do not adequately address Shell's varying emissions when the data is used to derive emission factors, ICAS cannot demonstrate that the permit conditions that dictate the frequency and parameters of source tests warrant Board review.

[29] GHGs are defined as "the aggregate group of six greenhouse gases: carbon dioxide, nitrous oxide, methane, hydroflourocarbons, perflourocarbons, and sulfur hexaflouride." 40 C.F.R. § 52.21(b)(49)(i). CO_2e represents the amount of GHGs emitted and is computed by "[m]ultiplying the mass amount of emissions (tpy), for each of the six greenhouse gases in the pollutant GHGs, by the gas's associated global warming potential published at Table A-1 subpart A of [40 C.F.R.] part 98 of this chapter – Global Warming Potentials." *Id.* § 52.21(b)(49)(ii)(a).

[30] The regulations provide that any source that is considered a new major source for a regulated NSR pollutant other than GHGs will also be subject to regulation for GHGs if it emits or has the potential to emit 75,000 tpy or more of CO_2e. 40 C.F.R. § 52.21(b)(49)(iv). New stationary sources that emit or have the potential to emit more than 100,000 tpy or more of CO_2e are also subject to regulation for GHGs. *Id.* § 52.21(b)(49)(v).

SR 0858

the OCS source's pre-permitted potential to emit exceeded 100,000 tpy of CO_2e, *see* Statement of Basis at 24, the Permit restricts the potential to emit GHGs to 80,000 tpy of CO_2e and thus prevents Shell from being subject to regulation for GHGs under the PSD program. *See* RTC at 24.

As noted previously, the vast majority of emissions, including GHG emissions, from both the *Kulluk* and the Associated Fleet result from internal combustion sources such as engines and boilers, along with incinerators. Statement of Basis at 12, 14, 39; RTC at 35. The Permit contains operational restrictions on the amount of time a source can operate, the amount of fuel and waste combusted, and the type of fuel combusted to ensure compliance with the Permit's GHG emission limit.[31] *See* Statement of Basis at 37-39; RTC at 33-36; *id.* at 34-35 (noting that in response to comments the Region adjusted the methane emission factor upward by a factor of four to represent a reasonable upper-bound estimate of the number of wells that could be drilled in a single season, which in turn required a small reduction to the total amount of fuel that may be combusted in engines and boilers during any rolling 12-month period). In addition to the combustion sources and the incinerators, a relatively small amount of GHG emissions in the form of methane results from the drilling mud system ("DMS").[32] *See* RTC at 35. GHG emissions from the DMS, calculated at 85 tpy of CO_2e, represent only 0.11% of the total GHG emissions allowed under the permit, 80,000 tpy of CO_2e. *Id.* The Region calculated an unrestricted PTE for methane emissions of 1,596 lbs/month,

---

[31] The Permit imposes annual limits of 120 days of operation as an OCS source during a drilling season, which spans from July 1 through November 30, and 1,632 hours of total drilling activity in a drilling season, of which only 480 hours may be used to conduct mudline cellar drilling activity, which is expected to generate the most air pollution. *See* Permit Conditions D.3.1-D.3.5. The Permit also limits the total aggregate combustion of fuel over a 12-month rolling period, the type of fuel combusted, and the total aggregate daily waste-combusting capacity of incinerators. *See* Permit Conditions D.4.6-.7, .9; *see also* RTC at 34-35. In addition, the Permit includes various monitoring and recordkeeping requirements to document when emissions should be counted toward emission limits, testing requirements for the derivation of source-specific emission factors, tracking and documentation requirements for the fuel and waste combusted, and maintenance requirements to ensure that emission units are properly operated and maintained. *See* Permit Conditions D.1-.4, D.8, F.2.1-.7; *see also* RTC at 36-37, 43.

[32] The Region explained methane emissions from the DMS as follows:

> When wells are drilled through porous, hydrocarbon[-]bearing rock, drilling fluids (mud) circulated through the drill bit can carry gaseous hydrocarbons from the well back to [the] Kulluk. These gases are typically released as fugitive emissions when the mud is processed for reuse on the Kulluk or stored and shipped away; however, some of the emissions pass through a vent.

Statement of Basis at 38.

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

the equivalent of 17 tons per month ("tpm") of CO_2e.[33] *Id.* The Permit accounts in Condition 4.4.2 for methane emissions encompassing the source's full unrestricted PTE of 17 tpm of CO_2e, which are added to GHG emissions from combustion sources when calculating total GHG emissions. *See* Statement of Basis at 39; *Shell Discoverer 2012*, 15 E.A.D. at 516.

ICAS raises several challenges to the Permit's GHG emission limit. Similar to its challenges of the Permit's synthetic minor limits for NO_x, CO, and SO_2, ICAS contends that the Permit contains a blanket emission limit for GHGs that is practically unenforceable and further asserts that the requirement that GHG emissions only be calculated monthly to determine compliance with the established rolling 12-month limit is inadequate to verify compliance "in a given moment." ICAS Petition at 21-22 (citing *NSR Manual* at C.3, C.5, H.5); *see* Permit Conditions D.1.3-.4. In addition, ICAS asserts that the Region clearly erred by accepting an owner-requested limit for methane attributable to mud off-gassing from the DMS that is not only unenforceable, but also less than the "maximum expected capacity" or "upper-bound projection" ConocoPhillips submitted in another Arctic OCS permit proceeding. *Id.* at 22-26.

Based on the foregoing information, ICAS's general assertion that the GHG emission limit is practically unenforceable must fail. The Region has demonstrated in both the Permit and the documentation in the record supporting the Permit that it crafted a synthetic minor limit that would not only prevent Shell from being subject to regulation under the PSD program for GHG emissions, but also

---

[33] In calculating the unrestricted PTE for DMS methane emissions, the Region included several conservative assumptions to ensure a wide margin of safety for total methane emissions over Shell's five-month period of operation. *See* RTC at 34; *Options for Limiting PTE* at 8 (noting that for sources with inherent physical limitations that restrict the potential emissions of an emissions unit, if such limitations can be documented and confirmed, the permitting authority may factor them into estimates of a stationary source's PTE). For example, the Region assumed that the total unrestricted PTE for DMS methane emissions for the entire five months of drilling operations would be emitted during each of the five months. RTC at 35.

In addition, despite much of the methane emissions being fugitive emissions that are not counted towards PSD applicability for exploratory drill rigs, *see* 40 C.F.R. § 52.21(b)(1)(iii), Shell agreed to consider all of the methane emissions from the DMS as point source emissions that would count towards Shell's potential to emit GHGs. *See* RTC at 35; *see also* Statement of Basis at 38-39. In its petition, ICAS disputes the Region's claim that counting such fugitive emissions towards PTE represents a conservative approach that lends a "measure of safety" and asserts that the part 71 regulations governing Title V permits require such fugitive emissions to be included. ICAS Petition at 24 (citing 40 C.F.R. § 71.3(d), which states that fugitive emissions from a part 71 source "shall be included in the permit application and the part 71 permit in the same manner as stack emissions"). However, as the Region correctly points out in its response, the definitions of major source in both 40 C.F.R. § 52.21(b)(1)(iii) and 40 C.F.R. § 71.2 make clear that fugitive emissions are not considered when determining whether a source is a major source. Region's Response at 26 n.21 (citing the Tailoring Rule and noting that it retained this approach of determining whether a source becomes subject to regulation for GHGs).

SR 0860

would be practically enforceable as a result of the numerous operational restrictions in combination with monitoring, recordkeeping, and reporting requirements contained in the Permit. While ICAS acknowledges the operational limits contained in the Permit, ICAS simultaneously disputes their efficacy without explaining why such operational limits will not have their intended effect of restricting Shell's potential to emit GHGs.[34] *See* ICAS Petition at 21-22. Without stating more than mere disagreement, ICAS cannot meet the especially high threshold of demonstrating that the Region's inherently technical decisions regarding the GHG emission limit warrant Board review. *See, e.g.*, *NE Hub Partners*, 7 E.A.D. at 567; *Shell Discoverer 2012*, 15 E.A.D. at 501.

ICAS's more specific contention that the Region clearly erred by accepting an owner requested restriction for methane from mud off-gassing that is practically unenforceable is unavailing. *See* ICAS Petition at 22-26. ICAS raised this same argument in previous appeals of two OCS PSD permits the Region issued to Shell for operations in the Chukchi Sea of the Arctic OCS. *See Shell Discoverer 2012*, 15 E.A.D. at 514-19; *see also supra* note 20. In brief, the monthly calculation of methane to be released in mud off-gassing in both *Shell Discoverer 2012* and the current appeal are not only the same amount, 17 tpm, they also both reflect the unrestricted PTE for methane emissions from DMS operations. *See* RTC at 34-35; *Shell Discoverer 2012*, 15 E.A.D. at 517-18. The Board rejects ICAS's assertion in this instance, relying on the same reasons it gave in *Shell Discoverer 2012*:

> [T]he Permit[] in this case do[es] not include owner requested limits on PTE for methane emissions. Rather, * * * methane emissions were assumed to occur at the source['s] full PTE for the five-month drilling season

[34] Similarly, ICAS's contention that the Region clearly erred by not requiring more frequent calculations of GHG emissions than the monthly calculations the Permit requires, *see* Conditions D.1.3-.4, falls short. The Region explained that its decision to calculate emissions on a monthly basis stemmed from "good confidence in the overall [GHG emission] compliance technique and therefore 'yearly' emissions are required to be summed only monthly." Statement of Basis at 38. Although GHG emission calculations will be calculated once a month based on the Region's stated confidence in its compliance method, the data required to make such calculations is collected continuously through fuel usage monitoring. RTC at 43-44 ("Shell is generally required to continuously measure and record, on an hourly basis, the fuel consumed by each emission unit or group of emission units."); *see also* Region Response at 24 (citing *1989 Guidance on Limiting PTE* and noting that "in light of annual variations in operations and the fact that the source operates during only part of the year" the Region determined that a 12-month rolling limit for CO_2e was appropriate as stated). Again, ICAS has failed to meet its burden of demonstrating that review is warranted, where, as here, it has not addressed the Region's stated rationale for requiring only monthly calculation of GHG emissions and has not demonstrated that monthly calculation of GHG emission would inhibit verification of compliance with the GHG emission limit. *See supra* Part III.

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

> (0.798 tons per month),[35] and the Permit[] count[s] these emissions towards the total GHG limitation * * * . The Region determined that because these unrestricted emissions of methane (when combined with GHG emissions from combustion sources) would not result in an exceedance of the Permit[']s] total GHG emissions limit, additional permitting restriction limits were not required.
>
> Under these circumstances, ICAS's reliance on the requirement that permits include conditions ensuring the enforceability of limitations on a source's PTE is misplaced, as the Permits do not contain owner requested limits on methane emissions or otherwise limit the source[']s] PTE from DMS operations.

Shell Discoverer 2012, 15 E.A.D. at 517-18 (citations omitted).

In addition, ICAS has not demonstrated that the Region's calculation of methane emissions from the DMS underestimated the "upper-limit" projection that is in turn used to identify the "maximum capacity" of a source based on an "inherent physical limitation." RTC at 34 (citing *Options for Limiting PTE* at 8 and Memorandum from John Seitz, Dir., Office of Air Quality Planning & Standards, to Reg'l Air Dirs., U.S. EPA, *Calculating Potential to Emit (PTE) and Other Guidance for Grain Handling Facilities* at 4-5 (Nov. 14, 1995) (A.R. B-10) [hereinafter *Grain Handling Guidance*]). ICAS's assertion is premised on ConocoPhillips' higher estimate of DMS methane emissions submitted to the Region in another permit proceeding concerning exploratory drilling in the Arctic OCS. ICAS Petition at 23-26. However, ICAS simply states that the discrepancy between Shell's and ConocoPhillips' calculations of DMS methane emissions means that the Region clearly erred in accepting Shell's methane calculations, but it does not acknowledge or evaluate the record information Shell submitted that explains in depth the causes for the divergent methane calculations.[36] Upon considering this

---

[35] This is the same unrestricted PTE for methane emissions as in the *Kulluk* permit (1596 lb / 2000 lb = 0.798 tons).

[36] In *Shell Discoverer 2012*, ICAS asserted that it was unable to evaluate the basis for Shell's estimates of DMS methane emissions that the Region had relied on to calculate PTE because Shell did not release its estimates until after the close of the comment period. 15 E.A.D. at 517 n.63. In that instance, the Board concluded that the Region was authorized to supplement the record with previously unavailable information confirming that Shell's estimate of methane PTE was a reasonable upper-bound estimation, and "[t]hus, ICAS had the opportunity to evaluate the basis for Shell's PTE estimates and the Region's assessment of those estimates in preparing its appeal to this Board." *Id.* (citing *In re Cape Wind Assoc., LLC*, 15 E.A.D. 327, 332-33, 335 (EAB 2011), and 40 C.F.R. §§ 124.17(a)-(b), .18(b)).

Continued

SR 0862

information, the Region exercised its technical expertise in concluding that Shell's estimates of methane emissions from the DMS were permissible, especially given the conservative assumptions the Region incorporated when calculating PTE. ICAS does not address either the record information that supports the Region's decision to accept Shell's methane estimate or the Region's stated rationale for concluding that methane monitoring is not required. *See* RTC at 35-36 (explaining that, based on the inherent limitations that exist and the relatively small contribution of the DMS to overall GHG emissions, the Region does not believe monitoring of DMS emissions or operations is necessary in addition to the monitoring already required in the permit). As this Board has often stated, a petitioner cannot demonstrate that review is warranted if the petitioner fails to substantively confront a permit issuer's response. *Peabody*, 12 E.A.D. at 33 (noting that to obtain review a petitioner must "explain why, in light of the permit issuer's rationale, the permit is clearly erroneous or otherwise deserving of review"); *see also In re BP Cherry Point*, 12 E.A.D. 209, 217 (EAB 2005). Moreover, as stated above, the Region's decision regarding the GHG emission limit is inherently technical in nature, and ICAS has fallen short of the particularly high threshold it must meet to demonstrate that review of the Region's technical determination is warranted. *See Peabody*, 12 E.A.D. at 33-34; *see also NE Hub*, 7 E.A.D. at 567-68.

4. *The Region Did Not Clearly Err in Restricting OCS Source's Potential to Emit SO_2*

The Permit restricts SO_2 emissions from the *Kulluk* and the Associated Fleet to no more than 10 tpy, well below the 250 tpy PSD threshold level. *See* Permit Condition D.4.3. Compliance with this limit is determined on a rolling 12-month basis and is achieved by requiring that Shell not combust any liquid fuel with sulfur content greater than 0.01 percent by weight in any emission unit on the *Kulluk* or the Associated Fleet and that all fuel purchased for use in emission units on the *Kulluk* and Associated Fleet have a maximum sulfur content of 0.0015 percent by weight. Permit Conditions D.4.5, D.4.9. Shell is required to keep diesel

---

(continued)

The material in question is not only in the record submitted with the *Discoverer* appeals, it also appears in the record for the instant appeal. *See* E-mail from Susan Childs, Shell, to Doug Hardesty, EPA Region 10 (Sept. 16, 2011 14:31 pm PDT) (A.R. CCC-438 in *Shell Discoverer 2012* and A.R. C-575 in the current appeal). Thus in the current appeal there is no question that the information from Shell clarifying and explaining its estimate of DMS methane emissions, including the highly conservative assumptions Shell included in its estimate, was at ICAS's disposal. In addition, Shell submitted further clarification of its DMS methane estimates as compared to ConocoPhillips' in order to "explain how different assumptions led to different results, and why Shell believes that ConocoPhillips' estimate is unrealistically high." E-mail from Susan Childs, Shell, to EPA Region 10 (Sept. 20, 2011 17:57 pm PDT) (A.R. C-577). ICAS's petition does not address either of these record submissions or the Region's reliance on this information to determine that the Region's calculation of methane emissions from the DMS represents "a reasonable upper-bound projection for Shell's operations [that] is not expected to be exceeded under any reasonably anticipated operating scenario." RTC at 35.

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

fuel purchase records documenting sulfur content for each batch of fuel purchased. Permit Condition D.4.9.2. In addition, the total amount of fuel combusted in engines and boilers must not exceed 7,004,428 gallons during any rolling 12-month period. Permit Condition D.4.6; *see also* Permit Condition F.2.4 (requiring Shell to (1) obtain representative fuel samples and determine fuel sulfur content in parts per million from fuel storage tanks on the *Kulluk* and the Associated Fleet prior to their mobilization, (2) determine the sulfur content of each delivery of fuel to the *Kulluk* and the Associated Fleet once the vessels are mobilized, and (3) maintain records of all sampling and analysis).

ICAS asserts that the Region justifies its blanket SO_2 emissions limits by including "purported 'operational limits'" that restrict fuel content and usage and concludes that compliance with the restricted PTE for SO_2 is practically unenforceable because these operational limits are not unit-specific and because the overall limit is based on a 12-month rolling limit. ICAS Petition at 26-27. ICAS offers no explanation as to why the operational limits and averaging time the Region chose to include in the Permit, both of which are clearly considered legitimate in Agency guidance, nonetheless constitute clear error. *See* Region Response at 28; *Options on Limiting PTE* attach. 1 at 5 ("[L]imitations on sulfur dioxide emissions could be based on specified sulfur content of fuel and the source's obligation to limit usage to certain maximum amounts."); *1989 Guidance on Limiting PTE* at 9-10 (noting that in certain situations a rolling limit of up to a year may be appropriate for sources with "substantial and unpredictable annual variation in production," including "source which shut down or curtail operation during part of the year on a regular seasonal cycle").

ICAS also challenges the monitoring provisions for small and/or infrequently used emission units that are not required to have fuel flow monitors. ICAS Petition at 27. As the Region correctly points out, however, ICAS makes no attempt to explain why the specified fuel measurement alternatives, together with the requirement to measure and record fuel usage before and after operation, do not allow for a reliable and accurate assessment of fuel usage. Region Response at 28 (citing Permit Condition F.2.2.2). Here again, ICAS offers nothing more than a bald assertion of clear error without any analysis of why the Region erred. Where, as here, the Region's decision was technical in nature, ICAS has failed to meet the particularly high threshold for establishing that review of the Region's technical determination is warranted.

5. *Shell's Minor Source Permit Is Not a "Sham" Permit*

ICAS asserts that in order to ensure the *Kulluk*'s status as a minor source, Shell has agreed to operational limitations in its OCS/Title V permit that are not represented in other authorizations and permit applications for Shell's exploratory activities in the Beaufort Sea. ICAS Petition at 28. ICAS alleges that Shell's incidental hazard assessment, required under the Marine Mammal Protection Act,

SR 0864

16 U.S.C. § 1371(a)(5)(A), (D), authorizes 78 days of drilling whereas the OCS/Title V permit only authorizes 68 days of drilling. *Id.* Based on this single discrepancy, ICAS categorically concludes that "Shell is submitting permit applications and seeking authorization from other agencies with different plans than are provided for in its air permit." ICAS Petition at 28-29. ICAS also asserts that the Region did not adequately respond to its concern that Shell's application for a minor source permit is a sham.[37] *Id.*

At the outset, the Board notes that ICAS's assertion that Shell has secured a sham minor source permit with the intention to avoid preconstruction review as a major source under the PSD program is wholly unsupported in the record.[38] As the Region noted in the Response to Comments, there is nothing to indicate that Shell intends to later apply to the Region to remove the synthetic limits contained in the Permit. RTC at 22. The Region continued that, regardless of what the incidental hazard assessment says regarding the number of days Shell may drill, Shell nonetheless "must comply with all requirements of the Kulluk Permit and failure to do so is a violation of the CAA." *Id.* (citing Permit Condition A.3). Finally, the Region made clear that whether an original request for a minor source permit is a "sham" may be evaluated when the Region receives a request to remove the synthetic limits. *Id.*

ICAS rejects the Region's statement that there is nothing to suggest that Shell intends to obtain a minor source permit now and then apply for a major source permit down the road, and baldly asserts that "this is not the proper test." ICAS Petition at 28. ICAS ignores the element of intent to obtain a minor source

---

[37] The NSR Manual defines a sham permit as follows:

> A sham permit is a federally enforceable permit with operating restrictions limiting a source's potential to emit such that potential emissions do not exceed the major or de minimis levels for the purpose of allowing construction to commence prior to applying for a major source permit. Permits with conditions that do not reflect a source's *planned* mode of operation may be considered void and cannot shield the source from the requirement to undergo major source preconstruction review. In other words, if a source accepts operational limits to obtain a minor source construction permit but intends to operate the source in excess of those limitations once the unit is built, the permit is considered a sham.

NSR Manual at C.6.

[38] ICAS asserts that its concern with the potential for Shell to obtain a minor source sham permit arose because "Region 10 has provided no assurance that reporting mechanisms in the permit will provide sufficient time for Shell to halt drilling with enough of an emissions buffer remaining to secure a partially drilled well for the entire winter season * * * ." ICAS Petition at 29. ICAS also acknowledges that any exceedance of an emission limit would allow the Agency to exercise its enforcement powers. *Id.* Without more, ICAS cannot demonstrate that the Region clearly erred in determining that Shell's minor source permit is not a sham.

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

sham permit that both the Region in the Response to Comments and the 1989 Guidance on Limiting PTE discuss and instead quotes the NSR Manual language for the proposition that the "proper test" is a permit that does not reflect a source's "*planned* mode of operation." ICAS Petition at 28 (citing *NSR Manual* at C.6) (emphasis in original); *see also 1989 Guidance on Limiting PTE* at 12. However, the 1989 Guidance on Limiting PTE contains guidelines for determining, based on an evaluation of specific facts and evidence in each individual case, when minor source construction permits are shams and includes two of four criteria that discuss the intent of the source to circumvent the PSD preconstruction review process. *1989 Guidance on Limiting PTE* at 14-15.[39]

ICAS has not identified any information in the record that supports its assertion that Shell is seeking to avoid preconstruction review. Moreover, minor source sham permits are generally discovered when a source seeks another air emissions permit that requests the permit issuer to relax the synthetic limits in the minor permit, *see 1989 Guidance on Limiting PTE* at 12-14, rather than when the source seeks another authorization under a different statute such as the Marine Mammals Protection Act. Finally, ICAS has not demonstrated any deficiency in the Region's response to its comment regarding sham permits. *See, e.g., Russell City II*, 15 E.A.D. at 24 (noting that the part 124 regulations require a response to comments document to "demonstrate that all significant comments were considered but does not require a permit issuer to respond to each comment in an individualized manner or require the permit issuer's response to be of the same length or level of detail as comment") (citation omitted).

For all of the reasons stated above, the Board denies review of this issue.

---

[39] Specifically, the guidelines for determining when minor source construction permits are shams state in relevant part:

> 1. Filing a PSD or nonattainment NSR permit application
>
> If a major source or major modification permit application is filed simultaneously with or at the same time as the minor source construction permit, this is strong evidence of *an intent to circumvent the requirements of preconstruction review*.
>
> * * *
>
> 4. Statement of authorized representatives of the source regarding plans for operation
>
> Statements by representatives of the source to EPA or to state or local permitting agencies about the source's plans for operation can be evidence *to show intent to circumvent preconstruction review requirements.*

1989 Guidance on Limiting PTE at 14-15 (emphasis added).

B. *REDOIL Petitioners Have Not Demonstrated That the Region Clearly Erred in Declining to Require PSD Increment Consumption Analyses for the Kulluk's Proposed Emissions as Part of the Title V Permitting Process*

1. *Section 504(e) of CAA Title V Imposes Permitting Requirements on "Temporary" Stationary Sources*

The CAA's PSD program requires permit applicants to demonstrate compliance with ambient air quality "increments" (also called "PSD increments") for specific air pollutants. *See* CAA §§ 161, 163, 165(a)(3)(A), 42 U.S.C. §§ 7471, 7473, 7475(a)(3)(A); 40 C.F.R. § 52.21(c), (k). Such increments are maximum allowable increases in pollutant concentrations that may occur in particular areas.[40] They are designed to "prevent significant deterioration" of air quality in locations that already have relatively clean air by ensuring that contaminants contributed by proposed new sources, combined with levels of contamination already present in the ambient air as of a specific baseline date, fall within bounds established by the Agency. *See generally NSR Manual* ch. C.

As noted in Part VI.A.1.b above, Congress designed the PSD program to regulate "major" sources of air pollution, which have potential to emit certain specific pollutants in amounts exceeding major source threshold levels. "Minor" sources, which have projected emissions that fall below the PSD major source thresholds, generally are not regulated under the PSD program. The Board determined above that the *Kulluk* qualifies as a minor source for PSD purposes, and so it is not required to obtain a PSD permit. The *Kulluk* nonetheless is still subject to permitting under the CAA's Title V program. The question presented is whether section 504(e) of Title V imposes PSD increment requirements in this circumstance.

In section 504(e) of Title V Congress set out permitting requirements for "temporary" stationary sources of air pollution as follows:

> The permitting authority may issue a single [Title V] permit authorizing emissions from similar operations at multiple temporary locations. No such permit shall be issued unless it includes conditions that will assure compliance with all the requirements of this chapter [i.e., the CAA] at

[40] To date, EPA has established PSD increments for four pollutants – SO_2, NO_2, PM_{10}, and $PM_{2.5}$. The increments consist of numeric concentrations, measured in micrograms of pollutant per cubic meter of air, that vary according to averaging period (3-hour, 24-hour, or annual averages) and geographic location (areas designated as "Class I," "Class II," or "Class III"). *See* 40 C.F.R. § 52.21(c) (table of increment levels).

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

> all authorized locations, including, but not limited to, ambient standards and compliance with any applicable increment or visibility requirements under part C of subchapter I of this chapter [i.e., the PSD program].

CAA § 504(e), 42 U.S.C. § 7661c(e). In allowing for a streamlined permitting process in which a single permit could authorize emissions at multiple temporary locations, Congress explained:

> Some sources requiring [Title V] permits do not operate at fixed locations. These might include asbestos demolition contractors and certain asphalt plants. Subsection (e) allows the permittee to receive a permit allowing operations, after notification to the permitting authority, at numerous fixed locations without requiring a new permit at each site. Any such permit must assure compliance at all locations of operation with all applicable requirements of the Act, including visibility protection and PSD requirements and ambient standards.

H.R. Rep. No. 101-490, pt. 1, at 350 (1990).

The parties' dispute centers on competing interpretations of section 504(e) and whether, in providing for a streamlined permitting process for temporary sources, Congress intended temporary minor sources to have increment provisions in their Title V permits where the state implementation plans do not otherwise impose increment provisions on such sources.

Section 504(e) is an unusual provision, not only because it addresses temporary rather than permanent stationary sources of air pollution (which comprise the majority of Title V sources), but also because it imposes substantive air requirements on temporary sources. As a general matter, Title V is a procedural rather than a substantive statute. It serves as a vehicle for collecting diverse CAA requirements otherwise applicable to a source into one all-encompassing air permit for that source. *See*, *e.g.*, *Ohio Pub. Interest Research Grp., Inc. v. Whitman*, 386 F.3d 792, 794 (6th Cir. 2004) ("Title V does not impose new obligations; rather, it consolidates pre-existing requirements into a single, comprehensive document for each source"); Operating Permit Program, 57 Fed. Reg. 32,250, 32,251 (July 21, 1992) (explaining that Title V "generally does not impose substantive new requirements" on sources but instead attempts to "clarify, in a single document, which requirements apply to a source," thereby enabling all parties to better understand and track that source's CAA compliance). For the most part, requirements that are "applicable" to a source's emissions units under a Title V permit are directly imposed not by Title V itself but, rather, by state or federal implementation plans, preconstruction permits, the air toxics or acid rain programs, and other

SR 0868

substantive CAA provisions. *See* 40 C.F.R. §§ 70.2, 71.2 (definitions of "applicable requirements" under state and federal operating permit program regulations, respectively).

To ensure adequate regulation of temporary sources, Congress directed that Title V permits for such sources must include, as noted above, "conditions that will assure compliance with all the requirements of [the CAA] at all authorized locations, including, but not limited to, ambient standards and compliance with any applicable increment or visibility requirements under [the PSD program]." CAA § 504(e), 42 U.S.C. § 7661c(e). The parties do not dispute that this language serves to impose, through Title V itself, substantive CAA requirements on temporary sources. *See* REDOIL Petition at 19-25; Region Response at 5-6. Indeed, they agree that, because of section 504(e), the *Kulluk*'s Title V permit "must contain terms and conditions that ensure compliance with the NAAQS at all relevant locations." Statement of Basis at 26, *quoted in* Region Response at 5; *see* REDOIL Petition at 21. The parties strongly dispute, however, whether PSD increments should also be included in the complement of substantive requirements for the *Kulluk*.

2. *Under the Region's Interpretation, PSD Increment Compliance Demonstrations Are Not Mandatory for Temporary Minor Sources but May Be Required by States*

The Region's basic position is that section 504(e) uniformly imposes ambient standards (i.e., NAAQS) compliance requirements on all temporary sources, but that it does not uniformly so impose PSD increment requirements. The Region initially based this distinction on the language of section 504(e) and the implementing regulations, as well as on a prior Agency interpretation of these authorities. *See* Statement of Basis at 25-27. The distinction hinged primarily on Congress' insertion of the adjective "applicable" in section 504(e) to modify not "ambient standards" but only "increment or visibility requirements under [the PSD program]." *Id*. at 26; *see* CAA § 504(e), 42 U.S.C. § 7661c(e). PSD increments are only "applicable" to a temporary source, the Region reasoned, if the source also qualifies as a PSD major source, obligated to obtain a PSD permit. Statement of Basis at 26 ("applicable" increment requirements are those applicable "under [the PSD program]" (i.e., part C of subchapter I of the CAA), which covers only PSD major sources). By this logic, the *Kulluk*, a PSD minor source, would not have to demonstrate compliance with PSD increments at any of its authorized locations. *Id*.

Commentors on the *Kulluk*'s draft permit pressed the Region on this point, which prompted it to take a closer look at the entire issue. The Region prepared a lengthy, detailed Response to Comments document, in which it repeated the above points, but also added a far more robust discussion of the preconstruction permitting programs for major and minor sources. The Region explained that,

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

under the statute and implementing regulations, states have discretion to impose PSD increment requirements on PSD minor sources as part of their minor source construction permitting programs, if the states deem such requirements necessary to prevent significant deterioration of air quality. *See* RTC at 102-09 (citing and discussing, e.g., CAA §§ 110(a)(2)(C), 161, 163, 165(a)(3)(A), 504(e), 42 U.S.C. §§ 7410(a)(2)(C), 7471, 7473, 7475(a)(3)(A), 7661c(e); 40 C.F.R. §§ 51.160(a)(2), (b)(2), .166(a)(1), (3), 70.2, 71.2, 71.6(e)). The Region emphasized that states are not *obliged* to do this but have discretionary authority to pursue this course if they deem it necessary to fulfill their obligations under CAA sections 161 and 163(a). *See id*. at 103-06.

These clarifications led the Region to encapsulate its understanding of section 504(e) and the preconstruction programs in the following way: "PSD major sources are subject to NAAQS and increment in the permitting process, whereas non-PSD sources are subject only to the NAAQS unless the applicable minor source program also includes the [PSD] increment[s]." *Id*. at 107. The Region concluded that the State of Alaska's minor source preconstruction program does not require permanent minor sources to demonstrate compliance with PSD increments as a condition of construction, so neither would it require such compliance of temporary minor sources. *See id*. at 103-04, 107-08; *see also* Region Response at 12, 11 n.7. For this reason, the Region declined to require that Shell conduct PSD increment compliance analyses for *Kulluk* emissions at any of its authorized locations in the Beaufort Sea.

The Region's statutory and regulatory interpretation of the Title V temporary source program finds support in Board case law that recognizes the states' primary role in using PSD increments to manage economic growth. In *In re West Suburban Recycling & Energy Center, LP*, 8 E.A.D. 192 (EAB 1999), the Board observed the following:

> From the beginning of the PSD program, EPA has acknowledged that decisions about how increment should be used or allocated are primarily within the province of the states. For example, in the preamble to the original PSD regulations, EPA noted that allocation of PSD increment could affect economic development and that EPA should endeavor to preserve the states' authority on issues of economic development and growth:
>
> > "EPA should not make decisions [that] would have a significant impact upon future growth options of the [s]tates."

8 E.A.D. at 196 (quoting Approval and Promulgation of State Implementation Plans, 43 Fed. Reg. 26,388, 26,401 (June 19, 1978)); *accord In re Commonwealth*

SR 0870

Chesapeake Corp., 6 E.A.D. 764, 768 (EAB 1997) ("'The PSD requirements provide for a system of area classifications [that] affords [s]tates an opportunity to identify local land use goals. * * * Each classification differs in terms of the amount of [industrial or other] growth it will permit before significant air quality deterioration would be deemed to occur.'" (quoting *NSR Manual* at C.4-.5)).

3. *REDOIL Petitioners Have Not Demonstrated That the Region's Interpretation Is Clearly Erroneous*

On appeal, REDOIL Petitioners claim on a number of grounds that the Region's interpretation is clearly erroneous and thus a basis for remand of this permit. REDOIL Petition at 19-37. REDOIL Petitioners' central contention is that the plain language, structure, and purpose of section 504(e) reveal Congress' "unambiguously expressed intent" to tie increment requirement applicability to the increment status of the geographic area or areas in which a temporary source will emit pollutants. *See id*. at 20-32. REDOIL Petitioners also contend that the Agency's implementing regulations confirm the plain meaning of the statutory language and, additionally, contain provisions that "at least imply" independent obligations to ensure PSD increment compliance. *Id*. at 33-35.

REDOIL Petitioners observe that section 504(e) distinguishes between ambient standards (i.e., NAAQS), which apply to all temporary sources "at all times and in all locations," *id*. at 21, and PSD increment standards, which do not apply at all times and in all locations because they "are not universally applicable to all areas." *Id*. Rather, as designed by Congress, PSD increments "apply" only in areas where they specifically have been triggered, by means of the submission of an initial, complete PSD permit application to emit in a particular area. *Id*.; *see* CAA §§ 163, 169(4), 42 U.S.C. §§ 7473, 7479(4); 40 C.F.R. § 52.21(b)(14)(ii), (15)(i). The concentration of pollutants in such an area's ambient air is measured at the time the initial application is submitted (the "baseline date") and then fixed as the "baseline concentration" for that area. *See NSR Manual* at C.6-.8, .12-.15. From that point forward, PSD increments serve as the maximum allowable increases that pollutant concentrations may rise above the established baseline levels. CAA § 163, 42 U.S.C. § 7473; 40 C.F.R. § 52.21(c).

REDOIL Petitioners reason from this basic design that Congress intended "applicable increment * * * requirements" in section 504(e) to be area-dependent rather than source-dependent. *See* REDOIL Petition at 21-22, 25-27, 29. By this logic, any new source, including any new temporary minor source, that proposes to emit in geographic areas where increments previously have been triggered would be obligated to demonstrate compliance with such increments as "applicable" requirements under section 504(e). Only in areas where increments have not yet been triggered would PSD increments be inapplicable to temporary minor sources. *See id*. REDOIL Petitioners claim the Agency's implementing regula-

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

tions are fully in accord with this interpretation and thus do not bar increment compliance demonstrations prior to issuance of Title V permits. *Id*. at 33-35.

As described below, the Region did not clearly err in its own interpretation of these authorities. The Board agrees with the Region that its interpretation more fully comports with the structure and language of the CAA and the implementing regulations, and rejects REDOIL Petitioners' assertion that the statutory language is so plain that there is no ambiguity about whether Congress intended to impose increment provisions on temporary minor sources where the state implementation plan does not otherwise impose increment requirements on such sources. REDOIL Petitioners misapprehend or fail to grapple with several key points that formed the basis for the Region's interpretation in its final permitting decision and Response to Comments.

a. *REDOIL Petitioners Misunderstand Portions of the Region's Response to Comments*

In several of its points of advocacy before this Board, REDOIL Petitioners reveal a misunderstanding of the explanations the Region set forth in the Response to Comments. In the most significant example, REDOIL Petitioners argue that the Region erroneously construes "any applicable increment * * * requirements under Part C" in section 504(e) to mean that only those temporary sources that are also PSD major sources must demonstrate PSD increment compliance. REDOIL Petition at 29, 33-34. While this description reflects the position the Region advanced in the Statement of Basis,[41] it fails to acknowledge the very substantial further interpretive exegesis the Region developed and presented in its Response to Comments on the draft permitting record (which included the Statement of Basis). In that later and more comprehensive analysis, the Region made clear that, in its view, states have discretionary authority in their minor source preconstruction programs to impose PSD increment requirements on temporary minor sources, either as implementation plan requirements or on a case-by-case basis, as they deem necessary to protect the NAAQS. *See* RTC at 103-06. REDOIL Petitioners fail to address or demonstrate why the Region's position, as more fully articulated in the Response to Comments, is clearly erroneous. Because REDOIL Petitioners have failed to substantively confront the Region's Response to Comments, they cannot prevail on this ground. *See, e.g., In re Guam Waterworks Auth.*, 15 E.A.D. 437, 450 (EAB 2011) (petitioners "must substantively confront the permit issuer's explanations in its response to comments document"); *In re Peabody W. Coal Co.*, 12 E.A.D. 22, 33 (EAB 2005) (same).

[41] The Region acknowledges that statements in the Statement of Basis could be read to suggest such an approach. Region Response at 8.

REDOIL Petitioners also misunderstand the interplay of sections 161, 165, and 504(e) of the Act, as those provisions are discussed by the Region in the Response to Comments. *See* RTC at 103-06. REDOIL Petitioners point out that section 163, not section 165, is the source of increment requirements within the PSD program and contends that the Region "ignore[d]" this provision in interpreting section 504(e). REDOIL Petition at 30. In so arguing, REDOIL Petitioners take the position that section 504(e) makes the section 163 increments directly applicable to temporary sources. *See id*. at 30-31. The plain language of section 163, however, is to the contrary. It provides that "each applicable implementation plan shall contain measures assuring that maximum allowable increases over baseline concentrations [i.e., increments] * * * shall not be exceeded." CAA § 163(a), 42 U.S.C. § 7473(a). Moreover, the text of section 161, which establishes implementation plan requirements, provides that such plans "shall contain emission limitations and such other measures as may be necessary * * * to prevent significant deterioration of air quality." CAA § 161, 42 U.S.C. § 7471.

Increments, in other words, are not directly imposed by section 504(e). Instead, they must be implemented (i.e., applied to a source) through either of two means: (1) a state implementation plan, per section 161 and 40 C.F.R. § 51.166(a)(1); or (2) the PSD major source permitting program, per section 165(a)(3)(A) and 40 C.F.R. § 52.21. *See* RTC at 103-04. Thus, while section 504(e) can serve as the direct source of NAAQS compliance requirements and other CAA requirements for temporary sources (*see infra* note 44 and accompanying text), it only imposes PSD increment requirements to the extent such requirements are "applicable" to the source.

Finally, REDOIL Petitioners also suggest that the State of Alaska's operating permit regulations are "more lenient" than the federal regulations because they do not require PSD minor sources to demonstrate compliance with PSD increments as a preconstruction condition. REDOIL Petition at 27-28. Noting that the Alaska rules apply to sources on the inner OCS only, and not on the outer OCS, REDOIL Petitioners suggest that the purportedly more stringent federal operating permit rules in effect on the outer OCS require temporary sources situated on the outer OCS to demonstrate compliance with PSD increments. *Id*. at 28 (citing 40 C.F.R. §§ 71.2, 71.6(e)). REDOIL Petitioners claim, therefore, that Shell must conduct, at the very least, a PSD increment analysis for the *Kulluk*'s authorized locations on the outer OCS. *Id*.

This argument reveals a misunderstanding of the Region's discussion of relevant legal requirements on the inner versus outer OCS. In the Response to Comments, the Region explained:

> In this case, the requirements for Title V temporary sources in the inner OCS and outer OCS off of Alaska are the same because Alaska has adopted EPA's Part 71 rules

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

> with respect to Title V temporary sources by reference for application onshore and Region 10 has in turn adopted these requirements into the [Corresponding Onshore Area] regulations for application in the inner OCS.

RTC at 109. As the Region explained, PSD increments are not applicable to any temporary minor sources, wherever they might be located on the OCS, *unless* a state exercises its discretion to require minor source compliance with such increments. A state, of course, has limited jurisdiction, and its authority does not extend beyond its borders. *E.g.*, CAA § 107(a), 42 U.S.C. § 7407(a) ("[e]ach [s]tate shall have the primary responsibility for assuring air quality within the entire geographic area comprising such [s]tate"). That would mean, therefore, that in the outer OCS or other places where only federal operating permit rules apply, PSD increments would not be applicable to temporary minor sources, *unless* federal OCS regulations required it or EPA chose to add increment compliance obligations under 40 C.F.R. § 55.13(h)[42] once the source becomes operational. *See* RTC at 109. REDOIL Petitioners fail to squarely confront this legal landscape, which results in a failure to demonstrate how the Region's interpretation is clearly erroneous. *See, e.g.*, *In re Teck Cominco Alaska, Inc.*, 11 E.A.D. 457, 494-95 (EAB 2004) (burden of demonstrating review is warranted rests with the petitioner, who must raise objections to the permit and explain why the permit issuer's previous response to those objections is clearly erroneous or otherwise warrants review); *In re Westborough*, 10 E.A.D. 297, 305, 311-12 (EAB 2002) (same).

b. *REDOIL Petitioners Mischaracterize the Title V Regulatory Scheme*

REDOIL Petitioners' notion that "applicable increment requirements" in section 504(e) mean "applicable to the *area*" rather than "applicable to the *source*" is not supported by the Title V regulatory model as a whole. A Title V permit for a temporary source to operate at multiple locations must include, among other things, "[c]onditions that will assure compliance with all applicable requirements at all authorized locations." 40 C.F.R. §§ 70.6(e)(1), 71.6(e)(1). Broadly speaking, the Board has recognized that "'[a]pplicable requirement' is a term of art in the Title V program that, in general, refers to any substantive requirement that applies to an *emissions source* under any CAA regulatory provisions." *Peabody*,

---

[42] This OCS-specific regulation provides:

> If the Administrator determines that additional requirements are necessary to protect [f]ederal and [s]tate ambient air quality standards or to comply with part C of title I, such requirements will be incorporated in this part.

40 C.F.R. § 55.13(h).

12 E.A.D. at 28 n.14 (emphasis added) (citing 40 C.F.R. § 71.2). Further, the regulations implementing the federal Title V program provide that "[a]pplicable requirement means all of the following as they apply to *emissions units in a part 71 source*." 40 C.F.R. § 71.2 (emphasis added). In turn, the term "emissions unit" means "any part or activity of a *stationary source* that emits or has the potential to emit any regulated air pollutant." *Id*. (emphasis added).

Accordingly, the Region's interpretation of the term "applicable" in section 504(e) as meaning "applicable to the source" is consistent with the Agency's Title V regulations, in which applicability is determined by reference to the *source*, not the *area*. REDOIL Petitioners fail to present legal authorities supporting their own novel view of applicability in a way sufficient to demonstrate that the Region's different approach is clearly erroneous.

c. *REDOIL Petitioners Confuse Air Quality Management Obligations with Permitting Obligations*

REDOIL Petitioners argue that the Region's interpretation of section 504(e) should be rejected because it is inherently inconsistent. REDOIL Petition at 31-32. On the one hand, REDOIL Petitioners note, the Region explicitly recognized that the *Kulluk* will consume a portion of the available PSD increments in its authorized drilling areas, but the Region nonetheless refused to impose preconstruction increment compliance requirements in the Title V permit, finding them "inapplicable." RTC at 102, 105-06. On the other hand, the Region acknowledged that after the *Kulluk* becomes operational, it might be necessary to impose increment-related restrictions; i.e., increments would be "applicable." In the Response to Comments, the Region stated:

> If, at any time after the *Kulluk* begins operation under its Title V/OCS permit, Region 10 determines that the actual emissions increases from the permitted OCS source cause or contribute to an increment violation, Region 10 has authority to adopt additional requirements to ensure that increments are not violated.

Id. at 106 (footnote omitted). REDOIL Petitioners argue that the Region cannot have it both ways, contending on this basis that the Region's interpretation should not be sustained. REDOIL Petition at 32.

The Board perceives no conflict between the Region's purportedly "inconsistent" positions on increment applicability. As the Region noted in its Response to Comments, EPA has authority, separate and apart from section 504(e) and the preconstruction programs, to address violations of increment standards that might arise once sources become operational. *See* RTC at 106 (citing CAA §§ 301, 328, 42 U.S.C. §§ 7601, 7627; 40 C.F.R. § 55.13(h)). Moreover, states have authority

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

to revise their implementation plans to adopt emission limits and other remedial control measures in cases where existing controls are not adequately protecting air quality increments. 40 C.F.R. § 51.166(a)(3), *cited in* RTC at 106.[43] REDOIL Petitioners confuse permitting obligations with ongoing air quality management obligations, but the two are distinct. *See* RTC at 105-06. Simply positing that the Region's view of "applicable" increments is inconsistent is not sufficient to overcome the specific statutory and regulatory authority the Region references in support of its position. The Board therefore finds no showing of clear error justifying a remand on this ground.

d. *REDOIL Petitioners Misconstrue the Regulations*

The Agency's Title V implementing regulations for state and federal operating permit programs closely parallel the language of section 504(e). *Compare* CAA § 504(e), 42 U.S.C. § 7661c(e), *with* 40 C.F.R. §§ 70.6(e), 71.6(e). The regulations define "applicable requirement" for Title V purposes as (among other things): "(2) [a]ny term or condition of any preconstruction permits" issued under parts C or D of title I; and "(13) [a]ny [NAAQS] or increment or visibility requirement under part C of title I of the Act, but only as it would apply to temporary sources permitted pursuant to section 504(e) of the Act." 40 C.F.R. §§ 70.2, 71.2. REDOIL Petitioners argue on appeal, as commentors did on the draft permit, that the Region's interpretation of "applicable requirement" improperly reads the thirteenth requirement out of the regulations by subsuming it within the second requirement. REDOIL Petition at 33-34.

The Region explained in the Response to Comments why this was not so. *See* RTC at 107-08. The Region stated that "the intent of the Title V temporary source provisions is to relieve sources of the burden of applying for Title V permits for each new location, while at the same time[] assuring compliance with all requirements to which the source would be subject if it were a new [permanent] source at each such new location." *Id*. at 108. For a temporary source that is also a PSD major source, this would include ensuring that the NAAQS and increment standards are met at each future location – a requirement that, the Region pointed out, would exceed the requirements otherwise applicable to the source under the

---

[43] This state implementation plan regulation provides, in relevant part:

> If the [s]tate or the Administrator determines that a[n implementation] plan is substantially inadequate to prevent significant deterioration or that an applicable increment is being violated, the plan shall be revised to correct the inadequacy or the violation.

40 C.F.R. § 51.166(a)(3). The regulations also provide, in the next subsection, that the state "shall review the adequacy of a[n implementation] plan on a periodic basis and within 60 days of such time as information becomes available that an applicable increment is being violated." *Id*. § 51.166(a)(4).

SR 0876

PSD program alone.[44] *Id*. at 107. For a temporary source that is also a PSD minor source, this would include ensuring that the NAAQS and, if required under the implementation plan for minor permanent sources, PSD increment standards are met at each future location, even if the implementation plan did not require such a demonstration for temporary minor sources. *See id*. at 107-08; Region Response at 12.

REDOIL Petitioners fail to meaningfully confront the Region's reasoning on this issue or demonstrate why it is clearly erroneous. Instead, REDOIL Petitioners reference an irrelevant minor permit modification provision (40 C.F.R. § 71.7(e)(1)(i)(A)(3)), rather than a minor source provision, as support for their position. REDOIL Petition at 34. REDOIL Petitioners also suggest that the Title V permitting regulations in sections 70.6(e) and 71.6(e) establish a more expansive regulatory program than the one the Region finds present in section 504(e); indeed, one that would even be broad enough to require the *Kulluk* to demonstrate PSD increment compliance. *Id*. at 33. The Board finds otherwise, in light of the fact that sections 70.6(e) and 71.6(e) are expressly limited by a reference to section 504(e) itself and therefore cannot expand the meaning of the statute. *See* RTC at 107-08.

4. *Increment Section Conclusion*

The Board has carefully examined each of REDOIL Petitioners' increment-related arguments and determined that none have merit. Petitioners' burden is to show clear error, but REDOIL Petitioners have failed in all instances to achieve this standard. The Board therefore denies review of the Permit on this ground.[45]

C. *REDOIL Petitioners Failed to Raise Below Their Contention That Shell's Ambient Air Quality Analysis Was Flawed in That It Failed to Conform to Applicable Agency Guidance*

On February 9, 2010, EPA published in the Federal Register a final rule (effective April 12, 2010) revising the primary NO_2 NAAQS "in order to provide requisite protection of public health as appropriate under section 109 of the Clean Air Act." Primary NAAQS for NO_2, 75 Fed. Reg. 6474, 6475 (Feb. 9, 2010); *see also Shell 2010*, 15 E.A.D. at 149-50 & n.74. This rule set the new 1-hour NO_2

[44] As such, the NAAQS and PSD increment requirements for future locations would be "additional" requirements imposed on the temporary source by section 504(e). RTC at 107-08.

[45] In light of the Board's decision to uphold the Region's interpretation of section 504(e) and the implementing regulations, the Board need not reach REDOIL Petitioners' final argument, which challenges the Region's finding that air quality modeling establishes the *Kulluk*'s emissions will not violate the PSD increments.

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

NAAQS standard (hereinafter "the 1-hour NO_2 NAAQS") at 100 parts per billion ("ppb") to supplement the existing annual standard, set at 53 ppb. 75 Fed. Reg. at 6475. EPA regulations specify how attainment of the standard is to be calculated, providing that the 100 ppb standard is met "when the annual 98th percentile of the daily maximum 1-hour average concentration is less than or equal to 100 ppb, as determined in accordance with Appendix S of this part for the 1-hour standard." 40 C.F.R. § 50.11(f). This calculation is sometimes referred to as "the form."[46] *See* 75 Fed. Reg. at 6477 n.5, 6492-93. The 100 ppb standard reflects the maximum allowable NO_2 concentrations anywhere in an area. *Id*. at 6493, 6502. EPA has issued guidance clarifying procedures for demonstrating compliance with the new 1-hour NO_2 NAAQS. *See* REDOIL Petition Ex. 16 (Memorandum from Stephen D. Page, Dir., Office of Air Quality Planning & Standards, U.S. EPA, to Reg'l Air Dirs., U.S. EPA, *Guidance Concerning the Implementation of the 1-Hour NO_2 NAAQS for the Prevention of Significant Deterioration* (June 29, 2010) ("Page Memo"));[47] Memorandum from Tyler Fox, Leader, Air Quality Monitoring Grp., Office of Air Quality Planning & Standards, U.S. EPA, to Reg'l Air Dirs., U.S. EPA, *Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-Hour NO_2 National Ambient Air Quality Standard* (Mar. 1, 2011) ("Fox Memo") (A.R. BB-83).

REDOIL Petitioners assert that Shell's ambient air quality analysis was flawed.[48] In particular, REDOIL Petitioners state that in "identifying the Kulluk's

---

[46] The 98th percentile form corresponds approximately to the 7th or 8th highest daily maximum concentration in a year. 75 Fed. Reg. at 6492.

[47] According to the Page Memo, the guidance was issued in response to reports that sources were modeling potential violations of the 1-hour NO_2 NAAQS. Page Memo at 1. The Memo states that "[t]o respond to these reports and facilitate the PSD permitting of new and modified major stationary sources, we are issuing the attached guidance in the form of two memoranda." *Id.* The attached memoranda are titled "General Guidance for Implementing the 1-hour NO_2 National Ambient Quality Standard in Prevention of Significant Deterioration Permits, Including an Interim 1-hour NO_2 Significant Impact Level" and "Applicability of Appendix W Modeling Guidance for the 1-hour NO_2 National Ambient Air Quality Standard." *Id*. at 1-2. Although the Page Memo attaches these two memoranda, the Memo is consecutively numbered as a single document.

[48] In order to establish compliance with the NAAQS and PSD increments, permit applicants must conduct an "ambient air quality analysis," which applicants must prepare under the permitting rules for each regulated pollutant their proposed facilities will emit in "significant" amounts. 40 C.F.R. § 52.21(b)(23)(i), (m)(1)(i). This analysis predicts a pollutant's future concentration in the ambient air by modeling a proposed facility's expected emissions of the pollutant against the backdrop of existing ambient conditions. To conduct an air quality analysis, a permit applicant compiles data on the proposed facility's physical specifications and anticipated emission rates, local topography, existing ambient air quality, meteorology, and related factors. *See*, *e.g.*, *id.* § 52.21(l), (m); *id*. pt. 51 app. W (Guideline on Air Quality Models); *In re Knauf Fiber Glass, GmbH*, 8 E.A.D. 121, 145-48 (EAB 1999); *NSR Manual* at C.16-.23, .31-.50. These data are then processed using mathematical models that calculate the rates at which pollutants are likely to disperse into the atmosphere under various climatological conditions, with the goals of determining whether emissions from the proposed source will cause or

Continued

98th percentile cumulative impact – *i.e.*, the Kulluk's impact added to background levels of pollutants – for comparison to the 1-hour NO_2 standard, Shell used an approach that the Region admits is 'less conservative.' More specifically, Shell used background values that were already adjusted to the 98th percentile, instead of basing its calculations on the full distribution of background values." REDOIL Petition at 38 (footnote omitted). According to REDOIL Petitioners, this method for demonstrating compliance with the 1-hour NAAQS was rejected in the Page Memo as "not being protective of the [NAAQS]." *Id*. at 38-39 (quoting Page Memo at 18). REDOIL Petitioners then cite to a portion of the more recent Fox Memo which, according to them, allows for the method Shell used to calculate background values. *Id*. at 39. That is, the Fox Memo states that the approach used in the Page Memo was overly conservative and should not be used in certain cases. *Id*. (citing Fox Memo at 17-20). REDOIL Petitioners assert that the Region allowed Shell to demonstrate compliance with the form of the 1-hour NAAQS using the approach permitted in the Fox Memo without providing an explanation as to why the determination in the Page Memo was incorrect. *Id*. at 40. REDOIL Petitioners argue that "[b]ecause neither EPA nor the Region provided any explanation about whether and, if so, how, its earlier conclusion [in the Page Memo] that the use of the 98th percentile background values is 'not protective' of the national ambient air quality standard was incorrect, EPA's new guidance and the approach taken by the Region here in reliance on it are arbitrary." *Id*. (quoting Page Memo at 17-20). REDOIL Petitioners contend that the Region had an obligation to explain this "departure from its prior analysis." *Id*. at 40-41.

Upon examination of the record, the Board concludes that this issue was not adequately raised during the comment period and was therefore not preserved for review. As stated above, the regulations require any person who believes that a permit condition is inappropriate to raise "all reasonably ascertainable issues and * * * all reasonably available arguments supporting [petitioner's] position" during the comment period on the draft permit. 40 C.F.R. § 124.13. That requirement is made a prerequisite to appeal by 40 C.F.R. § 124.19(a), which requires any petitioner to "demonstrat[e] that any issue[] being raised [was] raised during the public comment period * * * to the extent required[.]". *In re ConocoPhillips Co.*, 13 E.A.D. 768, 800-01 (EAB 2008); *accord In re Christian Cnty. Generation, LLC*, 13 E.A.D. 449, 457 (EAB 2008); *Shell 2007*, 13 E.A.D. at 394 n.55.

The requirement that an issue must have been raised during the public comment period in order to preserve it for review is not an arbitrary hurdle placed in the path of potential petitioners. *Russell City II*, 15 E.A.D. at 10; *In re City of Marlborough*, 12 E.A.D. 235, 244 n.13 (EAB 2005), *appeal dismissed for lack of*

(continued)
contribute to a violation of either the NAAQS or the PSD increments. *See* 40 C.F.R. § 52.21(f); *id*. pt. 51 app. W; *NSR Manual* at C.24-.27, .51-.70.

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

juris., No. 05-2022 (1st Cir. Sept. 30, 2005); *In re BP Cherry Point*, 12 E.A.D. 209, 219 (EAB 2005). Rather, the requirement serves an important function related to the efficiency and integrity of the overall administrative permitting scheme. *Marlborough*, 12 E.A.D. at 244 n.13. The intent of the rule is to ensure that the permitting authority first has the opportunity to address permit objections and to give some finality to the permitting process. *Id.*; *In re Sutter Power Plant*, 8 E.A.D. 680, 687 (EAB 1999). As the Board has explained, "[t]he effective, efficient and predictable administration of the permitting process demands that the permit issuer be given the opportunity to address potential problems with draft permits before they become final." *In re Teck Cominco*, 11 E.A.D. 457, 481 (EAB 2004) (quoting *In re Encogen Cogeneration Facility*, 8 E.A.D. 244, 250 (EAB 1999)). "In this manner, the permit issuer can make timely and appropriate adjustments to the permit determination, or, if no adjustments are made, the permit issuer can include an explanation of why none are necessary." *In re Essex Cnty. (N.J.) Res. Recovery Facility*, 5 E.A.D. 218, 224 (EAB 1994).

Although REDOIL Petitioners' comments on the draft permit asserted that Shell had used background ambient air data in a manner that understated the impact of its operations, *see* REDOIL Comments at 9-11, nowhere in these comments did Petitioners assert that Shell's approach conflicted with the Page Memo or that the Region had any obligation to provide an explanation for its alleged departure from the Page Memo. Indeed, REDOIL Petitioners' comments recognized that, according to the Fox Memo, Shell's approach is appropriate in some circumstances. *Id*. at 11. The comments, however, did not assert any conflict between the Page Memo and the Fox Memo nor is it clear to this Board that any such conflict exists. Thus, this "battle of the memos" issue was not preserved for review.[49] *See Shell Discoverer 2012*, 15 E.A.D. at 507.

---

[49] *See Teck Cominco*, 11 E.A.D. at 481-82 (denying review where issue was not specifically raised during the comment period). The Board notes that the issue REDOIL Petitioners did raise during the comment period was fully and adequately addressed in the Region's Response to Comments. Specifically, in commenting on the draft permit, REDOIL Petitioners raised the argument that Shell had failed to demonstrate compliance with the 1-hour NO_2 NAAQS because, according to REDOIL Petitioners, Shell used background ambient air data in a manner that understated the impact of its operations. REDOIL Comments at 10-11. As stated above, REDOIL Petitioners' comments recognized that Shell's approach to analyzing background data was consistent with the Fox Memo, but argued that Shell's approach was inconsistent with the 1-hour NO_2 NAAQS standard itself. *Id*. at 11. The Region provided a detailed response to this assertion in the Response to Comments. RTC at 74-78. Nothing in the REDOIL Petition indicates why the Region's response on this issue was erroneous or otherwise warrants Board review, nor does the Board find anything erroneous in the Region's response. Thus, even if Petitioners had preserved this issue, the Board would deny review. *See, e.g., In re Guam Waterworks Auth.*, 15 E.A.D. 437, 450 (EAB 2011) (stating that "a petitioner may not simply reiterate comments made during the public comment period, but must substantively confront the permit issuer's explanations in its response to comments document"); *In re Peabody W. Coal Co.*, 12 E.A.D. 22, 33 (EAB 2005) (same).

SR 0880

D. *REDOIL Petitioners Have Not Demonstrated That the Region Clearly Erred in Its Ambient Air Exemption Determination*

REDOIL Petitioners allege that the Region clearly erred in exempting the area within a 500 meter radius from the *Kulluk* from the definition of "ambient air."[50] REDOIL Petition at 15. This area is also referred to throughout the record as the United States Coast Guard ("USCG") "safety zone." *See*, *e.g.*, RTC at 52-54. REDOIL Petitioners claim that the Region's decision "contravenes both EPA's definition of 'ambient air' as well as EPA's longstanding interpretation of that regulation." REDOIL Petition at 16. In particular, they assert that the Region's 500 meter ambient air boundary fails to meet either of the two criteria the Agency has previously used in evaluating the appropriateness of an exemption. *Id*. at 16-18. According to REDOIL Petitioners, the Region's decision essentially allows Shell to emit more pollution, and possibly with fewer controls, than would otherwise be lawful.[51] *Id*. at 15-16.

The CAA regulations define "ambient air" as "that portion of the atmosphere, external to buildings, to which the general public has access." 40 C.F.R. § 50.1(e). Based on this definition, the Agency has, on occasion, exempted certain areas from the definition of ambient air. *E.g.*, Letter from Steven C. Riva, Chief, Permitting Sec., U.S. EPA Region 2, to Leon Sedefian, Air Pollution Meteorologist, N.Y. State Dep't of Env't Conservation, at 1-2 (Oct. 9, 2007) (A.R. BB-19) [hereinafter Broadwater Letter]; Letter from Douglas M. Costle, Adm'r, U.S. EPA, to Sen. Jennings Randolf, Chairman, Env't & Pub. Works Comm., at 1 (Dec. 19, 1980) (A.R. BB-1) [hereinafter Costle Letter]; *see also* Letter from Nancy Helm, Fed. & Delegated Air Programs, U.S. EPA, to John Kuterbach, Alaska Dep't of Envtl. Quality, at 2 (Sept. 11, 2007) (area exempt if certain conditions met) [hereinafter Helm Letter]. The parties agree that the Agency's "longstanding interpretation" of this exemption is set forth in a letter signed by former EPA Administrator Douglas Costle, which states that "the exemption from ambi-

---

[50] For an area that is not considered within the definition of "ambient air," Shell would not have to demonstrate compliance with the NAAQS. *See* CAA §§ 109(b), 160, 163, 42 U.S.C. §§ 7409(b), 7470,7473 (NAAQS apply to areas meeting the definition of ambient air); 40 C.F.R. § 50.1(e) (definition of "ambient air"); *In re Hibbing Taconite Co.*, 2 E.A.D. 838, 848 & nn.23-24 (Adm'r 1989); RTC at 53.

[51] REDOIL Petitioners additionally argue that, should the Region's response contain a "natural physical feature" argument similar to an argument the Region raised in its response brief in *Shell Discoverer 2012*, the Board should consider such an argument a "*post hoc* rationalization" and should disallow it. REDOIL Petition at 19; *see also Shell Discoverer 2012*, 15 E.A.D. at 510 n.52 (discussing this issue). REDOIL Petitioners also reserve the right to request leave to file a reply brief addressing this issue. REDOIL Petition at 19. Unlike the situation in *Shell Discoverer 2012*, the Board does not find that the Region's response brief contains an explanation that is clearly different than the rationale set forth in the Response to Comments. Moreover, REDOIL Petitioners do not raise this particular issue in their reply brief. Consequently, the Board does not consider REDOIL Petitioners' "post hoc rationalization" argument further.

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

ent air is available only for the atmosphere over land owned or controlled by the source and to which the public access is precluded by a fence or other physical barriers." Costle Letter at 1; REDOIL Petition at 16 (quoting same letter); Region Response at 29-30 (referring to same letter); Shell Response at 26-27 & n.27 (same); *see also* RTC at 51 (same). The Costle Letter also indicates that, in determining whether the exemption applies, the Agency reviews "individual situations on a case-by-case basis." Costle Letter at 1; *see also* Approval and Promulgation of State Implementation Plans, 50 Fed. Reg. 7056, 7057 (Feb. 20, 1985) (noting that, in considering ambient air exemptions, "individual variations in the type of land and nature of the limitation on access necessitate a case-by-case evaluation of the facts, and application of the principles involved in this determination").

Here, in its permitting decisions, the Region determined that, as long as certain permit conditions were being met, it was appropriate to set the ambient air boundary at a 500 meter radius from the *Kulluk*, or, in other words, the 500 meter radius "safety zone" was exempt from the ambient air definition. RTC at 51-52; *see also* Statement of Basis at 40. The terms and conditions upon which the Region relied to exempt this area prohibit the operation of vessels and emissions units unless (1) the USCG establishes a safety zone within at least 500 meters from the center of the *Kulluk*, (2) members of the public are precluded from entering the safety zone, and (3) Shell develops and implements a "public access control program."[52] Permit at 42-43. The Region determined that, as long as these safety zone and public access restriction permit conditions are complied with, ex-

---

[52] The precise terms and conditions of the Permit are as follows:

The permit does not authorize operation unless:

> 5.1.1. The Kulluk is subject to a currently effective safety zone established by the [USCG] which encompasses an area within at least 500 meters from the hull of the Kulluk and which prohibits members of the public from entering this area except for attending vessels or vessels authorized by the USCG (such area shall be referred to as the "Safety Zone"); and
>
> 5.1.2. The permittee has developed in writing and is implementing a public access control program to:
>
> 5.1.2.1. Locate, identify, and intercept the general public by radio, physical contact, or other reasonable measures to inform the public that they are prohibited by Coast Guard regulations from entering the Safety Zone; and
>
> 5.1.2.2. Communicate to the North Slope communities on the Beaufort Sea on a periodic basis when exploration activities are expected to begin and end at a drill site, the location of the drill site, and any restrictions on activities in the vicinity of the Kulluk's exploration operations.

Permit at 42-43.

empting the area within the safety zone from the ambient air definition would generally be consistent with previous Agency interpretations. RTC at 51-52. In so finding, the Region noted that "[g]iven that the permitted activities occur over open water in the Arctic, the[] criteria [for exemption included in the Costle Letter] must be adapted to some extent when applied to this environment." *Id*. In specifically considering the applicability of the two exemption criteria, the Region stated:

> Region 10 recognizes that Shell does not "own" the areas of the Beaufort Sea on which the Kulluk will be operating as might be the case for a stationary source on land. Shell has a lease authorizing the company to use these areas for the activities covered by the permits. A Coast Guard safety zone establishes legal authority for excluding the general public from the area inside the zone. EPA has previously recognized a safety zone established by the Coast Guard as evidence of sufficient ownership or control by a source over areas over water so as to qualify as a boundary for defining ambient air where that safety zone is monitored to pose a barrier to public access. Letter from Steven C. Riva, EPA Region 2, to Leon Sedefian, New York State Department of Conservation, re: Ambient Air for the Offshore LNG Broadwater Project, dated October 9, 2007 (Broadwater Letter).
>
> To meet the second of the criteria applied by EPA and ensure the source actually takes steps to preclude public access, Shell proposed and Region 10 required as a condition of operation under the permits that Shell develop in writing and implement a public access control program to locate, identify, and intercept the general public by radio, physical contact, or other reasonable measures to inform the public that they are prohibited by Coast Guard regulations from entering the area within 500 meters of the hull of the Kulluk. Region 10 believes that, for the overwater locations in the arctic environment at issue in these permitting actions, such a program of monitoring and notification is sufficiently similar to a fence or physical barrier on land such that the area within the Coast Guard safety zone qualifies for exclusion from ambient air. *See* Broadwater Letter at 2.

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

RTC at 52.[53]

Upon consideration of the administrative record and the parties' arguments, the Board concludes that Petitioners have not shown that the Region clearly erred in its decision to exempt the area within the USCG safety zone from the definition of "ambient air." The Region, in its Response to Comments, provided a reasonable interpretation of the ambient air regulation and the Agency's "longstanding interpretation" of that regulation as applied in the OCS context.[54] Furthermore, the Region's analysis was entirely consistent with a similar analysis undertaken by Region 2 in which that Region determined that it was appropriate for a permittee to use the USCG safety zone to define an ambient air boundary around a proposed offshore liquefied natural gas facility. *See* Broadwater Letter at 2. The Broadwater Letter, moreover, suggests that Region 2's analysis, as well as Region 10's, is not unique, stating that "*[i]n previous permitting decisions involving * * * drilling operations, EPA Regional offices have used the USCG's safety zone as the boundary for defining ambient air*." *Id*. at 2 (emphasis added). The letter explains that the Agency has found that "[t]he 'safety zone' approach represents a reasonable surrogate for a source's fence or physical barrier and thus could act as an ambient air boundary." *Id*.

Thus, while it is true, as Petitioners allege, that the Agency has generally required the source to own or control access over the area in question for that area to meet the first criterion, REDOIL Petition at 16-17, this requirement has been limited to sources located on land.[55] *See, e.g.,* Helm Letter at 1 (referring to possi-

---

[53] REDOIL Petitioners also seem to suggest that the Region's approach is flawed because it "is based upon an assumption that Shell will request, and the [USCG] will establish, a safety zone restricting the passage of other vessels." REDOIL Petition at 15 & n.45. This argument is unpersuasive because it fails to recognize that, as the permit conditions quoted in note 52 state, operation is prohibited unless these two conditions are met. *See* Permit at 42-43.

[54] As the Region rightly noted, *see* RTC at 51-52, the regulation and the Costle Letter, by their very terms, were clearly written with overland situations in mind. *See* 40 C.F.R. § 50.1(e) (referring to "buildings"); Costle Letter at 1 (referring to "land" and "fences").

[55] In support of their contention, REDOIL Petitioners rely on a previous Agency determination that leased property could not be exempted from the definition of ambient air because the lessee did not have control over access to its leased property (only the landlord did). REDOIL Petition at 17 & n.52 (citing Helm Letter). Petitioners assert that this onshore interpretation must apply equally to an OCS lease BOEMRE issued. *Id*. As the Petitioners themselves note, federal courts have found agency action to be arbitrary when the agency's "explanation 'runs counter to the evidence,'" *id*. at 17 (quoting *Motor Vehicle Mfrs. Ass'n of the U.S., Inc. v. State Farm Mut. Auto Ins. Co.*, 463 U.S. 29, 43 (1983)), and "'the agency offer[s] insufficient reasons for treating similar situations differently,'" *id*. (quoting *Transactive Corp. v. United States*, 91 F.3d 232, 237 (D.C. Cir. 1996)); *see also FCC v. Fox Television Stations, Inc*., 556 U.S. 502, 514-15, 129 S.Ct. 1800, 1810-11 (2009) (discussing standard of review of an agency's policy change). Here, not only are the situations dissimilar enough to arguably not be governed by these cases, but the Agency did offer persuasive reasons for treating the two situations differently.

ble exemption near coal-fired power plant); Memorandum from Steven D. Page, Director, Office of Air Quality Planning & Standards, U.S. EPA, to Reg'l Air Div. Dirs., U.S. EPA, *Interpretation of "Ambient Air" in Situations Involving Leased Land Under the Regulations for the Prevention of Significant Deterioration (PSD)* (June 22, 2007) (A.R. B-26) (discussing the applicability of the exemption where a source is located on "land" leased to them by another source). The Region (and the Agency before it) reasonably determined that application of the regulation and the interpretive letter to an "overwater" situation requires some leeway. REDOIL Petitioners' reliance solely on land-based exemption decisions is thus unpersuasive.[56] Finally, as mentioned above, the Agency has consistently taken the position that ambient air exemption determinations are analyzed on a case-by-case basis.

For all the reasons stated above, REDOIL Petitioners have not shown that the Region clearly erred in its ambient air exemption determination.[57] Consequently, review of the Permit based on this issue is denied.

E. *ICAS and Mr. Lum Have Not Demonstrated That the Region Failed to Satisfy Its Obligation to Comply with Executive Order 12898 and Applicable Board Precedent*

ICAS and Mr. Lum argue that the Region's environmental justice analysis lacked a valid basis on which to conclude that Shell's oil exploration activities in the Beaufort Sea will not have a disproportionately high and adverse effect on the health of the Alaska Native population living on the North Slope. ICAS alleges that the Region's environmental justice analysis fails to account for the impacts of short-term NO_2 and ozone exposures on the Alaska Native population residing on the North Slope, and also asserts that the opportunities for public participation were inadequate. Mr. Lum challenges the lack of analysis regarding the impacts

---

[56] REDOIL Petitioners' arguments that the Region's determination fails to meet the second criteria because the safety zone "fails to effectuate a barrier that 'precludes' public access" are equally unpersuasive. REDOIL Petition at 17. REDOIL Petitioners focus on the fact that the USCG will limit access to the area based on safety concerns rather than for air quality considerations. *Id*. at 17-18. The important fact is that access within the zone will be strictly limited, not the reason behind it. Moreover, REDOIL Petitioners do not address the other condition of the permit that the Region relied upon for its ambient air boundary determination: the public access control program Shell is required to implement. The Board does not find clear error in the Region's conclusion that, based on the USCG limiting access to the safety zone and the permittee implementing a public access control program, the latter of which will include notification to the local residents of the location of the drilling and the fact that the public is restricted from the safety zone, the general public will be denied access to the area inside the safety zone.

[57] The Board came to the same conclusion in *Shell Discoverer 2012*. *See* 15 E.A.D. at 513-14. In that case, the Region had adopted and followed the same or a very similar interpretation as described in the text above. *See id.* 15 E.A.D. at 511-13. Nothing REDOIL Petitioners offer in the present case convinces the Board that anything in the prior analysis – and reiterated here – was in error.

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

emissions from Shell's activities in the Beaufort Sea could have on traditional subsistence food sources and also challenges Shell's oil spill response capabilities. The Region counters that its environmental justice analysis and resulting conclusions comply with Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations" ("Executive Order"). The issue the Board must resolve is: did the Region satisfy its obligation to comply with the Executive Order and applicable Board precedent?

The Executive Order states in relevant part:

> *Agency Responsibilities.* To the greatest extent practicable and permitted by law, and consistent with principles set forth in the report on the National Performance Review, each Federal agency shall make achieving environmental justice a part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations * * * .

Exec. Order 12898, 59 Fed. Reg. 7629, 7629 (Feb. 11, 1994) (A.R. FF-1). Federal agencies are required to implement the Executive Order "consistent with, and to the extent permitted by, existing law." *Id.* at 7632. The Board has held that a permit issuer should exercise its discretion to examine any "superficially plausible" claim that a minority or low-income population[58] may be disproportionately affected by a particular facility seeking a PSD permit. *In re EcoEléctrica, LP*, 7 E.A.D. 56, 69 n.17 (EAB 1997); *accord Shell 2010*, 15 E.A.D. at 148-49 & n.71 (citing PSD cases).

At the outset, the Board notes that both ICAS and Mr. Lum recently challenged the Region's environmental justice analysis in *Shell Discoverer 2012*. *See* 15 E.A.D. at 493-501. In addition, the environmental justice analysis the Region prepared in the current matter is reminiscent of the environmental justice analysis prepared for the *Discoverer* permits that were the subject of the Board's *Shell Discoverer 2012* decision. Moreover, while their petitions for review in *Shell Discoverer 2012* and the current appeal are not identical, both ICAS and Mr. Lum raise substantially similar arguments in their current appeals as they did in their appeals of the *Discoverer* permits.[59] *Compare* Lum Petition *with* Eskimo

[58] Under the Executive Order, the Alaska Native population residing on the North Slope qualifies as a minority population. *See* Statement of Basis at 55; ICAS Petition at 30.

[59] ICAS's remaining challenges to the amount and quality of public participation opportunities available pertaining to the environmental justice analysis appear to mirror its more general arguments
Continued

Whaler Petition for Review, *Shell Discoverer 2012* (Doc. No. 24), *and* ICAS Petition *with* ICAS and AEWC Petition for Review, *Shell Discoverer 2012* (Doc. No. 7).

1. *Region's Environmental Justice Analysis*

The Region included a fifteen-page environmental justice analysis in the administrative record to accompany the Permit and to allow for public comment on the analysis. Environmental Justice Analysis for Proposed OCS Permit No. R10 OCS030000 Kulluk Drilling Unit (undated) ("EJ Analysis") (A.R. F-1). The Region's analysis begins with a discussion of environmental justice in the permitting context and notes that "[t]he Title V operating permit program does not generally impose new substantive air quality control requirements."[60] EJ Analysis at 2. In addition, the analysis includes a discussion of how the national ambient air quality standards ("NAAQS") are crafted by integrating scientific information and evidence from rigorously reviewed studies, and a summary of the Board's case law stating that the Board views compliance with the NAAQS as "emblematic of achieving a level of public health protection that, based on the level of protection afforded by the NAAQS, demonstrates that minority or low-income populations will not experience disproportionately high and adverse human health or environmental effects due to exposure to relevant criteria pollutants." *Id.* (quoting *Shell 2010*, 15 E.A.D. at 156) (citations omitted); *see also* Statement of Basis at 54-55.

(continued)
regarding the public participation process. *See* ICAS Petition at 6-10, 38-39. Accordingly, the Board addresses ICAS's challenges to the adequacy of the public participation process, both generally and with respect to the environmental justice analysis, in Parts VI.F and VI.G below.

[60] The Region further explained that:

> [T]he Title V operating permit program is generally a vehicle for ensuring that existing air quality control requirements are appropriately applied to facility emission units and that compliance with these requirements is assured. Accordingly, the primary means of addressing environmental justice issues in the Title V program is through increased public participation and review by permitting agencies, and conditions to assure compliance with applicable requirements. As discussed above, the Title V permit at issue in this case is unusual in that it requires the source, as a Title V temporary source, to meet the NAAQS and also establishes limits on the potential to emit. Region 10 has considered environmental justice concerns in this permitting action where possible in the context of assuring compliance with applicable requirements for the source, in particular assuring compliance with the NAAQS as a Title V temporary source and establishing PSD avoidance limits.

EJ Analysis at 2; *see also* Statement of Basis at 54.

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

The analysis goes on to catalogue the distances between Inupiat communities on the coast of the North Slope that are closest to Shell's lease blocks in the Beaufort Sea, and discusses the importance of subsistence foods obtained through hunting, fishing, and whaling to the Inupiat diet, and more generally the nexus between subsistence activities and Inupiat culture. EJ Analysis at 3, 5. The Region also included an illustration that juxtaposes the location of Shell's lease blocks, including proposed exploration sites, with onshore and offshore subsistence use areas for the northern Inupiat communities.[61] *Id.* at 4; *see also* Statement of Basis at 56.

The Region then proceeded to analyze demographic, health-related, and air quality data.[62] The demographic analysis indicates that 68% of residents living in the North Slope Borough classify themselves as Alaska Natives. EJ Analysis at 7. In addition, nearly half of North Slope residents speak a language other than English at home. *Id.* at 8. The analysis of health data revealed, among other things, that from 1990 to 2007 there has been a 158% rate of increase in the prevalence of diabetes for Alaska Natives residing on the Arctic Slope, whereas during the same time period there has been a 117% rate of increase in the prevalence in diabetes for Alaska Natives statewide.[63] *Id.* at 9. In addition, there is a higher incidence of outpatient visits for respiratory problems ranging from the common cold to pneumonia in the Arctic Slope than in the rest of Alaska. *Id.*

In the air impacts analysis, the Region first noted that the North Slope Borough is currently designated as attainment/unclassifiable for all of the NAAQS, meaning that the North Slope has sufficient data to determine that the area is meeting the NAAQS or that, due to no data or insufficient data, EPA cannot make a determination. *Id.* at 11 & n.15 (citing CAA § 107(d), 42 U.S.C. § 7407(d)). The

---

[61] The analysis also includes, for some of the northern Inupiat communities, the distances residents have reported traveling offshore to hunt for traditional subsistence food sources. *See* EJ Analysis at 6 (noting that Nuiqsut residents have traveled up to 60 miles offshore to the north and as far east as Camden Bay to hunt for bowhead whale and that Kaktovik residents have traveled as far as 35 miles offshore to hunt for bowhead whale and walrus); Statement of Basis at 55; *see also Shell 2010*, 15 E.A.D. at 155 n.80 (noting that subsistence activities, which can take Inupiat residents living on the North Slope far from their local communities and closer to emissions sources, are a potential environmental justice consideration that may be unique to the OCS PSD permitting context); *Shell Discoverer 2012*, 15 E.A.D. at 496 n.32 (same).

[62] The Region used demographic information gathered from the 2000 U.S. Census to compare the population of the North Slope Borough to the populations of both the State of Alaska and the entire United States, which served as reference populations for the demographic analysis. EJ Analysis at 6-8 & n.6. The North Slope Borough consists of the following eight incorporated villages: Point Hope, Point Lay, Wainwright, Atqasuk, Barrow, Nuiqsut, Kaktovik, and Anaktuvuk Pass. *See* Statement of Basis at 55.

[63] The Region utilized data from the Alaska Native Health Status Report 2009, which the Alaska Native Epidemiology Center and the Alaska Native Tribal Health Consortium had prepared to analyze health conditions in the North Slope Borough. *See* EJ Analysis at 8-10 & n.11.

SR 0888

Region then examined the total modeled concentrations of NO_2, particulate matter with a diameter of 10 micrometers or less ("PM_{10}"), particulate matter with a diameter of 2.5 micrometers or less ("$PM_{2.5}$"), SO_2, and CO,[64] including background concentrations and maximum concentrations from the *Kulluk* and the Associated Fleet.[65] *Id.* at 13-14 & tbl.6. The Region compared the total modeled concentrations for each of the three nearest communities while the source is in operation and found that the total maximum modeled concentrations demonstrate that the NAAQS will be attained at all locations beyond the 500-meter boundary, and that the modeled concentrations in the North Slope communities and in areas where the communities conduct subsistence activities will be below the relevant standard.[66] *Id.* at 14. Finally, the Region noted that a majority of the total impacts result from background concentrations. *Id.*

---

[64] The Board notes that the information included in table 5 of the air quality analysis includes modeled impacts in the nearest onshore communities from operation of the *Kulluk* alone, without impacts from the Associated Fleet or background concentrations. EJ Analysis at 12 & tbl.5. The Region explains that the maximum modeled concentrations in Nuiqsut, Deadhorse, and Kaktovik listed in table 5 are all below the significant impact levels ("SILs") established for each criteria pollutant. *Id.* at 12. In the PSD program, SILs function as threshold levels for ambient concentrations of a given pollutant; for a given pollutant and averaging period, any source that has a measured concentration that is below the SIL is considered too small to cause or contribute to a violation of the NAAQS. *Id.*

The Region made clear earlier in the environmental justice analysis that emissions from the Associated Fleet while operating within 25 miles of the *Kulluk*, together with emissions from the *Kulluk*, are considered in conducting an ambient air quality analysis to determine whether emissions from the project will cause or contribute to a violation of the NAAQS. *Id.* at 4. The Region's analysis repeatedly emphasized that compliance with the NAAQS is "emblematic of achieving a level of public health protection" that demonstrates that minority or low-income populations will not experience disproportionately high and adverse human health or environmental impacts due to exposure to relevant criteria pollutants. *Id.* at 4-5 (quoting *Shell 2010*, 15 E.A.D. at 156). While the inclusion of information on modeled impacts of emissions from the *Kulluk* alone on the nearest onshore communities is illustrative regarding the *Kulluk*'s contribution to the overall emissions profile, it is the information that encompasses both background concentrations and emissions from the *Kulluk* and the Associated Fleet when it is within 25 miles of the *Kulluk* that establishes the Region has satisfied its obligation to comply with the Executive Order.

[65] Monitoring data from Prudhoe Bay, Deadhorse, and Endicott were used for background values. EJ Analysis at 13. The Region also noted that the modeled impacts are based on conservative assumptions, including that all four wells are drilled at the same location to account for overlapping plumes, even though the drilling of four wells at a fixed location and the overlap of plumes will not occur. *Id.*

[66] Specifically, the Region noted that in Kaktovik, located 8 miles from Shell's closest lease block in the Beaufort Sea, the total maximum modeled concentrations, assuming Shell's *Discoverer* is in operation and considering background concentrations, are measured at the following percentages of the NAAQS: 11% for the 1-hour NO_2 NAAQS; 20% for the 24-hour $PM_{2.5}$ NAAQS; 35% for the 24-hour PM_{10} NAAQS, and; 20% for the annual $PM_{2.5}$ NAAQS. EJ Analysis at 13-14 & tbl.6. Similarly, in Nuiqsut, located 33 miles from Shell's closest lease block in the Beaufort Sea, and applying the same assumptions, the total maximum modeled concentrations are measured at the following percentages of the NAAQS: 50% for the 1-hour NO_2 NAAQS; 48% for the 24-hour $PM_{2.5}$ NAAQS, 35% for the 24-hour PM_{10} NAAQS, and 26% for the annual $PM_{2.5}$ NAAQS. *Id.*

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

Overall, the Region concluded that Shell's proposed OCS activities in the Beaufort Sea will not result in disproportionately high and adverse human health or environmental effects with respect to Alaska Natives residing on the North Slope, and further, in reaching this conclusion the Region considered the impact on these communities while engaging in subsistence activities in the areas where such activities are regularly conducted. *Id.* at 15. With this background in mind, the Board now turns to the specific assertions both ICAS and Mr. Lum make in support of their arguments that the Region has not complied with its obligation under the Executive Order.

2. *One-Hour NO_2 NAAQS Analysis*

ICAS challenges the Region's consideration of 1-hour NO_2 NAAQS[67] compliance in the environmental justice analysis on several grounds, arguing that it is "insufficient and ignores salient record evidence." ICAS Petition at 34. ICAS asserts that in addition to NO_2 emissions from the *Kulluk* when it is an OCS source and from the Associated Fleet when it is within 25 miles of the *Kulluk*, the Region must also account for mobile source NO_2 emissions that remain unregulated by the Permit when assessing potentially adverse health impacts of NO_2 emissions on North Slope communities. *Id*. at 35-38. In addition, ICAS challenges the Region's "fatal flaw of the environmental justice analysis," namely the failure to *analyze* the impacts of Shell's emissions on residents of the North Slope conducting subsistence activities offshore. *Id.* at 36-37 (emphasis in original). Finally, ICAS challenges the Region's analysis of Shell's 1-hour NO_2 NAAQS compliance based on several technical decisions the Region made. *Id.* at 37-38.

ICAS asserts that the Region's environmental justice analysis is inadequate because it does not account for emissions from mobile sources that are not included in the air quality impact analysis conducted to determine whether emissions from the project will cause or contribute to a violation of the NAAQS. *See id*. at 34 & n.30; EJ Analysis at 4. The Board disagrees.

The Region appropriately determined that it was not required to analyze these mobile source emissions where, as here, the Title V permit did not address mobile source emissions, and the record lacked sufficient data for such an analy-

[67] NAAQS are health based-standards, designed to protect public health with an adequate margin of safety, including sensitive populations such as children, the elderly, and asthmatics. *See In re AES Puerto Rico, L.P.*, 8 E.A.D. 324, 351 (EAB 1999), *aff'd sub nom. Sur Contra La Contaminación v. EPA*, 202 F.3d 443 (1st Cir. 2000), *cited in Shell 2010*, 15 E.A.D. at 149 n.72. The Administrator is required to carry out periodic reviews of the air quality criteria published under section 108 of the CAA, 42 U.S.C. § 7408, as well as the NAAQS, and to revise the criteria and standards as appropriate. CAA § 109(d)(1), 42 U.S.C. § 7409(d)(1). The Board outlined the history of the NO_2 NAAQS reviews in its December 2010 remand order. *See Shell 2010*, 15 E.A.D at 150 nn.73-74.

sis.[68] RTC at 114; Statement of Basis at 54; *see also* EJ Analysis at 2; Region Response at 36 n.34. The Region acknowledged that the Title V permit at issue in this case is unusual in that it requires a temporary Title V source to meet the NAAQS, and the permit also establishes limits on PTE. EJ Analysis at 2; Statement of Basis at 54; RTC at 114. However, the Title V permit does not regulate mobile source emissions.[69]

---

[68] ICAS asserts that the Board should remand the *Kulluk* permit so that the Region can assess mobile source emissions included in Shell's emissions inventory submitted to BOEMRE as part of Shell's Exploration Plan, both because it "shows that the additional emissions estimates are not as hard to obtain as Region 10 implies," and because once the Region assesses the accuracy of the inventory it can "use the information to conduct an EJ analysis that accounts *for all* of Shell's emissions." ICAS Petition at 35 (emphasis in original).

Nowhere in its petition does ICAS acknowledge the Region's statement, in the Response to Comments, that "[t]he Exploration Plan * * * does not include estimates of air emissions from these other vessels during the time they are more than 25 miles from the Kulluk or before the Kulluk becomes an OCS source." RTC at 15. The Board has consistently stated that, in order to sustain its burden of demonstrating that review is warranted, the petitioner must address the permit issuer's responses to relevant comments made during the permit proceeding. *See, e.g.*, *Peabody*, 12 E.A.D. at 33 ("[T]he petitioner may not simply reiterate comments made during the public comment period, but must substantively confront the permit issuer's subsequent explanations.").

Furthermore, ICAS's suggestion that the Region should "compile rough estimates" of these mobile source emissions because "[s]ome additional steps are particularly necessary here" is similarly unavailing. ICAS Petition at 36. ICAS has acknowledged its ongoing concern regarding emissions that are not included in the PTE analysis, along with its efforts to compel Region 10 to consider non-PTE emissions as OCS source emissions in prior appeals to this Board. ICAS Petition at 34. Despite its concerns, ICAS cannot demonstrate that review is warranted where, as here, ICAS offers a generalized objection to the Region's consideration of mobile sources in the environmental justice analysis, and the Region has demonstrated that it lacks sufficient data to reach a determinative conclusion regarding these mobile source emissions in the environmental justice context. *See Avenal*, 15 E.A.D. at 401-02; *see also In re Cape Wind Assocs., LLC*, 15 E.A.D. 327, 330 (EAB 2011) (noting that petitioners "must raise specific objections to the permit"); *In re BP Cherry Point*, 12 E.A.D. 209, 217 (EAB 2005) (same).

[69] In a memorandum addressing environmental justice in the permitting context, the Agency stated:

> Unlike PSD/[New Source Review] permitting, Title V generally does not impose substantive emission control requirements, but rather requires all applicable requirements to be included in a Title V operating permit. * * * Because Title V does not directly impose substantive emissions control requirements, it is not clear whether or how EPA could take environmental justice issues into account in Title V permitting – other than to allow public participation to serve as a motivating factor for applying closer scrutiny to a Title V permit's compliance with applicable CAA requirements.

Memorandum from Gary Guzy, General Counsel, U.S. EPA, to Assistant Administrators, U.S. EPA, *EPA Statutory and Regulatory Authorities Under Which Environmental Justice Issues May Be Addressed in Permitting* 13 (Dec. 1, 2000) (A.R. FF-7).

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

Despite the fact that mobile source emissions are not regulated under the Title V permit, the Region did go beyond its required review to consider mobile source emissions with respect to environmental justice in the Response to Comments. *See* RTC at 114-15. The Region was unable to reach a determinative conclusion with respect to these emissions due to insufficient information.

ICAS's attempt to construe the Executive Order and Board precedent to *require* in this instance the analysis of emissions from mobile sources that the Region may not have accurate or sufficient data to complete in the context of a Title V permit is unpersuasive. Notably, the Board has held that it will decline to review a permit issuer's environmental justice analysis that cannot reach a determinative conclusion due to the insufficiency of available valid data. *See* RTC at 115; *Avenal*, 15 E.A.D. at 401-02 (stating that where a permit issuer conducts a substantive environmental justice analysis that endeavors to include and analyze data that is germane to the environmental justice issue raised during the comment period, and the permit issuer demonstrated it exercised its considered judgment when determining that it cannot reach a determinative conclusion due to the insufficiency of available data, the Board will decline to grant review of the environmental justice analysis). Moreover, "[t]he plain language of the Executive Order imparts considerable leeway to federal agencies in determining how to comply with the spirit and letter of the Executive Order." *Avenal*, 15 E.A.D. at 401. ICAS overreads *Avenal* when it suggests that *Avenal* compels the analysis of these mobile source emissions in the context of this permit. *See* ICAS Petition at 35 ("The Agency has considered mobile emissions previously in its EJ analyses and should be required to do so here." (citing *Avenal*, 15 E.A.D. at 399)).[70]

ICAS's challenge also fails because ICAS never responded to the Region's stated rationale in the administrative record that Title V permits generally do not impose new substantive air quality control requirements. A petitioner cannot sim-

[70] ICAS includes a citation to *Avenal* for the proposition that "motor vehicle emissions are by far the greatest concern," in support of its contention that mobile source emissions should be included in the short-term NO_2 NAAQS assessment included in the environmental justice analysis, but the quote is taken out of context and does not support ICAS's position. *See* ICAS Petition at 35. The circumstances in *Avenal* are markedly different than those in the present case. In *Avenal*, the Agency conducted an environmental justice analysis that focused in particular on short-term NO_2 impacts in support of a PSD permit to build a 600-megawatt power plant. 15 E.A.D. at 399. The Agency noted that in the area surrounding the proposed site for the new source, motor vehicles accounted for 91% of NO_2 emissions locally, as compared to 61% of NO_2 emissions nationwide. *Id*. In addition, the environmental justice analysis in *Avenal* noted that the area surrounding the proposed facility was designated as extreme nonattainment for ozone, and NO_2 is a precursor emission. *Id.* Finally, the Agency further explained that NO_2 concentrations on or near major *roadways* have appreciably higher emissions than those measured at monitors in the Agency-approved network. *Id.* ICAS has not demonstrated that the need to assess NO_2 impacts from mobile sources in *Avenal*, where NO_2 emissions near roadways were known to be much higher, translates into a requirement that the Agency account for these mobile emissions on the Arctic OCS to demonstrate that its environmental justice analysis is sufficient.

ply repeat comments made during the comment period, but must substantively confront the permit issuer's substantive explanations in order to demonstrate that review of a particular issue is warranted. *Peabody*, 12 E.A.D. at 33.

Further, ICAS's assertion that the Region failed "to *analyze* the impacts of Shell's emissions on subsistence hunters and fishers while offshore," is unsupported by the record. ICAS Petition at 36-37 (emphasis in original); *see also Shell Discoverer 2012*, 15 E.A.D. at 500. The environmental justice analysis stated that mobile source emissions will dissipate while vessels are in transit, RTC at 115, and the environmental justice analysis analyzed how the subsistence areas located in close proximity to Shell's lease blocks might be affected by Shell's OCS activities. EJ Analysis at 5; *id.* at 6 (discussing distances subsistence hunters, whalers, and fishermen have traveled offshore in search of subsistence foods); *id.* at 4 (depicting subsistence use areas mapped over Shell exploration plan well sites). In addition to demonstrating compliance with the applicable NAAQS, the Region conducted an environmental justice analysis that included and analyzed data that is germane to the environmental justice issues raised during the comment period. *See Shell 2010*, 15 E.A.D. at 160-61 n.87. Although ICAS may disagree with the contents or conclusions of the Region's environmental justice analysis, ICAS has not demonstrated that this difference in opinion equates to an insufficient effort on the Region's part regarding environmental justice, or that the Region failed to analyze impacts. *See Shell Discoverer 2012*, 15 E.A.D. at 500.

Finally, ICAS enumerates several problems with the Region's environmental justice analysis that amount to challenges to the Region's technical expertise. *See* ICAS Petition at 37; Region Response at 43-44; *see also Shell 2012*, 15 E.A.D. at 500-01. Without elaborating any further, ICAS expresses "significant concerns" with, among other things, installed NO_2 controls and their ability to function properly in cold weather, the use of generic NO_x/NO_2 ratios in lieu of actual source tests, the use of "diurnal pairing" of NO_2 data, and the need for additional "tracer experiments" to supply data for the AERMOD model. ICAS Petition at 37. It is axiomatic that a challenge to the fundamental technical expertise of a permit issuer requires a petitioner to overcome a particularly heavy burden, and that a successful challenge to a permit issuer's technical expertise must consist of more than just a difference of opinion. *Shell 2012*, 15 E.A.D. at 501; *accord In re NE Hub Partners, L.P.*, 7 E.A.D. 561, 567 (EAB 1998), *review denied sub nom. Penn Fuel Gas, Inc. v. EPA*, 185 F.3d 862 (3rd Cir. 1999). Here, ICAS has failed to overcome this particularly heavy burden because it does nothing more than list its broad objections to the Region's environmental justice analysis.

3. *Ozone NAAQS Analysis*

ICAS also challenges the Region's compliance with its obligation under the Executive Order based on the Region's alleged failure to adequately address both the latest scientific findings regarding ozone and the potential impacts of ozone on

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

local communities. ICAS Petition at 31. ICAS's assertions focus in large part on the Region's decision to demonstrate compliance with the current 8-hour ozone NAAQS, which is set at 0.75 parts per million ("ppm"), as opposed to the range of 0.60 to 0.70 ppm for the 8-hour ozone NAAQS that EPA's Administrator proposed in January 2010 but never finalized. *See id*. at 30-34; Region Response at 40-42; RTC at 96-98, 119-20. On September 2, 2011, four days before the close of the public comment period and prior to the Region issuing the Permit, the President requested that the Administrator withdraw the proposed 8-hour ozone NAAQS standard and instead enforce the current 8-hour ozone standard of 0.75 ppm until the ozone standard is reconsidered again in 2013. Statement on the Ozone National Ambient Air Quality Standards, 2011 Daily Comp. Pres. Doc. 607, at 1 (Sept. 2, 2011), *available at* http://www.gpo.gov/fdsys/ (click on Compilation of Presidential Documents). ICAS also asserts that the Region's conclusion not to model emissions from ozone precursors based on available background data that does not account for the cumulative impacts of proposed activities on the Arctic OCS was in error, and that the Region's response to its comments regarding ozone were inadequate. ICAS Petition at 33.

The Region responds that ICAS's petition raises issues that are largely technical, and that the Region appropriately relied on the Agency's current legal standard of 0.75 ppm when assessing Shell's compliance with the 8-hour ozone NAAQS. Region Response at 40. The Region further asserts that it exercised its technical expertise to determine that ozone levels in the area were not expected to exceed even the lowest level of 0.60 ppm that EPA included in its proposed 8-hour ozone NAAQS. *Id.* at 42. Finally, the Region asserts that it appropriately responded to comments received, including comments specifically raising concerns about the cumulative impacts of proposed OCS operations with respect to attaining the ozone NAAQS. *Id.*

Although ICAS argues to the contrary, the current, enforceable 8-hour ozone NAAQS that Shell must demonstrate compliance with is 0.75 ppm. As this Board has stated previously, "[a] permit issuer must apply the statutes and implementing regulations in effect at the time the final permit decision is made." *Russell City II*, 15 E.A.D. at 81 n.98 (quoting *In re Phelps Dodge Corp.*, 10 E.A.D. 460, 478 n.10 (EAB 2002)). The Region's decision to require Shell to comply with the 0.75 ppm 8-hour ozone NAAQS is consistent with applicable law and the corresponding regulations in effect at the time the Region issued the Permit.

In addition, ICAS does not demonstrate that the Region's analysis of the impacts the 8-hour ozone NAAQS may have on Alaska Natives residing on the North Slope would result in a disproportionately high or adverse impact on the

health of Alaska Natives.[71] In the Response to Comments supporting the Permit, the Region stated that it "stands by its decision" to forego regional photochemical modeling and further explained that "Region 10 reviewed ozone monitoring data along with existing precursor emissions that will impact ozone formation. Based on this review, Region 10 determined further analysis of ozone was not warranted." RTC at 97. In addition, the Region explained that the most recent ozone data indicates that current ozone levels in the Beaufort Sea are well below 0.60 ppm, which represents the low end of the range of the proposed 8-hour ozone NAAQS.[72] *Id.* at 97-98, 120.

Finally, ICAS's assertion that the Region failed to consider the cumulative impacts of emissions from proposed Arctic OCS operations is unavailing. *See* ICAS Petition at 33. ICAS's petition for review not only lacks any further support for this statement, it also fails to substantively confront the Region's explanation in the Response to Comments. *See Peabody*, 12 E.A.D. at 33 (petitioner must

---

[71] ICAS's assertion that in the context of an environmental justice analysis the Region's treatment of the 8-hour ozone standard in the current appeal is analogous to the Region's treatment of the newly promulgated 1-hour NO_2 NAAQS in *Shell 2010* must also fail. *See* ICAS Petition at 32. As the Board recently explained, the context of the challenge to the environmental justice analysis in *Shell 2010* was unusual in that the OCS PSD permits at issue were finalized in the interim between the Administrator's publication of the final rule establishing the hourly NO_2 NAAQS in the Federal Register on February 9, 2010, and the effective date of the new hourly NO_2 standard, April 12, 2010. *Avenal*, 15 E.A.D. at 401. The Board emphasized that the environmental justice aspect of the *Shell 2010* remand order turned on the Region's scant environmental justice analysis, which provided no examination or analysis of short-term NO_2 impacts whatsoever. *Id.*

Here, the Region not only analyzed impacts from ozone emissions, *see* RTC at 96-98, 119-20, it further explained that current levels of ozone in the area are well below the low end of the range EPA had requested comment on in the proposed ozone NAAQS, and that emissions of ozone precursors would also not lead to an exceedance of the low range of the proposed ozone NAAQS. *Id.* at 120; *see also* Region Response at 41 n.37 (noting that the discussion of ozone in the Region's environmental justice analysis was brief, but that both the Response to Comments and the technical support document contained in the administrative record provide more detailed discussions of the Region's determination regarding ozone). Of equal importance, and unlike the events leading up to the Board's remand order in *Shell 2010*, in this instance the Agency has not made a final determination or issued a final rule stating that the current 8-hour ozone standard is inadequate. *See* Region Response at 41. ICAS has not demonstrated that the Region's consideration of the ozone NAAQS in the current appeal warrants Board review based on similarities to the Region's treatment of the hourly NO_2 NAAQS in *Shell 2010*.

[72] ICAS challenges the Region's conclusion not to model emissions of ozone and ozone precursors, and alleges that the "limited background data" that exists does not demonstrate that current ozone levels are well below the proposed ozone NAAQS. ICAS Petition at 33. ICAS does not provide any citation or reference as support for this statement, which amounts to a challenge to the Region's technical expertise. This Board recently stated that "it is axiomatic that a challenge to the fundamental technical expertise of a permit issuer requires a petitioner to overcome a particularly heavy burden, and that a successful challenge to a permit issuer's technical expertise must consist of more than just a difference of opinion." *Shell Discoverer 2012*, 15 E.A.D. at 501 (citing *Shell 2011*, 15 E.A.D. at 203, and *NE Hub*, 7 E.A.D. at 567). ICAS's bald assertion that background ozone data was limited and does not support the Region's conclusions cannot overcome this particularly heavy burden.

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

demonstrate why a permitting authority's response to objections made during the public comment period warrants review). In this instance, the Region explained:

> [T]he Clean Air Act permitting programs are essentially 'first come, first served' programs and each subsequent permitting action needs to account for all of those that went before but not any actions that will occur subsequent to that action. The permits for the Discoverer drill ship in the Chukchi Sea and Beaufort Sea are the first permits in their respective vicinities and they only need to assess their impacts on the existing air quality situation.
>
> The Kulluk drill rig in the Beaufort Sea is the second permit and EPA has addressed cumulative impacts by including conditions in the permit that prevent Shell from operating the Kulluk drill rig and the Discoverer drill ship in the Beaufort Sea during the same drilling season. Permit Condition D.4.8. As such, only one of the two drill rigs can operate in the Beaufort in any year so there will be no overlapping impacts with respect to compliance with short[]term NAAQS. * * *
>
> As discussed above, ConocoPhillips has withdrawn its permit application for operation of a jack-up drill rig in the Chukchi Sea.

RTC at 101; *see also* EJ Analysis at 14 (reporting total maximum modeled concentrations for criteria pollutants in Kaktovik and Nuiqsut, which account for both the *Discoverer*'s operation and background concentrations); Region Response at 42 n.39 (noting that "[p]otential OCS operations in the Chukchi Sea and the Beaufort Sea are over 200 miles apart at the closest point"). Aside from its plain statement that the Region did not consider the emissions from all proposed OCS operations, ICAS does not address the Region's response to its comment, and thus cannot demonstrate that this issue warrants Board review. *Peabody*, 12 E.A.D. at 33.

4. *Oil Spill Response Capabilities*

Mr. Lum asserts that EPA has failed to require Shell to demonstrate its oil spill response capabilities in "clear, windy, broken ice and sheet ice conditions." Lum Petition at 1-2. The Region responds that this issue is outside the scope of these permit proceedings and thus is not properly subject to review. Region Response at 47.

The Board has previously emphasized that "[t]he PSD review process is not an open forum for consideration of every environmental aspect of a proposed project, or even every issue that bears on air quality."[73] *In re Knauf Fiber Glass GmbH*, 8 E.A.D. 121, 127 (EAB 1999) ("*Knauf I*"), *quoted in In re Sutter Power Plant*, 8 E.A.D. 680, 688 (EAB 1999); *see also In re Encogen Cogeneration Facility*, 8 E.A.D. 244, 259-60 (EAB 1999). The Board has jurisdiction "to review issues directly related to permit conditions that implement the federal PSD program," *Sutter*, 8 E.A.D. at 688, but will deny review of issues not governed by the PSD regulations because it lacks jurisdiction over them. *Id.*; *see also Encogen*, 8 E.A.D. at 259 (noting that petitioners had not shown how the issues they requested the Board to review fell within the Board's PSD jurisdiction). Moreover, there are often other regulatory programs in place that may address environmental concerns that fall outside the Board's scope of review. *Knauf I*, 8 E.A.D. at 162; *see also Shell 2007*, 13 E.A.D. at 405 n.66.

EPA's jurisdiction over portions of the OCS applies to air emissions subject to the CAA and its implementing regulations. In this instance, BOEMRE[74] is responsible for implementing regulations that address oil spill and response capabilities.[75] The Board does not have jurisdiction to consider Shell's oil spill and re-

---

[73] As noted above, see Part VI.A.1.a, the OCS air regulations require that OCS permit proceedings follow the procedures used to issue PSD permits contained in 40 C.F.R. part 124. 40 C.F.R. § 55.6(a)(3).

[74] As the Board has noted in previous *Shell* decisions, in May 2010 the Secretary of the Department of the Interior ("DOI") signed a Secretarial Order reorganizing the former Minerals Management Service ("MMS") into three independent entities to better carry out its three missions of: (1) improving the management, oversight, and accountability of activities on the OCS; (2) ensuring a fair return to the taxpayer from offshore royalty and revenue collection and disbursement activities; and (3) providing independent safety and environmental oversight and enforcement of offshore activities. *Shell 2012*, 15 E.A.D. at 492 n.29; *see also Shell 2010*, 15 E.A.D. at 112 n.7; U.S. DOI, Departmental Manual, pts. 118 & 119, ch. 1 (Sept. 30, 2011), *available at* http://elips.doi.gov/app_dm/dm.cfm ("Departmental Manual") (establishing the creation, authorities, objectives, and reporting relationships for the Bureau of Ocean Energy Management ("BOEM") and Bureau of Safety and Environmental Enforcement ("BSEE")). BOEMRE assumed all of MMS's responsibilities in the interim until the full implementation of the reorganization into the three separate entities was complete. *Shell 2012*, 15 E.A.D. at 492 n.29; *see Shell 2010*, 15 E.A.D. at 112 n.7. The transfer of the revenue collection function to the Office of Natural Resources Revenue was completed on October 1, 2010. *See* Secretary of the Interior, U.S. DOI, Order No. 3306, *Organizational Changes Under the Assistant Secretary – Policy, Management and Budget* (Sept. 20, 2010), *available at* http://elips.doi.gov/app_SO/so.cfm; Departmental Manual, pt. 112, ch. 34 (Apr. 15, 2011). One year later, on October 1, 2011, the reorganization was completed when BOEMRE was replaced by BOEM and BSEE. *See* Departmental Manual, pts. 118 & 119. For consistency the Board refers to BOEMRE because the Permit and the supporting documentation refer exclusively to BOEMRE.

[75] On August 4, 2011, BOEMRE (now BOEM, see note 74 above) conditionally approved Shell's exploration plan for the Beaufort Sea. Letter from Jeff Walker, Regional Supervisor, Field Operations, Alaska OCS Region, BOEMRE, U.S. DOI, to Susan Childs, Shell Offshore, Inc. (Aug. 4,
Continued

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

sponse capabilities in the Arctic OCS, and thus, the Board denies Mr. Lum's petition for review on these grounds.

5. *Impacts of Air Emissions on Traditional Subsistence Food Sources*

Mr. Lum asserts that the *Kulluk*'s operations in the Beaufort Sea will introduce toxins into the ocean "via the exhaust [from the *Kulluk*] that settles down into it," and contaminate the marine mammals and fish the coastal Inupiat consume as part of their indigenous diet. Lum Petition at 2-3. Mr. Lum continues that this will not only contaminate the food supply but also alter traditional Inupiat culture. *Id.* The Region responds that this issue is outside the scope of these permit proceedings and thus is not properly subject to Board review. Region Response at 47. The Board construes Mr. Lum's assertions as a challenge to the adequacy of the Region's compliance with the Executive Order.

Mr. Lum also raised this issue in the appeals that led to the Board's *Shell Discoverer 2012* decision. *See* 15 E.A.D. at 502. In *Shell Discoverer 2012*, the Board denied review on procedural grounds because the impacts of air emissions on traditional subsistence food sources was not raised at the time of the first appeals.[76] *Id*. In the current appeal, Mr. Lum timely submitted comments on this issue and thus his petition for review is procedurally sound. *See* Lum Comments at 1. The Board, however, has previously held that "[i]mpacts on subsistence hunting and fishing are outside the scope of the PSD program and therefore the Board's jurisdiction." *Shell 2007*, 13 E.A.D. at 405 n.66 (citing *Knauf I*, 8 E.A.D. at 161-62), *quoted in* RTC at 125. The Board does not have jurisdiction to consider the impacts of air emissions on traditional subsistence food sources and Inupiat culture, and thus, the Board denies Mr. Lum's petition for review on these grounds.

(continued)
2011) [hereinafter Beaufort EP Letter]. The approval of the Beaufort Sea exploration plan was conditioned, among other things, on Shell submitting to BOEMRE prior to the commencement of exploratory drilling operations documentation regarding the subsea well capping and containment system Shell has committed to have at its disposal. *Id.* at 3. Specifically, Shell must "submit documentation on the procedures for deployment, installation, and operation of the system under anticipated environmental conditions, including the potential presence of sea ice for approval by BOEMRE. Shell will also be required to conduct a field exercise to demonstrate Shell's ability to deploy the system." *Id.*

[76] As mentioned above, the Board remanded to the Region two OCS PSD permits in December 2010. *See generally Shell 2010*, 15 E.A.D. at 161-62. In the subsequent appeals of the permits issued upon completion of remand proceedings, the Board unequivocally stated that "in the current appeals, '[n]o new issues may be raised that could have been raised, but were not raised,' in the previous appeals." *Shell Discoverer 2012*, 15 E.A.D. at 477 (quoting *Shell 2010*, 15 E.A.D. at 162).

SR 0898

For all of the foregoing reasons, the Board declines to review the Region's compliance with the Executive Order and applicable Board precedent.

F. *ICAS Has Failed to Demonstrate That the Region Clearly Erred or Abused Its Discretion in Providing 46 Days for Comment on the Draft Permit and in Denying ICAS's Request for Nonoverlapping Comment Periods*

ICAS claims that the Region "committed clear legal error by failing to provide the public an adequate opportunity to comment on" the draft permit.[77] ICAS Petition at 6. More specifically, ICAS alleges that the Region failed to meet the parts 71 and 124 procedural requirements that require permit issuers to "allow *at least* 30 days for public comment" on draft permits. *Id*. at 7 (citing 40 C.F.R. §§ 71.11(d)(2)(i), 124.1) (emphasis added by Petitioners). Although ICAS acknowledges that the comment periods for the Permit ran from July 22, 2011, to September 6, 2011, an interval of 46 days, ICAS contends that, because the Region issued the draft *Kulluk* permit for comment at the same time it issued another draft minor source air permit for comment and in the middle of comment periods for two major source air permits for another Shell drillship,[78] in reality, ICAS only "had 16 days to comment on each of the[] permits," rather than the required minimum of 30. *Id*. at 7. This is because, according to ICAS, it "does not have the resources to comment on more than one air permit at a time." *Id*. ICAS further claims that "the short and overlapping comment periods * * * deprived [them] of a meaningful opportunity to comment on Shell's new air modeling results." *Id*. at 8.

In a related argument, ICAS asserts that the Region clearly erred in denying its request that the Region "hold nonoverlapping comment periods on the OCS permits and [] provide 45 days to comment on each permit." *Id*. at 8-9. ICAS claims that it met the regulatory standard for demonstrating the need for additional time to prepare comments. *Id*. (referring to the standard at 40 C.F.R. § 71.11(g)); *see also id*. attach. 8 (Letter from Harry Brower, Chairman, Alaska Eskimo Whaling Commission ("AEWC"), et al., to Doug Hardesty, Air Permits Project Manager, U.S. EPA Region 10 (June 15, 2011) (A.R. C-487)) (AEWC and ICAS request for nonoverlapping comment periods) [hereinafter ICAS Let-

---

[77] The Board also considers ICAS's claim under an abuse of discretion standard. *See infra* note 80.

[78] The Region had issued two draft permits for Shell's *Discoverer* drillship earlier in July of 2011. *See Shell Discoverer 2012*, 15 E.A.D. at 480. The comment period for those two permits ran from July 6 to August 5, 2011. *Id*.; ICAS Petition at 7. In addition, on the same date the Region had issued the *Kulluk* draft permit, it had also issued a draft permit for ConocoPhillips to operate a jackup drill rig in the Chukchi Sea. ICAS Petition at 7. The comment period for this permit originally ended at the same time as the *Kulluk* draft permit, but was later extended to September 21, 2011. ICAS Petition at 8-9; RTC at 7.

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

ter]; *id*. attach. 9 (Letter from Richard Albright, Director, Office of Air, Waste, & Toxics, U.S. EPA Region 10, to Harry Brower, AEWC Chairman, et al. (July 21, 2011) (A.R. C-532)) (EPA response).

The part 71 procedural regulation governing public notices and public comment periods specifically provides that "[p]ublic notice of the preparation of a draft permit * * * shall allow at least 30 days for public comment." 40 C.F.R. § 71.11(d)(2)(i). The part 124 procedural regulations, which also apply to the Permit,[79] contain the same language. *See* 40 C.F.R. § 124.10(b). The Board has traditionally read these regulations to establish a minimum comment period length of 30 days, recognizing that the regulations clearly allow the permit issuer, in its discretion, to grant a longer comment period. *Shell Discoverer 2012*, 15 E.A.D. at 520-21 (discussing the applicable part 124 regulation); *see also In re Genesee Power Station*, 4 E.A.D. 832, 841 (EAB 1993) (noting that the part 124 regulation governing public comment periods "only require[s them] to last 30 days"). In addition, as ICAS points out, part 71 contains a separate provision specifically authorizing a permit issuer to grant additional time. It states that "[a] comment period longer than 30 days may be necessary to give commenters a reasonable opportunity to comply with the requirements of this section. Additional time shall be granted to the extent that a commenter who requests additional time demonstrates the need for such time."[80] 40 C.F.R. § 71.11(g)).

---

[79] As the Region explained, the Permit is subject to the procedural requirements of both part 55 (and consequently part 124) as well as part 71:

> The portion of this permit that is a Part 71 permit (e.g., the portion of the permit that applies on the Outer OCS) is issued under 40 CFR Part 55 and 40 CFR Part 71 and subject to the procedural requirements of 40 CFR Part 71 as provided in 40 CFR § 71.4(d). The portion of this permit that is a COA Title V permit and a COA minor source permit (e.g., the portion of the permit that applies on the Inner OCS) is issued under 40 CFR Part 55 and, in the absence of other applicable procedures, subject to the permit issuance procedures for PSD permits under 40 CFR Part 124, Subpart A and C. *See* 40 CFR §§ 55.6(a) (3) and 124.1.

RTC at 6 n.3.

[80] Because the regulations authorize the permit issuer to grant a longer comment period upon an adequate showing of need, the Board also considers ICAS's challenge under an abuse of discretion even though ICAS did not clearly present its challenge as such, alleging instead only "clear error." *See Shell Discoverer 2012*, 15 E.A.D. at 521 (considering similar argument as raising an abuse of discretion claim); *In re Guam Waterworks Auth.*, 15 E.A.D. 437, 443 n.7 (EAB 2011) (explaining Board's standard in reviewing claims involving a permit issuer's exercise of discretion); *In re Desert Rock Energy Co.*, 14 E.A.D. 484, 530 (EAB 2009) (using an abuse of discretion standard where the permit issuer had "broad discretion" in making the challenged determination). The Board similarly reads ICAS's challenge to the Region's denial of nonoverlapping comment periods as raising an abuse of discretion claim.

SR 0900

In the present case, the Region provided a 46 day public comment period for the *Kulluk* draft permit, albeit a comment period that partially overlapped with several other comment periods. The Region, in its Response to Comments, provided a lengthy, well-reasoned explanation for its establishment of a 46 day comment period for the *Kulluk* permit and for its denial of ICAS's request for nonconcurrent comment periods. *See* RTC at 5-8. In addressing comments on these topics, the Region pointed out that it had granted a period longer than the regulatory minimum for this permit and had also extended the comment period for one of the other permits, the ConocoPhillips permit. *Id*. at 6; *accord id*. at 7. The Region further noted that the ConocoPhillips permit, for which it had extended the comment period to 60 days, was for a proposed 2013 operation, whereas Shell "intends to begin its exploratory drill operations with the Kulluk in July 2012." *Id*. at 7. The Region also enumerated the many steps it had taken before and during the public comment period "to promote meaningful public involvement." *Id*. at 6.

In addition, the Region observed that, while "it agree[d] with the commenters that some aspects of the Draft Permit are technically and legally complex," on the other hand, "[t]he comments submitted * * * demonstrate[d] that the public was able to review, evaluate, and comment on many complex issues during the comment period provided." RTC at 8. The Region noted that among the more than 14,500 public comments it had received, a number of them had contained "substantive comments on, among other issues, the definition of OCS Source, limits on the source's potential to emit, choice of model, modeling data, ambient air boundary, source testing, emission factors, air quality analysis, applicability of increments and visibility, and cumulative impacts." *Id*. Accordingly, the Region believed that "[t]he volume of comments received and the substantive issues addressing technically and legally complex issues demonstrate[d] that the public was able to meaningfully review and comment on the Draft Permit." *Id*.

The Region also explained that "40 CFR § 71.7(a)(2) requires that it take a final action on a Title V permit application within 18 months of receiving a complete application. In conducting the permitting process, Region 10 must strike a balance between its obligation to provide for meaningful public participation and its responsibility to make a final permitting decision in a timely manner." *Id*. Based on all these factors, the Region had determined that "the commenters have not demonstrated that a period of more than 46 days is necessary to give the public a reasonable opportunity to comment." *Id*. at 7 (citing 40 C.F.R. §§ 71.11(g) and 124.13).

In its petition, ICAS does not explain why the Region's response to these comments is clearly erroneous or an abuse of discretion. In fact, ICAS does not even address the Region's response. ICAS's failure to address the Region's response is, in and of itself, sufficient to deny its claims of procedural error con-

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

cerning the comment period.[81]

Nevertheless, even if the Board considered ICAS's claim of procedural error, the Board would deny review of this claim for several reasons. First, the length of time the Region provided for comment on this permit – 46 days – is 16 days more than the regulatory minimum required by 40 C.F.R. §§ 71.11(d)(2)(i) and 124.10(b). It is also one day more than the amount of time ICAS had specifically requested for each permit in its letter.[82] *See* ICAS Letter at 2 (requesting nonconcurrent comment periods of 45 days). ICAS's attempt to recalculate the length of the comment period as "16 days" based on an unexplained mathematical formula involving the number and lengths of other comment periods is unconvincing and does not demonstrate clear error. *See Shell Discoverer 2012*, 15 E.A.D. at 521; *see also Russell City II*, 15 E.A.D. at 95-98 (denying review of a procedural error claim where petitioners fail to point to a part 124 procedural regulation that was violated); *Knauf II*, 9 E.A.D. at 17 (denying review where the permit issuer fulfilled the applicable regulatory obligations, but did not go beyond those requirements).

Furthermore, while it is true that the Region did not grant ICAS's request for nonoverlapping comment periods, ICAS has not pointed to any regulations that prohibit the Agency from issuing concurrent permits or that require – or even specify – a different comment period length when the Agency does issue concurrent permits. To the contrary, the relevant regulations authorize the Agency to issue a single public notice to "describe more than one permit or permit actions," 40 C.F.R. §§ 71.11(d)(1)(iii), 124.10 (a)(3), without mentioning a different time frame for public comment when concurrent permits are issued. While section 71.11(g) authorizes the Agency to extend a particular comment period on a case-by-case basis where a commenter has demonstrated the need for additional time – which would thereby provide an avenue for commenters to obtain longer comment periods in situations where comment periods overlap[83] – the provision does not prohibit, or even mention, overlapping comment periods.

---

[81] As the Board discussed above in Part III, a petitioner must explain why the permit issuer's previous response to those objections is clearly erroneous or otherwise warrants review. "[A] petitioner's failure to address the permit issuer's response is fatal to its request for review." *In re Indeck-Elwood LLC*, 13 E.A.D. 126, 143, 170 (EAB 2006); *accord Russell City II*, 15 E.A.D. at 10.

[82] Notably, therefore, for this permit, by providing a longer comment period, the Region did in essence partially grant ICAS's request.

[83] And, in this case, the Region did, provide additional time for comment on two of the permits whose comment period overlapped. The Region increased the comment period for the Shell *Kulluk* permit to 46 days and the comment period for the ConocoPhillips permit to 60 days. *See supra* note 78.

SR 0902

Finally, it is clear from the administrative record that the Region appropriately balanced conflicting considerations in deciding on the length of the comment period for this permit and in denying the request for nonoverlapping periods. ICAS has not demonstrated otherwise[84] and has therefore failed to show that the Region clearly erred or abused its discretion in either selecting a 46 day comment period or in denying ICAS's request for nonconcurrent comment periods. *See Shell Discoverer 2012*, 15 E.A.D. at 523 (denying review of a similar claim based on similar facts). Review of the Permit is therefore denied on this issue.

G. *ICAS Has Failed to Demonstrate That the Region Clearly Erred in Its Public Hearing Procedures or That Any of the Alleged Procedural Deficiencies Otherwise Warrant Review*

As noted above in Part V, the Region held two public hearings on the draft permit, one in Barrow, and a second in Anchorage. The Region also held an informational meeting prior to the Barrow public hearing. *See* Statement of Basis at 11 (scheduling informational hearing from 5:00-6:30 pm, public hearing from 7:00-9:00 pm); RTC at 6-7.

ICAS claims that the Region "committed clear legal error by failing to provide the public an adequate opportunity" to participate in the Barrow public hearing. ICAS Petition at 6; *see also id.* at 9-10. ICAS alleges three procedural problems with the Barrow hearing. *Id*. at 9-10. ICAS first claims that the Region continued with the hearing despite difficulties with the teleconference phone system that allegedly impaired the ability of the Region to hear all comments. *Id*. at 9. ICAS next alleges that, "for a significant portion of the hearing," the Region discussed a PowerPoint presentation that was not made available to the public attending the hearing. *Id*. at 9-10. Finally, ICAS contends that the Region failed to sufficiently inform those attending the public hearing that it had procured an

[84] The Board is unpersuaded by ICAS's argument that it had difficulty locating an expert to review the air modeling. *See* ICAS Petition at 8. As the Region indicated in its Response to Comments, RTC at 8, other commenters provided substantive, technical comments on the air modeling, which suggests that the comment period was sufficient to allow opportunity for meaningful comment. *See Fla. Power & Light Co. v. United States*, 846 F.2d 765, 772 (D.C. Cir. 1988) (upholding a short comment period as sufficient where the agency had received numerous comments, some lengthy, and the comments had had a "measurable impact" on the final rule); *Conference of State Bank Supervisors v. Office of Thrift Supervision*, 792 F. Supp. 837, 844 (D.D.C. 1992) (holding length of comment period not unreasonable especially in light of the comments that plaintiffs and other parties submitted). Furthermore, as the Region points out, it notified ICAS in May that the comment periods would begin in July. *See* Letter from Doug Hardesty, EPA, to North Slope Borough et al. (May 25, 2011) (A.R. HH-1). The Region also conducted three separate informational meetings in Barrow and Kaktovik, Alaska, more than a month prior to the start of the public comment period for the Permit "to inform the North Slope community of the draft permit and to describe opportunities for public participation." RTC at 6.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Inupiat interpreter for the hearing.[85] *Id.* at 10. ICAS asserts that making an interpreter "available in this fashion is akin to not having [one] at all." *Id.*

Part 71 and part 124 each contain a provision governing public hearings. *See* 40 C.F.R. §§ 71.11(f), 124.12. Both public hearing regulations require the permitting authority to hold a public hearing when the permitting authority "finds, on the basis of requests, a significant degree of public interest in a draft permit." *Id.* §§ 71.11(f)(1), 124.12(a)(1). The regulations also authorize the permitting authority to hold a public hearing "at its discretion, whenever, for instance, such a hearing might clarify one or more issues involved in the permit decision." *Id.* §§ 71.11(f)(2), 124.12(a)(2); *accord In re Russell City Energy Ctr.* ("*Russell City I*"), 14 E.A.D. 159, 164 n.6 (EAB 2008). The public hearing regulations also prescribe the method of giving public notice of the hearing, 40 C.F.R. §§ 71.11(f)(3), 124.12 (a)(4), the procedure for designating a presiding officer to preside at the hearing, *id.* §§ 71.11(f)(4), 124.12 (b), and the procedures for the public to comment at the hearing, *id.* §§ 71.11(f)(5), 124.12 (c). Finally, both regulations require that a tape recording or written transcript of the hearing be made publically available. *Id.* §§ 71.11(f)(6), 124.12 (d).

Parts 71 and 124 also both require the permit issuer, in making its final decision, to consider all comments it receives during the public comment period and at any public hearings and to issue a "response to comments." *Id.* §§ 71.11(j), 124.17(a); *see also id.* §§ 71.11(e), 124.11. More particularly, these provisions require the permit issuer to "[b]riefly describe and respond to all significant comments on the draft permit * * * raised during the public comment period, or during any hearing" in the response to comments document issued at the same time the final permit decision is issued. *Id.* §§ 77.11(j)(1)(ii), 124.17(a)(1). Importantly, none of the aforementioned regulations refer to, or in any way mention, a requirement to provide an interpreter or a requirement to provide written materials at the hearing.

Upon review of the administrative record and the parties' arguments, the Board concludes that ICAS has not shown that the Region clearly erred in its handling of the Barrow public hearing for any of the three reasons ICAS advances. Not only does ICAS fail to point to any specific regulatory provision that the Region violated, but none of the alleged problems otherwise warrant Board review. The Board addresses each alleged deficiency in more detail below.

ICAS's first contention – that the Region committed clear error because it was allegedly unable to adequately obtain input from the public due to telecom-

[85] According to ICAS, although the Region may have noted that an interpreter was available at the top of the hearing's sign-in sheet, it did not make a public announcement of this fact at the outset of the hearing. ICAS Petition at 10; ICAS Reply at 6; *see also infra* note 89.

munication problems during the hearing – is unpersuasive. The Region addressed this concern in its Response to Comments. *See* RTC at 9. There, the Region explained that, because such telecommunication problems are common on the North Slope, it had "recorded the public hearing in addition to having the hearing transcribed by a court reporter. From these *two* sources, Region 10 was able to capture the comments provided during the public hearing." *Id*. (emphasis added); *see also* Public Hearing Transcript ("Pub. Hrg Tr.") at 3 (explaining that the hearing was recorded on the teleconference line as a "safety net"). In response, ICAS merely asserts that "this does not change the fact that people were not able to be heard via phone." ICAS Petition at 9. Significantly, however, ICAS does not identify any comment that the Region failed to hear or for which the Region failed to provide a response.[86] *See id*. at 9; ICAS Reply at 6. Nor has any commenter come forward alleging that the Region failed to respond to his or her public hearing comments. The fact that the call center experienced some telecommunications problems during the public hearing – which the Region appears to have adequately anticipated and addressed by utilizing two methods of note taking – does not, without more, constitute clear legal error. Speculative claims that a permitting authority may have failed to hear a comment are insufficient to warrant Board review.

ICAS's contention that the Region committed clear procedural error by failing to provide pre-meeting copies of a Powerpoint presentation is inapposite. In its response to the petition, the Region explains that this presentation was given during the informational meeting, not during the public hearing. Region Response at 39; *see also* Statement of Basis at 11 (scheduling informational hearing prior to public hearing); RTC at 6-7 (mentioning informational meeting). ICAS does not dispute this.[87] *See* ICAS Reply at 5-7. Furthermore, nowhere do the regulations require a permitting authority to provide informational handouts at an informational meeting (or at a public hearing).[88] Thus, while it may be useful for a permit

---

[86] As discussed above, the regulatory requirement is for a permit issuer to respond to significant comments. *See* 40 C.F.R. § 77.11(j)(1)(ii), 124.17(a)(1). Thus, had ICAS identified significant comments raised at the public hearing that the Region failed to address, ICAS's arguments would have been more persuasive. *See, e.g., In re Rockgen Energy Ctr.*, 8 E.A.D. 536, 557 (EAB 1999) (remanding so that permit issuer could demonstrate it had given thoughtful and full consideration to public comments); *In re W. Suburban Recycling & Energy Ctr., L.P.*, 6 E.A.D. 692, 710-12 (EAB 1996) (remanding permit and requiring permit issuer to comply with procedures under part 124 including provision requiring a response to all significant comments received); *see also In re N. Mich. Univ.*, 14 E.A.D. 283, 317-18 (EAB 2009) (discussing part 124 requirement to adequately respond to comments).

[87] The Region's explanation makes sense in light of the purpose of the two meetings. While the permitting authority may present its analyses, findings, and conclusions about the draft permit at an informational meeting, the purpose of the public hearing is to obtain comments *from* the public.

[88] The only document the public hearing regulations require a permit issuer make available to the public is the transcript of the hearing. 40 C.F.R. §§ 71.11(f)(6), 124.12 (d).

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

issuer to provide copies of a presentation to the audience attending an informational meeting, failure to do so at the meeting – or at a subsequent public hearing – does not constitute clear error or otherwise warrant Board review.

ICAS's final contention – that the Region committed clear procedural error by not adequately informing the public that an interpreter was available at the public hearing – is also unconvincing. Importantly, as noted above, there is no regulatory requirement for an interpreter in either part 71 or part 124, nor is there a provision specifying the method a permit issuer should use to inform the public of the availability of an interpreter at the public hearing.[89] ICAS has not pointed to any other requirement, regulatory or otherwise, requiring an interpreter or prescribing the method for announcing one. Accordingly, while it may be preferable for the permit issuer to formally announce the availability of an interpreter at the beginning of the public hearing, and in both languages, failure to do so does not constitute clear error or otherwise warrant Board review.

In sum, ICAS has failed to demonstrate that the public hearing procedures utilized by the Region constituted clear error. ICAS has not shown that the Region violated any part 71 or 124 procedural regulation. Moreover, the alleged problems ICAS has identified do not, even if the Board were to find them to constitute a deficiency in some way, warrant Board review. Consequently, the Board denies review of the Permit on this ground.

VII. *CONCLUSION AND ORDER*

For the foregoing reasons, the Board concludes that none of the petitioners have demonstrated that review of Permit No. R10 OCS030000 is warranted on any of the grounds presented. The Board therefore denies review of the Permit.

So ordered.

---

[89] The parties seemingly dispute the method in which the Region notified the public of the availability of the interpreter. The Region stated in its Response to Comments that, "[p]rior to the Barrow public hearing, Region 10 contacted [ICAS] to arrange for an Iñupiat speaker to be available to provide Iñupiat interpretation at the hearing if requested by any participant. At the beginning of the hearing, participants were provided the opportunity to request Iñupiat interpretation during the hearing. No participant requested translation and therefore an interpreter was not used." RTC at 10-11. In response, ICAS claims that attendees only recall mention of an interpreter on the sign-up sheet, and only in English. ICAS Petition at 10. ICAS further asserts that the transcript of the public hearing does not indicate that an announcement was made. ICAS Reply at 6. In light of the Board's conclusion on this issue, it is unnecessary to determine the precise methodology the Region used to notify the public of the interpreter's availability.

SR 0906

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

IN RE TUCSON ELECTRIC POWER

PSD Appeal No. 18-02

ORDER DENYING REVIEW

Decided December 3, 2018

Syllabus

The Sierra Club petitions the Environmental Appeals Board ("Board") to review a decision by the Department of Environmental Quality for Pima County, Arizona ("Pima County") to issue a federal Prevention of Significant Deterioration ("PSD") permit to Tucson Electric Power. The permit authorizes Tucson Electric Power to construct and operate up to ten additional electricity-generating units ("Units") at its Irvington Generating Station facility. Sierra Club challenges Pima County's determination that PSD requirements do not apply to the nitrogen oxide ("NO_x") emissions from the modified facility. Although the permit contains a cap that limits NO_x emissions below the level triggering PSD requirements, Sierra Club argues that the permit's monitoring requirements are not adequate to render the NO_x emissions cap practically enforceable and thus PSD requirements should apply.

The permit imposes several monitoring requirements to verify compliance with the NO_x emissions cap. Those requirements include, among other things: (i) biennial performance (stack) tests to determine how much NO_x each Unit emits; (ii) calculation of monthly and yearly NO_x emissions using information from the required stack tests and monitoring of ongoing operations; and (iii) monitoring of the pollution control devices for the new Units to ensure that the devices are working properly. Pima County concluded that these compliance monitoring requirements were sufficient to make the NO_x emissions cap practically enforceable.

Held: The Board denies Sierra Club's Petition for Review. Sierra Club has not carried its burden of showing that Pima County clearly erred or abused its discretion in determining that the NO_x emissions cap is practically enforceable.

Sierra Club's argument that the NO_x emissions cap is not practically enforceable because the permit's compliance monitoring requirements rely solely on biennial stack tests lacks merit because monitoring of the facility's pollution control devices is also an integral part of the permit's compliance monitoring requirements. Sierra Club's contention that the monitoring of the pollution control devices does not cure the problem with the permit's reliance on biennial stack tests was not preserved for review because that assertion

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

was not raised during the public comment period. In any event, Sierra Club's contention is not responsive to the role of monitoring of the pollution control devices as described by Pima County. Additionally, Sierra Club does not substantiate its argument that Pima County failed to support in the administrative record its conclusion that the method for calculating monthly and yearly NO_x emissions would likely overstate emissions. Lastly, Pima County adequately responded to Sierra Club's comments on the practical enforceability of the NO_x emissions cap. Pima County responded to Sierra Club's generalized claims on the inadequacy of biennial stack testing to monitor compliance throughout the year by providing a description of all the elements of the permit's compliance monitoring requirements. Given the general nature of Sierra Club's comments, more was not required.

Before Environmental Appeals Judges Aaron P. Avila, Mary Kay Lynch, and Mary Beth Ward.

Opinion of the Board by Judge Ward:

I. *STATEMENT OF THE CASE*

This case involves a challenge by the Sierra Club to a determination in a federal Clean Air Act permit that the Act's Prevention of Significant Deterioration ("PSD") requirements do not apply to the emissions of nitrogen oxides – commonly referred to as NO_x – from a facility owned and operated by Tucson Electric Power ("Tucson Electric"). Potential NO_x emissions from the facility are reduced by pollution control devices, and the permit imposes a limit (or cap) on NO_x emissions consistent with the control devices' ability to reduce emissions. In such circumstances, the applicability of PSD requirements is based on the facility's emission rate, as reduced by the control devices, so long as the cap on the reduced emissions is enforceable as a practical matter. The specific issue presented here is whether the challenged permit's compliance monitoring requirements are sufficient to make the NO_x emissions cap practically enforceable.

In August 2018, the Department of Environmental Quality for Pima County, Arizona ("Pima County") issued a federal PSD permit ("Permit") to Tucson Electric authorizing the construction and operation of up to ten additional electricity-generating units ("Units") at Tucson Electric's Irvington Generating Station facility. Although the expanded facility would emit several pollutants above levels that trigger PSD requirements, the Permit imposes certain requirements as to NO_x emissions that bring those emissions below levels that trigger such requirements. Specifically, the Permit requires two existing electricity-generating units at the facility to be shut down, mandates the use of pollution control devices on the new Units that reduce NO_x emissions, and imposes a NO_x emissions cap consistent with that reduction.

SR 0908

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

The Permit further imposes monitoring and recordkeeping requirements to verify compliance with the NO_x emissions cap. Those compliance monitoring requirements include, among other things: (i) biennial performance (stack) tests to determine how much NO_x each Unit emits; (ii) calculation of monthly and yearly NO_x emissions using information from the required stack tests and monitoring of ongoing operations; and (iii) monitoring of pollution control devices to ensure that they are working properly. Finding that these compliance monitoring requirements made the NO_x emissions cap practically enforceable, Pima County concluded that PSD requirements do not apply to the new Units as to their NO_x emissions.

In its Petition for Review, Sierra Club argues that the NO_x emissions cap is not practically enforceable – that is, compliance with the cap cannot be verified – because the stack tests are conducted too infrequently, the monthly and yearly emission calculations rely solely on these infrequent stack tests, and the monitoring of pollution control devices does not cure the problem with the infrequent stack tests. As a consequence, Sierra Club contends that PSD requirements should apply to the facility's increased NO_x emissions resulting from its proposed expansion.

We conclude that Sierra Club has not carried its burden of showing that Pima County clearly erred or abused its discretion in determining that the NO_x emissions cap is practically enforceable. The Petition for Review is therefore denied.

II. *PRINCIPLES GOVERNING BOARD REVIEW*

In considering a petition filed under 40 C.F.R. § 124.19(a), the Board first evaluates whether the petitioner has met threshold procedural requirements such as timeliness, standing, issue preservation, and specificity. *In re Indeck-Elwood, LLC*, 13 E.A.D. 126, 143 (EAB 2006). For example, a petitioner must demonstrate that any issues and arguments it raises on appeal have been preserved for Board review (i.e., were raised during the public comment period or public hearing on the proposed permit), unless the issues or arguments were not reasonably ascertainable at the time. 40 C.F.R. §§ 124.13, .19(a)(4)(ii); *see, e.g.*, *In re City of Attleboro*, 14 E.A.D. 398, 405-06, 444 (EAB 2009); *In re City of Moscow*, 10 E.A.D. 135, 141, 149-50 (EAB 2001).

Under part 124, the petitioner bears the burden of demonstrating that review is warranted. *See* 40 C.F.R. § 124.19(a)(4). Ordinarily, the Board will deny review of a permit decision and thus not remand it unless the petitioner demonstrates that the permit decision is based on a clearly erroneous finding of fact or conclusion of law or involves a matter of policy or exercise of discretion that warrants review. *Id.* § 124.19(a)(4)(i)(A)-(B); *see, e.g.*, *In re La Paloma Energy Ctr., LLC*,

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

16 E.A.D. 267, 269 (EAB 2014). The Board's power to grant review "should be only sparingly exercised," and "most permit conditions should be finally determined at the [permit issuer's] level." Consolidated Permit Regulations, 45 Fed. Reg. 33,290, 33,412 (May 19, 1980); *see also* Revisions to Procedural Rules Applicable in Permit Appeals, 78 Fed. Reg. 5281, 5282 (Jan. 25, 2013).

When evaluating a permit decision for clear error, the Board examines the administrative record that serves as the basis for the permit to determine whether the permit issuer exercised "considered judgment" in rendering its decision. *See, e.g.*, *In re Steel Dynamics, Inc.*, 9 E.A.D. 165, 191, 224-25 (EAB 2000); *In re Ash Grove Cement Co.*, 7 E.A.D. 387, 417-18 (EAB 1997). Similarly, the Board will uphold a permitting authority's exercise of discretion if that decision is cogently explained and supported in the record. *See, e.g.*, *La Paloma Energy Ctr.*, 16 E.A.D. at 270, 284, 292. The Board does not find clear error or an abuse of discretion simply because petitioner presents a difference of opinion or alternative theory regarding a matter. *See In re Town of Ashland Wastewater Treatment Facility*, 9 E.A.D. 661, 667 (EAB 2001); *In re NE Hub Partners, L.P.*, 7 E.A.D. 561, 567-68 (EAB 1998), *review denied sub nom. Penn Fuel Gas, Inc. v. EPA*, 185 F.3d 862 (3d Cir. 1999). And on matters that are fundamentally technical or scientific in nature, the Board typically defers to a permit issuer's technical expertise and experience, as long as the permit issuer has adequately explained its rationale and supported its reasoning in the administrative record. *See, e.g.*, *In re FutureGen Indus. All., Inc.*, 16 E.A.D. 717, 733-35 (EAB 2015), *review dismissed as moot sub nom. DJL Farm LLC v. EPA*, 813 F.3d 1048 (7th Cir. 2016).

III. *STATUTORY AND REGULATORY HISTORY*

The PSD provisions of the Clean Air Act govern air pollution both in "attainment" areas, where the air quality meets or is cleaner than the Environmental Protection Agency's ("EPA") national ambient air quality standards, and in "unclassifiable" areas where EPA has not categorized the air quality as having attainment or nonattainment status. Clean Air Act ("CAA") §§ 160-169, 42 U.S.C. §§ 7470-7479; *see also In re Palmdale Energy, LLC*, PSD Appeal No. 18-01, slip op. at 4-7 (EAB Oct. 23, 2018), 17 E.A.D. ___ (providing in-depth description of the PSD program). In both these areas, the PSD program requires that new "major stationary sources" of air pollutants or "major modifications" to such sources obtain a permit prior to construction.[1] *See* CAA § 165, 42 U.S.C. § 7475; 40 C.F.R.

[1] The actual term in the PSD statutory provisions is "major emitting facility." *See* CAA § 169(1), (2)(C), 42 U.S.C. § 7479(1), (2)(C). The related term "major stationary source" is used elsewhere in the Clean Air Act, s*ee* CAA § 111(a), (f), 40 U.S.C. § 7411(a),

SR 0910

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

§ 52.21. Among other things, an applicant for a PSD permit must show that its facility will achieve emission limits attainable by the "best available control technology" for pollutants emitted from the facility above designated levels. CAA § 165(a)(4), 42 U.S.C. § 7475(a)(4); 40 C.F.R. § 52.21(b)(23), (j)(2)-(3).

Under the regulations implementing the PSD program, a "major stationary source" is, among other things, any source from certain source categories (including fossil fuel-fired steam electric power plants such as the facility here) that have the "potential to emit" 100 tons per year or more of any of several regulated pollutants, including NO_x.[2] 40 C.F.R. § 52.21(b)(1)(i). A "major modification" is "any physical change in or change in the method of operation of a major stationary source" that would result in: (1) a "significant emissions increase" of any of such pollutants; and (2) a "significant net emissions increase" of any of such pollutants. *Id.* § 52.21(b)(2)(i). The regulations define a significant emissions increase and significant net emissions increase on a pollutant-by-pollutant basis. *Id.* § 52.21(b)(23), (40). For NO_x, a significant increase and a significant net increase are both defined as an increase of 40 tons per year. *Id.*

A critical aspect of determining whether a new source or the modification of a source would be a major source or major modification, respectively, is ascertaining the new source or modification's "potential to emit" pollutants and whether that potential meets or exceeds designated levels. "Potential to emit" has been defined by regulation as requiring consideration of "[a]ny physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment." *Id.* § 52.21(b)(4). However, the definition makes clear that a pollution control device's limitation on capacity can only be considered in determining a facility's potential to emit "if the limitation or the effect it would have on emissions is federally enforceable." *Id.*

(f). The Act recognizes the similarity between the two terms by defining "major stationary source" and "major emitting facility" as synonymous "[e]xcept as otherwise expressly provided." CAA § 302(j), 42 U.S.C. § 7602(j); *see Chevron, U.S.A., Inc. v. NRDC, Inc.*, 467 U.S. 837, 860 (1984). In implementing the PSD program, EPA uses the terms "major stationary source" and "major modification," 40 C.F.R. § 52.21(b)(1), (2), and, therefore, the Board will use that terminology as well. *See* U.S. EPA, *New Source Review Workshop Manual*, at A.1 (draft Oct. 1990).

[2] The applicable regulation defines these pollutants as including "[a]ny pollutant for which a national ambient air quality standard has been promulgated." 40 C.F.R. § 50.21(b)(50)(i).

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Whether a physical or operational limitation on a source's emissions is "federally enforceable" has been interpreted by EPA as meaning that the emission limit reflecting the physical or operational limitation is "enforceable as a practical matter," or "practically enforceable." Memorandum from John S. Seitz, Dir., Office of Air Quality Planning & Standards, U.S. EPA, and Robert I. Van Heuvelen, Dir., Office of Regulatory Enf't, U.S. EPA, to EPA Reg'l Air Div. Dirs., Options for Limiting the Potential to Emit (PTE) of a Stationary Source Under Section 112 and Title V of the Clean Air Act 3 & attach. 3, at 1 (Jan. 25, 1995) ("Seitz Memorandum"); *see also In re Peabody W. Coal Co.*, 12 E.A.D. 22, 32 (EAB 2005). To be practically enforceable, a permit must, among other things, specify "the method to determine compliance including appropriate monitoring, recordkeeping, and reporting." Seitz Memorandum at 6; *cf.* 40 C.F.R. § 49.152 (defining "enforceable as a practical matter" in a similar manner for air quality planning and management in Indian country). To be appropriate, such monitoring, recordkeeping, and reporting must be sufficient to allow a permitting agency to verify a source's compliance with the permit's emission limit. *See In re Shell Offshore, Inc.*, 15 E.A.D. 536, 557, 559 n.25 (EAB 2012) (holding that the permit issuer did not clearly err in concluding that emission limits were practically enforceable because the permit's monitoring requirements provided "the ability to assess and verify compliance"); *Peabody*, 12 E.A.D. at 39-41 (finding no clear error by the permit issuer in determining that the permittee's proposed monitoring requirements were insufficient to make an emission limit practically enforceable because the requirements did not provide "a reliable method of determining compliance"); *In re Pencor-Masada Oxynol, LLC*, Pet. No. II-2001-05, 2002 EPA CAA Title V LEXIS 44, at *16 (Adm'r Apr. 8, 2002) (stating that for an emission limit to be practically enforceable, the permit must contain terms and conditions sufficient "to determine whether the limit has been exceeded").

Pima County's Department of Environmental Quality administers the federal PSD permitting program within Pima County, Arizona pursuant to a delegation from EPA. *See* Agreement for Delegation of Source Review under the Federal Prevention of Significant Deterioration (PSD) Program Set Forth in 40 CFR 52.21 by the United States Environmental Protection Agency, Region 9 to the Pima County Air Quality Control District (June 5, 2018). Accordingly, the Tucson Electric Permit is a federally-issued permit appealable to the Board under section 124.19 of Title 40 of the Code of Federal Regulations. 40 C.F.R. § 124.19(a)(1).

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

IV. *FACTUAL AND PROCEDURAL HISTORY*

A. *Tucson Electric's Proposed Expansion of the Irvington Generating Station Facility*

Tucson Electric is proposing to expand its fossil fuel-fired steam electric power plant, known as the Irvington Generating Station, by building up to ten new internal combustion engine units ("Units"). Pima Cty. Dep't of Envtl. Quality, *Prevention of Significant Deterioration Air Quality Permit, Permit No. 1052*, at 4 (Aug. 8, 2018) (Administrative Record ("A.R.") 23) ("Permit"). Tucson Electric plans to use these new Units to support increased use of wind and solar-generated electrical power sources. The new Units can compensate for the variability of wind and solar power sources by providing "[r]eliable, efficient, grid-balancing resources which can ramp up quickly and provide 100 percent of their [effective load carrying capability] during multiple peak periods of any length." Tucson Elec. Power, *Application for a Prevention of Significant Deterioration (PSD) Authorization and Significant Revision to Class I Air Quality Permit for Irvington Generating Station* 2-2, 2-5 (July 2017) (A.R. 2) ("Permit Application").

The Irvington Generating Station is a major stationary source subject to the Clean Air Act's PSD program and is in an area designated by EPA as in attainment. Permit at 4. Because the proposed addition of ten new Units would significantly increase potential emissions of several regulated pollutants, this expansion of the facility qualifies as a major modification and triggers PSD requirements. *Id*. Accordingly, Tucson Electric applied to Pima County to amend its existing air quality permit (referred to as a Class I permit) and convert it to a combined PSD permit and Class I permit.[3]

The modified facility would have triggered PSD requirements for its NO_x emissions; however, Tucson Electric requested a limit on NO_x emissions – referred to by the parties as a NO_x emissions cap – for the new Units to keep their emissions below the PSD threshold.[4] *See* Letter from Conrad Spencer, Tucson Elec. Power,

---

[3] The Class I permit was required to allow construction and operation of the original facility under the Arizona Administrative Code, *see* Ariz. Admin. Code § R18-2-302, which implements Arizona's operating permits program, authorized by EPA under Title V of the Clean Air Act, 42 U.S.C. §§ 7661-7661f. *See* Clean Air Act Full Approval of the Arizona Operating Permits Program, 66 Fed. Reg. 63,175 (Dec. 5, 2001) (final rule fully approving Arizona's operating permits program).

[4] In the Administrative Record, the limitation on NO_x emissions is described interchangeably as a "cap" and a "limit." *See, e.g.*, Permit at Part B § II.A.1. For clarity

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

to Rupesh Patel, Pima Cty. Dep't of Envtl. Prot. (Feb. 23, 2018) (A.R. 13) (requesting NO_x emissions cap of 170 tons per year). Tucson Electric also identified in its permit application three other aspects of the modified facility that would curtail NO_x emissions from the new Units or the overall facility. First, each new Unit would be equipped with a selective catalytic reduction device that would substantially reduce NO_x emissions. *See* Permit Application at 2-6, 3-3. Second, the Units would be limited to five startups per day. *See id.* at 2-6. Third, two existing steam-generating units at the facility would be permanently shut down offsetting, in part, the increase in NO_x emissions from the addition of the ten new Units. *See id.* at 2-5, 4-9. In combination, these terms of operation would limit the net increase in NO_x emissions from the expansion of the Irvington facility to an amount that is below the "significant" level of 40 tons per year.[5] Permit at 4.

We describe below: (i) the terms of the proposed combined PSD and Class I permit ("Proposed Permit") noticed for public comment with a focus on the compliance monitoring requirements pertaining to the NO_x emissions cap, *see* Part IV.B; and (ii) Sierra Club's comments on the Proposed Permit and Pima County's response to those comments, *see* Part IV.C.

B. *The Proposed Permit's Requirements Concerning the NO_x Emissions Cap*

In February 2018, Pima County issued the Proposed Permit for public comment. The Proposed Permit included the conditions necessary to restrict NO_x emissions below the level triggering PSD requirements – requiring use of selective catalytic reduction devices on each new Unit, limiting startups of the new Units to five per day, retiring two existing steam-generating units, and a 170 tons per year NO_x emissions cap – and imposed requirements to verify compliance with the NO_x

---

and consistency, the Board will use the term "cap" to refer to the limitation on NO_x emissions.

[5] The to-be-eliminated steam units emit approximately 140 tons per year of NO_x. Thus, the replacement of these units with the ten new Units (limited to a combined total of 170 tons per year of NO_x) would result in a net legally-allowed increase of NO_x of approximately 30 tons per year. *See* Pima Cty. Dep't of Envtl. Quality, *Responses to Public Comments* 7 (Aug. 8, 2018) (A.R. 22) ("RTC"). Further, Pima County estimated that the ten Units would emit 152.8 tons per year of NO_x – i.e., less than the 170 tons per year cap – based on the manufacturer's specifications on NO_x emissions from the Units with selective catalytic reduction devices and assuming five startups per day, the maximum allowed under the Permit. Pima Cty. Dep't of Envtl. Quality, *Technical Support Document* attach. B at 2 tbl.B-2 (Aug. 2018) (A.R. 24).

emissions cap. Pima Cty. Dep't of Envtl. Quality, *Proposed Prevention of Significant Deterioration Air Quality Permit, Permit No. 1052*, at 4 & Part B § V.E (Feb. 9, 2018) (A.R. 12.1) ("Proposed Permit").

As to the verification of compliance, the Proposed Permit specified that "[c]ompliance with the NO_x emission [cap] shall be demonstrated by performance tests as detailed in Condition II.D, monitoring as detailed in Condition II.B, and recordkeeping as detailed in Condition II.C." *Id.* at Part B § II.A.1.b. The performance tests, monitoring, and recordkeeping required for compliance are described further below.

First, the Proposed Permit called for performance tests – also referred to as "stack tests" – for each of the new Units to be conducted "using the methods and procedures in 40 C.F.R. § 60.4244 and Table 2 of 40 C.F.R. part 60, subpart JJJJ." Proposed Permit at Part B § II.D.2.a. For NO_x emissions, these stack tests measure "the concentration of NO_x in the engine exhaust" during operation of the facility at periods other than at startup (i.e., non-startup operating periods). 40 C.F.R. § 60.4244(b), (d). Because the selective catalytic reduction devices must be operated "at all times while fuel is flowing to the [Unit], excluding periods of startup," stack tests reflect the impact the selective catalytic reduction devices have on NO_x emissions. *See* Proposed Permit at Part B § II.A.c.

In addition to the regulatory procedures for stack tests, the Proposed Permit specified that the tests "shall be performed at 25, 40, 70, and 100 percent of peak load" or at the minimum and peak load levels based on the prior twelve months of operation. *Id.* at Part B § II.D.2.b. As to the frequency of testing, each Unit must be tested "within 60 days after achieving the maximum production rate, but not later than 180 days after initial startup." *Id.* at Part B § II.D.1. Thereafter, each Unit must be subjected to a stack test "no less frequently than once in each period of two consecutive calendar years," but at least five of the Units must be tested each calendar year. *Id*. This means that each Unit will be tested at least once every two years.

Second, the Proposed Permit imposed several monitoring and recordkeeping requirements to verify continuing compliance with the NO_x emissions cap. These monitoring and recordkeeping requirements established a procedure for calculating monthly and yearly NO_x emissions and a program for ensuring that the selective catalytic reduction devices are operated properly at all times. *See id.* at Part B § II.C.

The Proposed Permit required the calculation of NO_x emissions on a monthly and yearly basis for non-startup and startup operating periods. For non-

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

startup operating periods, the Proposed Permit required that monthly NO_x emissions be calculated by combining information on NO_x emission rates measured in required stack tests with monitoring data on the operation of the Units. Specifically, the Proposed Permit required that Tucson Electric calculate a NO_x "emission factor" from the most recent stack test expressed in terms of pounds of NO_x emitted per the heat input measured in British thermal units ("BTUs") of natural gas used to power the Unit. *Id.* at Part B § II.D.2.c. Additionally, the Proposed Permit required Tucson Electric to monitor and record the hours of operation of each Unit and natural gas consumption in BTUs during operation. *Id.* at Part B § II.B.1. The Proposed Permit then directed that Tucson Electric calculate monthly NO_x emissions during non-startup operating periods on a Unit-by-Unit basis by multiplying each Unit's emission factor by the BTUs of heat input used by the Unit over the month during these operating periods. *Id.* at Part B § II.C.9.

For startup operating periods, the Proposed Permit required that monthly NO_x emissions be calculated by multiplying the number of startups per Unit in a month by the manufacturer-supplied NO_x rate of emissions for startup ("startup emission rate") of the Unit. *Id.* at Part B § II.C.9. To implement this requirement, the Proposed Permit specified that Tucson Electric monitor the number of startups for all Units and record the number and duration of all startups. *Id.* at Part B § II.B.2, II.C.1. Emission calculations for startup operating periods are then combined with emission calculations for non-startup operating periods to calculate total monthly emissions and a twelve-month (i.e., yearly) rolling average of NO_x emissions. *Id.* at Part B § II.C.9.

Lastly, the Proposed Permit imposed additional requirements as to the selective catalytic reduction devices to assure proper functioning of these devices. These monitoring and recordkeeping requirements included the following: (i) the devices must be maintained and operated in a manner consistent with good air pollution control practice for minimizing NOx emissions; (ii) the catalyst in the devices must be cleaned and replaced according to the manufacturer's recommendations; (iii) two key operating parameters of the devices – ammonia injection rate and temperature – must be monitored and recorded at least once every fifteen minutes; (iv) if ammonia injection to a device fails and cannot be restored in ten minutes, the Unit must be shut down; (v) records must be kept of any instance in which ammonia injection fails for more than two minutes; and (vi) the selective catalytic reduction devices must have a continuous NO_x process monitor (which measures NO_x concentration and adjusts ammonia injection levels to achieve desired NO_x reduction). Proposed Permit at Part B § II.A.1.c, II.B.3, II.C.4; *see* Hug Eng'g, *Operating Manual: Control Unit SNQ* 1 (v03.00 Mar. 6, 2013) (A.R. 12).

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

C. *Sierra Club's Comments on the Proposed Permit and Pima County's Response*

Sierra Club submitted comments on the Proposed Permit arguing, among other things, that the NO_x emissions cap is not "practically enforceable,"[6] and thus the cap cannot be considered a limitation on the facility's potential to emit NO_x. Sierra Club, *Intent to Approve: Proposed Revision to the existing Air Quality Permit No. 1052 to Tucson Electric Power (TEP) Irvington/H. Wilson Sundt Generating Station (IGS)* 8-9 & attach. at 20 (Mar. 29, 2018) (A.R. 21.2) ("Sierra Club Comments"). Sierra Club contended that absent a practically enforceable limitation on the facility's potential to emit NO_x, Pima County erred in concluding that PSD requirements are not applicable to NO_x emissions. In its comments and in an expert report attached to its comments, Sierra Club advanced three arguments as to why the NO_x emissions cap is not practically enforceable.

First, Sierra Club contended that the Proposed Permit's compliance monitoring for NO_x was inadequate because it relied on stack tests that could be performed as infrequently as every two years. *Id.* at 2, 9. Sierra Club argued that "using stack tests once every two years to determine whether the [Units] are in compliance with the permit is woefully inadequate." *Id.* The expert report attached to Sierra Club's comments asserted that stack tests "may not be representative for emissions during routine operations" because stack tests do not provide data on whether pollution control devices at a facility are functioning at an effective level at times other than when the stack test is performed. *Id.* attach. at 21-22 & n.59 (citing to EPA comment letters on state permits that raise this concern as a reason to require additional compliance monitoring to supplement annual stack tests). The solution, according to the expert report, would be to require Continuous Emissions Monitors. *Id.* attach. at 23. The report argued that without Continuous Emissions Monitors, "community members will not be able to protect themselves against harmful emissions and local, state, and federal regulatory agencies cannot detect and cure violations of permit conditions." *Id.*

Second, Sierra Club argued that the NO_x emissions cap is not practically enforceable because the Permit does not contain an "unambiguous methodology for calculating NO_x emissions from the emission [stack] test." *Id.* attach. at 25; *see*

---

[6] Sierra Club uses the term "practicably enforceable" as well as "practically enforceable" in its Petition. *See, e.g.,* Petition for Review of Prevention of Significant Deterioration Permit 1, 6 (Sept. 7, 2018) ("Pet."). But as we see no difference between the two (and Sierra Club does not assert that there is), the Board will use the term "practically enforceable" for clarity and consistency.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

also id. at 2, 9. Sierra Club requested that the Proposed Permit "be revised to include an equation that lays out the emission calculation in detail." *Id.* attach. at 25.

Third, Sierra Club asserted that there was no record support for a manufacturer-supplied NO_x emission rate during startup, which was to be used to calculate emissions during startup operating periods. *Id.* at 2, 9 & attach. at 25. Although the Proposed Permit referred to the NO_x startup emission rate as "guaranteed," Sierra Club noted that there was no manufacturer guarantee provided for a startup NO_x emission rate included in an attachment to the draft Technical Support Document. *Id.* attach. at 25.

In August 2018, Pima County issued the Permit and its response to the public comments ("Response to Comments") received on the Proposed Permit, including its response to each of Sierra Club's comments on whether the NO_x emissions cap is practically enforceable.

As to Sierra Club's comment about the adequacy of stack tests for determining continuing compliance with the NO_x emissions cap, Pima County acknowledged that "EPA has indicated * * * that annual [stack] tests alone are insufficient to assure compliance with emission limits." Pima Cty. Dep't of Envtl. Quality, *Responses to Public Comments* 10 (Aug. 8, 2018) (A.R. 22) ("RTC"). However, Pima County explained that the Permit does not rely solely on the results of stack tests to determine compliance. *Id.* Pima County detailed how monthly and yearly NO_x emissions would be calculated using conservative non-startup emission factors and a similarly conservative startup emission rate and how monitoring of the selective catalytic reduction devices would assure that these control devices function properly at all times. *Id.* at 10-13.

In response to the request for an unambiguous methodology in calculating NO_x emissions, Pima County revised the Permit to include "a more detailed compliance determination methodology, expressed in the form of an equation." *Id.* at 13. Pima County noted that "[t]his methodology clearly indicates the emission factors and monitored data that will be used when calculating total NO_x emissions from the engines." *Id.*; *compare* Proposed Permit at Part B § II.C.9 *with* Permit at Part B § II.C.9.

Finally, to address the concern with the manufacturer-supplied startup emission rates, Pima County clarified that it had meant to reference the manufacturer-specified, not manufacturer-guaranteed, startup emission rates, and it amended the Permit accordingly. RTC at 12; *see* Permit at Part B § II.C.9. Further, Pima County admitted it had not included the latest manufacturer data in the

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

administrative record and explained that it had corrected this error by obtaining a waiver of the manufacturer's confidentiality claim concerning this information and included the information on its website. RTC at 4, 12.

This appeal followed.

V. *ANALYSIS*

In its Petition for Review, Sierra Club renews its challenge to Pima County's determination that the Permit's inclusion of a NO_x emissions cap prevents the addition of the ten new Units to Tucson Electric's Irvington facility from triggering PSD requirements for NO_x emissions. The sole issue that Sierra Club raises on appeal is whether the NO_x emissions cap is practically enforceable.

Specifically, Sierra Club argues (as it did in its comments) that biennial stack tests – used to develop each Unit's emission factor for calculating non-startup operating period emissions – are too infrequent to verify compliance with the NO_x emissions cap. Petition for Review of Prevention of Significant Deterioration Permit 5, 7 (Sept. 7, 2018) ("Pet."). Sierra Club further contends that reliance on biennial stack testing is not cured by the Permit's compliance monitoring requirements for the selective catalytic reduction devices or by Pima County's assertion that the emission factors for non-startup operating periods are required to be calculated in a conservative fashion. *Id.* at 12, 16 n.37. In a related vein, Sierra Club also asserts that Pima County's response to its comments was inadequate because Pima County did not "show that the permit relies on sufficient monitoring data to assure accurate and continuous monthly compliance with the NO_x cap." *Id.* at 12.

Mirroring its response to Sierra Club's comments, Pima County defends the practical enforceability of the NO_x emissions cap in its Response to the Petition by emphasizing the interconnected relationship of the entire suite of the Permit's compliance monitoring requirements. Pima County's Response to Sierra Club's Petition for Review 15, 17-19 (Oct. 1, 2018) ("Pima County Resp."); *see also* Response of Permittee Tucson Electric Power to Petition for Review 10-15 (Sept. 28, 2018) ("Tucson Electric Resp.").[7] Pima County does not claim that biennial

[7] Additionally, Tucson Electric contends that the Petition should be summarily dismissed because the question of whether a permit's compliance monitoring requirements are sufficient to ensure the practical enforceability of an emissions cap is not a "novel issue," as the Board and the Administrator have upheld substantially similar challenges to the practical enforceability of an emissions cap in *In re Shell Offshore, Inc.*, 15 E.A.D. 536,

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

stack testing is sufficient to make the NO_x emissions cap practically enforceable. Pima County Resp. at 16. Nor do we read Pima County's Response to Comments or its Response to the Petition as contending that biennial stack testing combined with monthly and yearly emission calculations based on that testing would *alone* provide adequate compliance monitoring requirements for the expansion of the Irvington facility. *Id.* Rather, Pima County argues that the NO_x emissions cap is practically enforceable based on how the biennial stack testing and the monthly and yearly emission calculations requirements are complemented by: (i) the requirements pertaining to the use, operation, and monitoring of the selective catalytic reduction devices; and (ii) the Permit's conservative methodology for calculating emission factors. *Id.* at 15-19; *see also* Tucson Electric Resp. at 11-15.

Given the Permit's compliance monitoring requirements and Pima County's justification for the practical enforceability of the NO_x emissions cap, the issues before us are narrower than stated by Sierra Club. Sierra Club's objections to the adequacy of the biennial stack tests and stack test-derived emission factors are not responsive to the actual compliance monitoring requirements in this Permit – which include more than stack tests and stack-test derived emission factors – and Pima County's explanation of how compliance with the Permit's NO_x emissions cap will be verified.[8] Thus, we need not determine whether biennial stack tests and use of

---

546-67 (EAB 2012), and *In re Pope & Talbot, Inc., Lumber Mill*, Pet. No. VIII-2006-04, 2007 EPA CAA Title V LEXIS 3, at *12-13 (Adm'r Mar. 22, 2007). Tucson Electric Resp. at 7. We reject this argument. The Board's two main decisions involving a similar issue, *Shell Offshore* and *Peabody*, 12 E.A.D. at 34-47, as well as the Administrator's decision in *Pope & Talbot*, turned on a fact-based analysis of the permit in question, the nature of the facility, and the claims of the petitioner. They do not stand for the proposition that any permit using emission factors and monitoring of control devices to verify compliance with an emissions cap can be summarily affirmed as sufficient to ensure the practical enforceability of that cap.

[8] At times, several of Sierra Club's statements in its Petition and its comments appear to question the adequacy of the regulatorily-established requirements for conducting performance (stack) tests in subpart JJJJ, 40 C.F.R. § 60.4244, to determine the compliance of internal combustion engines with NO_x emission limitations. *See* Pet. at 11 (arguing that stack tests provide inadequate emissions compliance data due to the shortness of the tests and because they are conducted under ideal, prearranged conditions); Sierra Club Comments attach. at 21-22 & n.59 (same). To the extent Sierra Club intends this Petition to be a challenge to the requirements for tests in subpart JJJJ, 40 C.F.R. § 60.4244, that question is not properly before the Board because challenges to Clean Air Act regulations must be brought in the U.S. Court of Appeals, District of Columbia Circuit, within 60 days of promulgation. 42 U.S.C. § 7607(b). Moreover, the Board does not

SR 0920

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

emission factors based on those biennial stack tests to project monthly and yearly emissions – standing alone – would be sufficient to verify compliance with the NO_x emissions cap. What remains at issue, however, are Sierra Club's challenges to: (i) Pima County's reliance on two aspects of the Permit's compliance monitoring requirements – monitoring of the selective catalytic reduction devices and the conservative methodology for calculating emission factors for non-startup operating periods – to ensure the NO_x emissions cap is practically enforceable; and (ii) the adequacy of Pima County's response to Sierra Club's comments on the practical enforceability of the NO_x emissions cap. We address these contentions in turn below.

A. *Sierra Club's Challenges to the Permit's Compliance Monitoring Requirements*

1. *Sierra Club Fails to Show Clear Error in Pima County's Reliance on Monitoring of the Selective Catalytic Reduction Devices to Ensure the NO_x Emissions Cap is Practically Enforceable*

As discussed, the Permit's compliance monitoring requirements have two main components in addition to stack tests. The first component involves calculating monthly and yearly NO_x emissions for each Unit during non-startup and startup operating periods. NO_x emissions for non-startup periods are based on NO_x emission factors derived from stack tests conducted every two years and for startup periods are based on manufacturer data. The second component is monitoring of the selective catalytic reduction devices.

In its Petition, Sierra Club contends that the monitoring requirements for the selective catalytic reduction devices do not cure the problem with the Permit's reliance on stack tests and stack test-derived emission factors because the monitoring does not produce data to be "included in the formula to establish the NO_x emission factor." Pet. at 12. To the extent Sierra Club is challenging Pima County's conclusion that the monitoring requirements for the selective catalytic reduction devices are, in combination with the Permit's other monitoring requirements, adequate to ensure the NO_x emissions cap is practically enforceable, this argument is raised for the first time in Sierra Club's Petition. As a result, it has not been preserved for Board review. The regulations governing Board review of

---

review EPA regulations as part of permit appeals. *See In re FutureGen Indus. All., Inc.*, 16 E.A.D. 717, 724 (EAB 2015) (the Board "is not the appropriate forum" for raising dissatisfaction with an EPA regulation); *In re Tondu Energy Co.*, 9 E.A.D. 710, 715-16 (EAB 2001) ("As we have repeatedly stated, permit appeals are not appropriate fora for challenging Agency regulations.").

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

permit appeals, require that the party seeking review establish "that each issue being raised in the petition was raised during the public comment period (including any public hearing)," or demonstrate that the issue was not "reasonably ascertainable" at that time. 40 C.F.R. § 124.13, 19(a)(4)(ii); *see, e.g.*, *In re Seneca Res. Corp.*, 16 E.A.D. 411, 415 (EAD 2014). As the Board has previously explained, "[t]he effective, efficient and predictable administration of the permitting process demands that the permit issuer be given the opportunity to address potential problems with draft permits before they become final." *In re Encogen Cogeneration Facility*, 8 E.A.D. 244, 250 (EAB 1999). This is a particularly important requirement as to technical issues such as the adequacy of the compliance monitoring requirements presented here because "the locus of responsibility for important technical decisionmaking rests primarily with the permitting authority, which has the relevant specialized expertise and experience." *Peabody*, 12 E.A.D. at 33.

Although Sierra Club did challenge the practical enforceability of the NO_x emissions cap in its comments, Sierra Club did not include as part of that challenge any critique of the role that the monitoring requirements for the selective catalytic reduction devices play. In fact, Sierra Club's comments never even mentioned the Permit's monitoring requirements for the selective catalytic reduction devices.

The section in Sierra Club's comments addressing practical enforceability of the NO_x emissions cap contains four paragraphs: (1) two paragraphs describing in general terms the legal requirement for practically enforceable emission limits; (2) one paragraph arguing that the Permit contained nothing more than a "[b]lanket" emission limitation, which was not practically enforceable; and (3) a final paragraph raising the frequency of stack tests and two other unrelated concerns with practical enforceability of the NO_x emissions cap. Sierra Club Comments at 8-9. The two other concerns were described in that final paragraph as follows:

> [Sierra Club's] expert comments detail at length the enforceability issues with the proposed permit. Specifically, using stack tests once every two years to determine whether the [Units] are in compliance with the permit is woefully inadequate. *The permit does not contain an unambiguous methodology for demonstrating compliance with the annual NO_x emission cap, and there is no support for the applicant's "vendor-guaranteed" NO_x rate that is used to demonstrate compliance*.

Id. at 9 (emphasis added) (footnote omitted). While Sierra Club's expert report, which was attached to its comments, expanded on the concerns raised with stack

tests, the methodology issue as to emission factors, and the manufacturer data on NO_x emissions during startup, that report did not raise concerns with or otherwise discuss the Permit's monitoring requirements for the selective catalytic reduction devices. *See Id.* attach. at 20-25.

Sierra Club cannot claim that Pima County did not provide notice of the role that monitoring of the selective catalytic reduction devices plays in verifying compliance with the NO_x emissions cap. On its face, the Proposed Permit expressly stated that its requirements for monitoring of selective catalytic reduction devices are an element bearing on verifying compliance with the NO_x emissions cap. Condition II.A.1.b of the Proposed Permit provided that "[c]ompliance with the NO_x emission limit shall be demonstrated by performance [i.e. stack] tests as detailed in Condition II.D, monitoring as detailed in Condition II.B, and recordkeeping as detailed in Conditions II.C." Proposed Permit at Part B § II.A.1.b. And Conditions II.B and II.C on monitoring and recordkeeping, as well as Condition II.A addressing emission limitations, contain multiple requirements pertaining to monitoring of the selective catalytic reduction devices in addition to requirements as to stack tests and calculation of monthly and yearly emissions. *See id.* at Part B § II.A.1 (setting the 170 tons per year NO_x emission limit, requiring installation of selective catalytic reduction devices with continuous NO_x process monitors, and imposing operating requirements on such devices); *id.* at Part B § II.B (requiring monitoring of fuel consumption and startups of the new Units and monitoring of operating parameters – ammonia injection rate and temperature – for selective catalytic reduction devices); *id.* at Part B § II.C (requiring records be kept of the monitoring of fuel consumption, of startups of the engines, and of the operating parameters of the selective catalytic reduction devices; and specifying that monthly and yearly NO_x emissions must be calculated). Thus, the Permit's reliance on monitoring of the selective catalytic reduction devices as a key part of determining compliance with the NO_x emissions cap was reasonably ascertainable at the time of the comment period. Any challenge to the way in which the monitoring of the selective catalytic reduction devices functioned in verifying compliance with the NO_x emissions cap should have been presented to the permit issuer in the first instance.

In any event, even if Sierra Club's challenge to Pima County's reliance on the monitoring of the selective catalytic reduction devices to verify compliance with the NO_x emissions cap was preserved for Board review, Sierra Club's specific challenge (the monitoring results are not "included in the formula to establish the 'NO_x emission factor'") reflects a misunderstanding of how the Permit works. *See* Pet. at 12. In response to Sierra Club's general argument about the lack of practical enforceability of the NO_x emissions cap through reliance on biennial stack tests,

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Pima County explained that it was not relying solely on stack tests to verify compliance. In addition to the required stack tests, Pima County pointed to the Permit's requirements to calculate monthly and yearly NO_x emissions and the monitoring of the selective catalytic reduction devices. RTC at 10-13. As to the latter, Pima County explained that monitoring of the selective catalytic reduction devices would assure that the devices were functioning properly "at all times." *Id.* at 10. Pima County's intent was not to obtain data from this monitoring to adjust the emission factors. Instead, the data are required to make sure the selective catalytic reduction devices are working properly at all times. Thus, Sierra Club's argument in its Petition is not responsive to the role of monitoring of the selective catalytic reduction devices as described by Pima County.

2. *Sierra Club Fails to Show Clear Error in Pima County's Determination that the Non-Startup Emission Factors Are Conservative*

In a footnote to its Petition, Sierra Club also takes issue with Pima County's assertion that the methodology for calculating emission factors for non-startup operating periods is conservative. Pet. at 16 n.37. Under Board case law, a determination such as this one by Pima County "requires the sort of quintessential technical expertise the permit issuer possesses." *In re Shell Offshore, Inc.*, 15 E.A.D. 536, 558 (EAB 2012) (upholding a permit issuer's choice of emission factors in a challenge to the practical enforceability of an emissions cap limiting a facility's potential to emit). Sierra Club has not met the "particularly heavy burden" it bears on this technical question. *See Peabody*, 12 E.A.D. at 41.

Sierra Club disputes that calculating non-startup emission factors from the highest emission rate produced during required stack tests will, as Pima County claims, result in an emission factor that "over-calculat[es]" NO_x emissions. Pet. at 16, n.37. Sierra Club maintains that there is no support in the record for this conclusion and no specific calculation of the quantitative extent of the over-calculation. We find no merit in Sierra Club's argument.[9]

[9] Sierra Club's argument here also appears for the first time in its Petition. However, neither the Proposed Permit nor draft Technical Support Document explained that the conservative nature of the methodology for calculating non-startup emission factors was a consideration bearing on the practical enforceability of the NO_x emissions cap. That explanation appears for the first time in the Response to Comments, RTC at 13, and thus Sierra Club's challenge to that rationale may be raised on appeal. *See In re Pio Pico Energy Ctr.*, 16 E.A.D.56, 102 (EAB 2013) (allowing consideration of an issue not

First, although Pima County does state at one point that the Permit's methodology for calculating emission factors based on stack tests will overstate actual emissions, the record as a whole suggests that Pima County did not design the procedure for establishing emission factors to overstate emissions by a specific quantitative amount but rather to guard against understating emissions. For example, Pima County introduced its emission factor methodology by explaining that "certain elements [of the methodology] * * * will inherently produce a conservative calculation of emissions (i.e., a tendency to over-calculate, rather than under-calculate, engine NO_x emissions)." RTC at 13. Nor does the record show that Pima County relied upon a specific quantitative degree of over-calculation in the emission factors to justify the practical enforceability of the NO_x emissions cap.

Second, the Permit's description of the methodology for establishing an emission factor for non-startup operating periods provides sufficient record support for Pima County's description of emission factors as conservative (i.e., likely to overstate emissions). The emission factor methodology requires Tucson Electric to identify the maximum NO_x emissions that will be emitted across the full range of load levels during non-startup operating periods. To do this, the Permit requires Tucson Electric to conduct each stack test across the full range of non-startup operating load levels. Permit at Part B § II.D.2.b. The methodology then requires that the emission factor be calculated using the maximum emission rate found in that test as the presumed emission rate whenever the engine is operating in non-startup conditions, irrespective of the load level at which it is operating. *Id.* at Part B § II.D.2.c. Given that the methodology requires that the highest measured emission rate from stack tests be used in the calculation of emission factors, it was reasonable for Pima County to conclude that this approach is a conservative one. Sierra Club's "bare assertion" to the contrary is not adequate to support the opposite conclusion. *See Shell Offshore*, 15 E.A.D. at 561 n.28 (the Board refuses to rely on a petitioner's "bare assertion" that stack tests supporting emission factors were too infrequent).[10]

---

raised in a public comment "where the permit issuer's reasoning on an issue was not clearly ascertainable from the record at the draft permit stage").

[10] Additionally, Sierra Club ignores that the methodology for calculating emissions during startup operating periods is also designed to conservatively calculate emissions. NO_x emissions differ significantly between "cold" or "warm" startups with cold startups generating approximately three times the NO_x emissions as warm startups. Letter from Conrad Spencer, Tucson Elec. Power, to Rupesh Patel, Pima Cty. Dep't of Envtl. Prot. 6 (Sept. 21, 2017) (A.R. 6) (finding that a cold startup emits 10.3 pounds of NO_x compared

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

For all the above reasons, Sierra Club fails to substantiate its claim that the record does not support Pima County's determination that the emission factor methodology is likely to overstate, not understate, actual emissions.

3. *Conclusion*

Sierra Club failed to preserve for Board review its ability to challenge Pima County's reliance on monitoring of the selective catalytic reduction devices as a component of the Permit's compliance monitoring program. Sierra Club further did not substantiate its challenge to either the adequacy of that monitoring or the conservative emission factor methodology. Accordingly, the Board concludes that Sierra Club has not carried its burden to show that Pima County clearly erred in its determination that the Permit's NO_x emissions cap is practically enforceable.

B. *Sierra Club Fails to Show Pima County Clearly Erred in Responding to Sierra Club's Comments*

Sierra Club asserts that Pima County's "responses to Sierra Club's comments were inadequate." Pet. at 12. In support of that contention, Sierra Club argues that Pima County did not "otherwise show that the permit relies on sufficient monitoring data to assure accurate and continuous monthly compliance with the NO_x cap," and "did nothing to address the fact that the NO_x cap remains practically unenforceable." *Id.*

The adequacy of a permit issuer's response to comments must be evaluated in the context of the content, specificity, and precision of the submitted comments. The Board has held that "parties submitting comments on draft permits must present their concerns with sufficient precision and specificity to apprise the permitting authorities of the significant issues so that the permit issuer can make timely and appropriate adjustments to its permit determination, or, if no adjustments are made, can explain why none are necessary in its response to comments." *In re Pio Pico Energy Ctr.*, 16 E.A.D. 56, 85 (EAB 2013). Where a comment lacks specificity and precision, the permit issuer's obligation to respond is similarly tempered. It is well settled that "permit issuers need not guess the meaning behind imprecise comments and are under no obligation to speculate about possible concerns that were not articulated in the comments." *In re Scituate Wastewater*

---

to a warm startup that emits 3.5 pounds). Nonetheless, the methodology for calculating emissions during startup requires Tucson Electric to assume that all startups are cold startups. Permit at Part B II.C.9.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Treatment Plant, 12 E.A.D. 708, 723 (EAB 2006) (quotations and citations omitted).

Sierra Club's comments on practical enforceability of the NO_x emissions cap focused on the adequacy of biennial stack testing as a form of compliance monitoring and were very general in nature.[11] In its comments, Sierra Club merely stated that "using stack tests once every two years to determine whether the [Units] are in compliance with the permit is woefully inadequate." Sierra Club Comments at 9. The expert report attached to Sierra Club's comments added some detail but not much more. *See id.* attach. at 20-25. The report explained that infrequent stack tests may not be representative of "routine operations" and noted that "EPA itself has stated that annual stack tests are not sufficient to assure compliance with emissions limits." *Id.* attach. at 21-22. The information cited to support this assertion showed that EPA was concerned that annual stack tests may not be adequate to demonstrate compliance throughout the remainder of the year, particularly where the proper functioning of pollution control technology is necessary for the source to meet applicable requirements. *Id.* attach. at 21 n.59. Instead of stack testing, Sierra Club's expert report recommended that the Permit require Continuous Emissions Monitors. *Id.* attach. at 23.

Pima County responded to these comments by first acknowledging that annual stack tests "are insufficient to assure compliance with emission limits." RTC at 10. Pima County then provided a detailed explanation of what other requirements it had included in the Permit to assure sufficient compliance monitoring during all periods of operation. That lengthy explanation touched on the requirements for use of stack test-derived emission factors and manufacturer emission rates to calculate monthly and yearly NO_x emissions, the conservative nature of these emission factors and emission rates, and the required monitoring of the selective catalytic reduction devices. *Id.* at 10-13. This level of detail was more than an adequate response to Sierra Club's comment that the Permit's compliance

[11] As described in Part IV.B, Sierra Club also argued in its comments that the NO_x emissions cap was not practically enforceable because the Proposed Permit lacked a clear statement of the methodology for calculating NO_x emissions from emission factors and because Pima County had not included in the record the manufacturer data on startup emission rates that are required for calculating emissions during startup operating periods. Sierra Club Comments at 2, 9. In response, Pima County amended the Permit to include an equation for calculating NO_x emissions and included in the record the manufacturer data on startup emission rates. RTC at 4, 13. Sierra Club has not suggested these comment responses were inadequate.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

monitoring was "woefully inadequate" and the expert report explanation that infrequent stack tests may not be representative of routine operations. As the Board has previously held, if "an issue is raised only generically during the public comment period, the permit issuer is not required to provide more than a generic justification for its decision, and the petitioners cannot raise more specific concerns for the first time on appeal." *Encogen*, 8 E.A.D. at 251 n.12; *see In re Knauf Fiber Glass, GmbH*, 8 E.A.D. 121, 146-47 (EAB 1999) (where commenter submitted comments challenging representativeness of air quality data without supplying reasons, permit issuer's response that the data is conservative was adequate given the generic nature of the comment).

To the extent Sierra Club now raises concerns about any of the specifics of that response, we have addressed those claims in Part V.A, above. Sierra Club provides no further detail to support its claim of an inadequate response to comments. In fact, a substantial portion of Sierra Club's Petition is composed of block quotes from Pima County's explanation in the Response to Comments of its basis for concluding that the NO_x emissions cap is practically enforceable. *See* Pet. at 13-16. But as the Board's regulations make clear, when a permit issuer has addressed a petitioner's comments in the record, the petitioner must do more than insist that the permit issuer's response is incorrect, the petitioner "must * * * explain why the Regional Administrator's response to the comment was clearly erroneous or otherwise warrants review." 40 C.F.R. § 124.19(a)(4)(ii); *see In re Windfall Oil & Gas, Inc.*, 16 E.A.D. 769, 797-98 (EAB 2015) ("Simply disagreeing with the Region and repeating concerns [raised in public comments] in a petition for review * * * does not satisfy the regulatory requirement that petitioners confront the permit issuer's responses and explain why the responses were clearly erroneous."). Accordingly, the Board concludes that Sierra Club has not shown Pima County clearly erred in the manner in which it responded to Sierra Club's comments.

VI. *CONCLUSION*

For the reasons stated above, the Board denies Sierra Club's Petition for Review.

So ordered.

United States Environmental Protection Agency
Region 5
77 West Jackson Boulevard
Chicago, Illinois 60604

AIR QUALITY CONSTRUCTION PERMIT

Permit Number: **2020-49WION-001**

Issue Date: September 9, 2020 Effective Date: September 9, 2020

In accordance with the provisions of the Clean Air Act and the Federal Minor New Source Review Program in Indian Country, 40 C.F.R. §§ 49.151 – 49.165,

Cintas Corporation

is authorized to construct and operate air emissions units and to conduct other air pollutant emitting activities in accordance with the permit conditions listed in this permit.

This source is authorized to construct in the following location:

Cintas Corporation – Green Bay
800 Isbell Street
Green Bay, WI 54303

Cintas Corporation – Green Bay is located on reservation lands held by the United States government in trust for the Oneida Tribe.

All terms and conditions of the permit are enforceable by the U.S. Environmental Protection Agency and citizens under the Clean Air Act.

_____ _____

Genevieve Damico, Chief Date
Air Permits Section
Air and Radiation Division
U.S. EPA, Region 5

Abbreviations and Acronyms

BTU	British Thermal Unit
CAA	Clean Air Act
C.F.R	Code of Federal Regulations
CO	Carbon Monoxide
DSCF	Dry Standard Cubic Foot
DSCM	Dry Standard Cubic Meter
EPA	U.S. Environmental Protection Agency
g	gram
hr	Hour
lb	Pound
MMBTU	Millions of BTUs
NAAQS	National Ambient Air Quality Standards
NSPS	New Source Performance Standards
NO_x	Oxides of Nitrogen
PM	Particulate Matter
PM_{10}	PM less than or equal to 10 microns diameter
$PM_{2.5}$	PM less than or equal to 2.5 microns diameter
PTE	Potential to Emit
PSD	Prevention of Significant Deterioration
tpy	Tons per year
VOC	Volatile Organic Compound

Facility Cintas Corporation – Green Bay

Table of Contents

SECTION I FACILITY DESCRIPTION

(A) General Source Information

Owner: Cintas Corporation
27 Whitney Drive
Milford, OH 45150

Facility: Cintas Corporation – Green Bay
800 Isbell Street
Green Bay, WI 54303

County: Brown

Reservation: Oneida Tribe of Wisconsin

SIC Code: 7218, Commercial and Industrial Laundering Facility

NAICS Code: 812332, Industrial Launderers

This permit authorizes Cintas Corporation to take synthetic minor limits for VOC in order to convert from a Part 71 to a Part 49 source at the Cintas Corporation – Green Bay facility located within the exterior boundaries of the Oneida Tribe of Wisconsin. The facility launders (cleans and reconditions) soiled industrial towels, coveralls, uniforms, and other textiles for industrial customers.

The permit establishes federally enforceable potential to emit emission limits for the industrial laundering facility. The Permittee shall not process more than 28,950,000 pounds of soiled shop towels during any 12 consecutive-month period to avoid major source Prevention of Significant Deterioration review. This is an existing facility and no modification, expansion, or change in the method of operation is being taken in this permitting action.

(B) Emission Unit Description

(1) Boiler B01 – 10.46 MMBtu/hr

(2) Process P01 – Industrial Washers, Indoor-vented
   a. Industrial Washing Machine (#3)
   b. Industrial Washing Machine (#4)
   c. Industrial Washing Machine (#5)
   d. Industrial Washing Machine (#6)
   e. Industrial Washing Machine (Unimac #1)

(3) Process P02 – Industrial Washers, Stack-vented
   a. Industrial Washing Machine (Unimac #3)
   b. Industrial Washing Machine (Unimac #2)
   c. Industrial Washing Machine (#1)
   d. Industrial Washing Machine (#2)

(4) Process P03 – Industrial Dryers Burning Natural Gas
   a. Industrial Dryer (Wash Tech), 0.25 MMBtu/hr
   b. Industrial Dryer (Cissell #2), 0.25 MMBtu/hr
   c. Industrial Dryer (#3), 2.75 MMBtu/hr
   d. Industrial Dryer (#4), 2.75 MMBtu/hr
   e. Industrial Dryer (Jensen #1), 2.5 MMBtu/hr
   f. Industrial Dryer (Jensen #2), 2.5 MMBtu/hr

(5) Process P04 – Wastewater Pretreatment System

(6) Insignificant Emission Sources
   a. Steam Tunnel, 3.0 MMBtu/hr
   b. Miscellaneous Natural Gas Combustion Units, Combined 11.6 MMBtu/hr
      i. Space Heating
      ii. Water Heating

SECTION II UNIT-SPECIFIC REQUIREMENTS

(A) Emissions Limitations and Standards

The Permittee shall comply with the following requirements:

(1) The Permittee shall not exceed the following emission limits:

Pollutant	Limit	Time Period/Monitoring/Emission Unit
1. NO_x	99 tpy	12-month rolling time period as calculated at the end of each calendar month for the facility.
2. CO	99 tpy	12-month rolling time period as calculated at the end of each calendar month for the facility.
3. VOC	99 tpy	12-month rolling time period as calculated at the end of each calendar month for the facility.
4. SO_2	99 tpy	12-month rolling time period as calculated at the end of each calendar month for the facility.
5. PM	99 tpy	12-month rolling time period as calculated at the end of each calendar month for the facility.
6. PM	0.23 grams/DSCM Or 0.1 grains/DSCF	3-hour average for natural gas-fired Boiler
7. PM	0.12 grams/DSCM or 0.05 grains/DSCF	3-hour average for natural gas-fired Industrial Dryers and process vents.
8. PM_{10}	99 tpy	12-month rolling time period as calculated at the end of each calendar month for the facility.
9. $PM_{2.5}$	99 tpy	12-month rolling time period as calculated at the end of each calendar month for the facility.
10. Single HAP	9.9 tpy	12-month rolling time period as calculated at the end of each calendar month for the facility.
11. Total HAPs	24.9 tpy	12-month rolling time period as calculated at the end of each calendar month for the facility.

(2) The Permittee shall not operate the facility to process more than 28,950,000 pounds of soiled shop towels per year based on a 12-month rolling time period as determined at the end of each calendar month.

(3) The permittee shall not dry or heat any soiled shop towels in any dryer unless they have first been washed in a washing machine included in Process P01 or Process P02.

(4) The Industrial Dryers may only be fired using natural gas.

(5) The Boiler may only be fired using natural gas.

(6) Lint filters or other particulate capture systems, installed as part of the equipment design, shall be operated at all times that each process is in operation.

(7) All emission units and associated equipment authorized by this permit, must be maintained in good working order and operated properly.

(8) Good Air Pollution Control Practices- At all times, including start-up, shut-down, and malfunction, the permittee shall maintain and operate all sources, including associated air pollution control equipment regulated by this permit in a manner consistent with good air pollution control practices for minimizing emissions. This includes, but is not limited to, operating emission units and the particulate matter control systems in accordance with the manufacturer's guidelines and following the instructions included in the owners' operations manual [40 CFR 49.125(d)(1) and (3)].

(B) Monitoring and Performance Testing [40 C.F.R. § 49.155(a)(3)]

(1) Monitoring

(a) The Permittee shall develop and follow guidelines and procedures for sorting and categorizing soiled materials to be washed and dried during industrial laundry operations. At minimum, these procedures shall document the method of classifying soiled materials as either soiled shop towels or non-VOC containing items.

(b) The Permittee shall develop and follow guidelines and procedures for sorting soiled shop towels to minimize fugitive VOC and HAP emissions in accordance with good work practices. Good work practices include, but are not limited to, storing soiled shop towels in covered containers prior to sorting or washing the towels.

(c) The facility shall sort, categorize, and weigh laundry by type (shop towel, other);

(d) The facility shall conduct daily visual inspections of the lint coup to ensure lint filters (screens) are installed and functioning properly;

(e) The Permittee shall calculate monthly VOC emissions using Equation 1:

(1) $E_M = U \times VOC_{ef} \div 2{,}000$

Where:

E_M is the total monthly VOC emissions from industrial laundry operations, in tons;
U is the total mass of soiled shop towels processed by the facility, in 1000 pounds;
VOC_{ef} is the VOC emission factor for soiled towels processed by the facility, in pounds of VOC per 1000 pounds of soiled shop towels, as applicable

(f) The permittee shall calculate the VOC emissions on a 12-month rolling period using Equation 2:

(2) $E_T = \sum_{i=1}^{12} E_{Mi}$

Where:
E_T is the total emissions of all VOCs during the previous 12 consecutive calendar months, in tons; and
E_{Mi} is the total VOC emissions during each of the previous 12 consecutive calendar months, in tons, as calculated using Equation 1.

(g) The permittee shall calculate monthly Federal HAP emissions using Equation 3:

(3) $E_i = U \times HAP_{ef} \div 2{,}000$

Where:
E_i is the monthly emissions of an individual HAP from industrial laundry operations, in tons;
U is the total mass of shop towels processed by the facility, in 1000 pounds; and
HAP_{ef} is the Federal HAP emission factor for soiled towels processed by the facility, in pounds of an individual HAP per 1000 pounds of soiled shop towels, as applicable.

(h) The permittee shall calculate monthly total of all Federal HAP emissions using Equation 4:

(4) $E_M = \sum_{i=1}^{n} E_i$

Where:
E_M is the monthly total of all federal HAP emissions from industrial laundry operations, in tons;
E_i is the monthly emissions of an individual federal HAP, calculated using Equation 3; and
n is the total number of federal HAPs emitted by the industrial laundry operations.

(i) The permittee shall calculate the emissions of total individual Federal HAP on a 12-month rolling period using Equation 5:

(5) $E_{Tl} = \sum_{i=1}^{12} EM_i$

Where:
E_{Tl} is the total emissions of an individual Federal HAP during the previous 12 consecutive months, in tons;
EM_i is the total of an individual Federal HAP during the previous 12 consecutive calendar months, in tons, as calculated using Equation 4.

(j) The permittee shall calculate the emissions of total Federal HAPs on a 12-month rolling period using Equation 6:

(6) $E_T = \sum_{i=1}^{12} EM_i$

Where:
E_T is the total emissions of all Federal HAPs during the previous 12 consecutive months, in tons;
EM_i is the total of all Federal HAP emissions during the previous 12 consecutive months, in tons, as calculated using Equation 4.

(k) The Permittee shall calculate the monthly and rolling 12-month NO_x, CO, SO_2, VOC, HAP, PM, PM_{10}, $PM_{2.5}$, and Lead emissions from all combustion units at the facility using AP-42 emission factors.

(l) The Permittee shall calculate the monthly and rolling 12-month NO_x, CO, SO_2, VOC, HAP, PM, PM_{10}, $PM_{2.5}$, and Lead emissions from all processes at the facility.

(2) Performance Testing

(a) Reference Test Methods. Upon request, the Permittee shall test for emissions of particulate matter, VOCs, and HAPs in accordance with the methods and procedures specified in Method 5 of 40 C.F.R. Part 60, Appendix A or an alternative method approved by the EPA.

(b) No less than 30 days prior to testing, the Permittee shall submit a complete test plan to the EPA. The EPA must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete test report of the test results to the EPA within 60 days following the last date of the test.

(c) Representative Testing Conditions. Performance tests shall be conducted under such conditions as the EPA shall specify to the facility operator based on representative performance of the affected facility. The permittee shall make available to the EPA such records as may be necessary to determine the conditions of the performance tests. Operations during periods of startup, shutdown, and malfunction shall not constitute representative conditions for the purpose of a performance test.

(d) Operating Conditions for Performance Testing. All performance tests shall be conducted at worst-case operating (non-malfunction) conditions for all emission units for each air pollutant.

(e) Failure to Demonstrate Compliance. Upon the EPA's written notice that the facility has failed to demonstrate compliance with an applicable emission limit, unless an alternative schedule is given in an applicable requirement or compliance document, the permittee shall:

(i) Conduct a retest within 30 days of receipt of the EPA written notice;
(ii) Submit to the EPA written notice of testing and submit a test plan for the retest; and
(iii) Submit a complete report of the results of the retest within 45 days after completion.

(C) Recordkeeping and Reporting [40 C.F.R. § 49.155(a)(4)]

(1) Recordkeeping

(a) The permittee shall maintain a file of all records required by this permit. The permittee shall retain all records required in this permit for at least 5 years. [40 C.F.R. § 49.155(a)(4)(ii)]

(b) The permittee shall retain records of all calibration and maintenance records, and copies of all reports required by the permit. The Permittee shall also maintain the following records of the monitoring required by this permit:

(i) Total weight of soiled towels processed by the facility per month sorted by category (shop towels, other) in 1,000 pounds;
(ii) Amount of natural gas used by the facility each month;
(iii) Total emissions of each individual Federal HAP emitted during each month, in tons;
(iv) Total emissions of each individual Federal HAP emitted during the previous 12 consecutive months, in tons;

(v) Total emissions of all Federal HAPs combined emitted during each month, in tons;
(vi) Total emissions of all Federal HAPs combined emitted during the previous 12 consecutive months, in tons;
(vii) Total emissions of NO_x, CO, SO_2, Lead, PM, PM_{10}, and $PM_{2.5}$ emitted during each month and the previous 12 consecutive months.
(viii) Documentation of the source and development of any Federal HAP emission factor used; and
(ix) Daily records of visual inspection of the lint coup and note the date when the lint coup collection fabric is replaced.

(2) Reporting

(a) Testing Notification. The Permittee shall submit notification of the proposed test date to EPA at least 30 days prior to the planned test date. The Permittee may submit the testing notification at the same time the test protocol is submitted. If there is a delay in conducting the scheduled performance test, the Permittee shall notify EPA as soon as possible, either by providing 7 days prior notice of the rescheduled date of the performance test or by arranging a rescheduled test date with EPA by mutual agreement.

(b) Test Protocol. The Permittee shall submit a test protocol to the EPA at least 30 days prior to testing. The test protocol shall contain, at a minimum, the following information:

(i) Name and address of the facility;
(ii) Emissions units to be tested;
(iii) Proposed operating conditions for each emissions unit to be tested;
(iv) Air pollution control equipment for each emission unit to be tested;
(v) Pollutants to be measured;
(vi) Proposed analytical techniques and test methods;
(vii) Emission points and sampling locations; and
(viii) Expected date of the test, if known.

(c) Test Reports. No later than 45 days following the completion of the initial or periodic performance tests required in Sections II(B)(2)(a) and (b) of this permit, the Permittee shall submit to EPA a written report of the test results obtained from the performance tests.

(d) Deviation Reporting. The Permittee shall promptly report to EPA any deviation from any permit requirements, including those attributable to upset conditions, the probable cause of such deviation, and any corrective

actions or preventative measures taken. “Promptly” shall mean within 30 business days of the deviation. [40 C.F.R. § 49.155(a)(5)(ii)]

(e) Annual Report. The Permittee shall submit an annual report of all required monitoring to assure compliance with the synthetic minor limits established in this permit. This report must include confirmation that the synthetic minor limit was maintained for the previous 12 months and must clearly list all instances of deviations from the permit requirements. The annual reporting period shall end on December 31, and the annual report shall be submitted by March 1. [40 C.F.R. § 49.155(a)(5)(i)] An annual report under this section shall include the following:

(i) The company name and address;
(ii) The beginning and ending dates of the reporting period;
(iii) Copies of records required to be maintained in Section II(C)(1)(b)(i) – (vii) of this permit;
(iv) All instances of deviations from permit requirements whether demonstrated by reference test method, monitoring, or through any other creditable evidence, the date on which each deviation occurred, and either the total duration of deviations indicated by such monitoring or the actual records of deviations.
(v) The name, title, and signature of the responsible official who is certifying the truth, accuracy, and completeness of the report.

SECTION III GENERAL PERMIT REQUIREMENTS

(A) Definitions

Terms and conditions in this permit have the meaning assigned to them in 40 C.F.R. § 49.152 unless other regulations or statutes are referenced or applicable.

(B) Submittals

(1) Unless otherwise directed by EPA or this permit, the Permittee shall submit a copy of all test plans, reports, certifications, notifications, and other information pertaining to compliance with this permit to:

Air Enforcement and Compliance
Assurance Branch (AE-18J)
Enforcement Division
EPA Region 5
77 West Jackson Boulevard
Chicago, Illinois 60604

Alternatively, the Permittee may submit the Annual Reports and Deviations Reports required under Section II(C)(2) of this permit through the Compliance and Emissions Data Reporting Interface (CEDRI).

(2) The Permittee shall submit permit applications, applications for permit amendments, MAP and other applicable permit information, which includes but is not limited to applications and information regarding installation of control equipment, replacement of an emissions unit, and requests for changes that contravene permit terms to:

Air Permits Section
Air Programs Branch (AR-18J)
EPA Region 5
77 West Jackson Boulevard
Chicago, Illinois 60604

(C) Severability [40 C.F.R. § 49.155(a)(6)]

The terms and conditions in this permit are distinct and severable. Each permit term and condition is independent of the permit as a whole and remains valid regardless of a challenge to any other part of this permit. If any term or condition in this permit is held invalid, such invalidity shall not affect the validity or application of other terms or conditions.

(D) Compliance with Permit Requirements [40 C.F.R. § 49.155(a)(7)(i)]

The Permittee shall comply with all conditions of this permit, including emission limitations that apply to the affected emissions units at the source. Noncompliance with any permit term or condition is a violation of the permit and may constitute a violation of the Clean Air Act and is grounds for enforcement action and for a permit termination or revocation.

(E) Prohibition on Violation of National Ambient Air Quality Standards and Prevention of Significant Deterioration Increments [40 C.F.R. § 49.155(a)(7)(ii)]

The permitted source shall not cause or contribute to a violation of a National Ambient Air Quality Standard or, in an attainment area, shall not cause or contribute to a Prevention of Significant Deterioration increment violation.

(F) Need to Halt or Reduce Activity Not a Defense [40 C.F.R. § 49.155(a)(7)(iii)]

It is not a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

(G) Permit Revision, Reopening, Revocation and Reissuance, or Termination [40 C.F.R. § 49.155(a)(7)(iv)]

This permit may be revised, reopened, revoked and reissued or terminated for cause. The filing of a request by the Permittee for a permit revision, revocation and reissuance or termination or of a notification of planned changes or anticipated noncompliance does not stay any permit condition.

(H) Property Rights [40 C.F.R. § 49.155(a)(7)(v)]

This permit does not convey any property rights of any sort or any exclusive privilege.

(I) Duty to Provide Information [40 C.F.R. § 49.155(a)(7)(vi)]

The Permittee shall furnish to the EPA, within a reasonable time, any information that EPA may request in writing to determine whether cause exists for revising, revoking and reissuing, or terminating the permit or to determine compliance with the permit. For any such information claimed to be confidential, the Permittee must also submit a claim of confidentiality in accordance with 40 C.F.R. Part 2, Subpart B.

(J) Entry and Inspection [40 C.F.R. § 49.155(a)(7)(vii)]

Upon presentation of proper credentials, the Permittee shall allow a representative of the EPA to:

(1) Enter upon the premises where a source is located or emissions-related activity is conducted or where records are required to be kept under the conditions of the permit;

(2) Have access to and copy, at reasonable times, any records that are required to be kept under the conditions of the permit;

(3) Inspect, during normal business hours or while the source is in operation, any facilities, equipment (including monitoring and air pollution control equipment), practices or operations regulated or required under the permit;

(4) Sample or monitor, at reasonable times, substances or parameters for the purpose of assuring compliance with the permit or other applicable requirements; and

(5) Record any inspection by use of written, electronic, magnetic and photographic media.

(K) Permit Invalidation [40 C.F.R. §§ 49.155(a)(1)(i), (b)]

This permit becomes invalid if the Permittee does not commence construction within 18 months after the effective date of this permit, if construction is discontinued for a period of 18 months or more, or if construction is not completed within a reasonable time. The reviewing authority may extend the 18-month period upon a satisfactory showing that an extension is justified. This provision does not apply to the time period between construction of the approved phases of a phased construction project. The Permittee must commence construction of each phase within 18 months of the projected and approved commencement date.

(L) Construction Without a Permit

If the Permittee constructs or operates any source or modification not in accordance with the terms of any approval to construct, the Permittee shall be subject to appropriate enforcement actions.

(M) Construction Approval

(1) Nothing in this permit shall alter the requirement for the Permittee to obtain a construction permit before commencement of construction or modification of an emission unit.

(2) Approval for construction or installation shall not relieve the Permittee of the responsibility to comply fully with the applicable provisions of any other requirements of federal law or regulation, including Title V of the CAA.

(N) Circumvention

The Permittee shall not build, erect, install, or use any article, machine, equipment, or process, the use of which conceals any emission which would otherwise constitute a violation of an applicable standard.

Appendix F – Cost Spreadsheets for Control Technology Analysis

Data Inputs

Select the type of oxidizer: Regenerative Thermal Oxidizer

Enter the following information for your emission source:

Composition of Inlet Gas Stream

Pollutant Name	Concentration (ppmv)	Lower Explosive Limit (LEL) (ppmv)*	Heat of Combustion (Btu/scf)	Molecular Weight
Carbon monoxide	16	125,000	323	28.01

Note: The lower explosion limit (LEL), heat of combustion and molecular weight for some commonly used VOC/HAP are provided in the table below.

Enter the design data for the proposed oxidizer:

Number of operating hours/year	8,760	hours/year	
Inlet volumetric flow rate(Q_{wi}) at 77°F and 1 atm.	62,594	scfm	
Inlet volumetric flow rate(Q_{wi}) (actual conditions)	74,592	acfm	
Pressure drop (ΔP)	19	inches of water	* 23 inches of water is the default pressure drop for thermal oxidizers; 19 inches of water is the default pressure drop for catalytic oxidizers. Enter actual value, if known.
Motor/Fan Efficiency (ε)	60	percent*	* 60% is a default fan efficiency. User should enter actual value, if known.
Inlet Waste Gas Temperature (T_{wi})	170.5	°F	
Operating Temperature (T_{fi})	1,900	°F	* Note: Default value for Tfi is 2000°F for thermal regenerative oxidizers. Use actual value if known. Tfi for regenerative oxidizers typically between 1800 and 2000°F.
Destruction and Removal Efficiency (DRE)	90	percent	
Estimated Equipment Life	20	Years*	* 20 years is the typical equipment life. User should enter actual value, if known.
Heat Loss (η)	1	percent*	* 1 percent is a default value for the heat loss. User should enter actual value, if known. Heat loss is typically between 0.2 and 1.5%.

Percent Energy Recovery (HR) = 70 percent

Enter the cost data:

Desired dollar-year	2022			
CEPCI* for 2022	797.6	Enter the CEPCI value for 2022	541.7	2016 CEPCI
Annual Interest Rate (i)	7	Percent		
Electricity ($Cost_{elect}$)	0.085	$/kWh		
Natural Gas Fuel Cost ($Cost_{fuel}$)	0.00860	$/scf		
Operator Labor Rate	$26.61	per hour		* $26.61 per hour is a default labor rate. User should enter actual value, if known.
Maintenance Labor rate	$27.40	per hour		* $27.40 per hour is a default labor rate. User should enter actual value, if known.
Contingency Factor (CF)	10.0	Percent		* 10 percent is a default value for construction contingencies. User may enter values between 5 and 15 percent.

* CEPCI is the Chemical Engineering Plant Cost Escalation/De-escalation Index. The use of CEPCI in this spreadsheet is not an endorsement of the index for purposes of cost escalation or de-escalation, but is there merely to allow for availability of a well-known cost index to spreadsheet users. Use of other well-known cost indexes (e.g., M&S) is acceptable.

Design Parameters

The following design parameters for the oxidizer were calculated based on the values entered on the *Data Inputs* tab. These values were used to prepare the costs shown on the *Cost Estimate* tab.

Composition of Inlet Gas Stream		
Pollutant Name	Concentration in Waste Stream (ppmv) From Data Inputs Tab	Adjusted Concentration with Dilution Air (ppmv)
Carbon monoxide	16	NA
0	0	NA
0	0	NA
0	0	NA
0	0	NA
0	0	NA
0	0	NA
0	0	NA
0	0	NA
0	0	NA
Total	16	0

Constants used in calculations:

Temperature of auxiliary fuel (T_{af}) =	Reference Temperature (T_{ref}) =	77.0	°F
Density of auxiliary Fuel at 77 °F (ρ_{af}) =		0.0408	lb/ft^3
Heat Input of auxiliary fuel ($-\Delta h_{caf}$) =		21,502	Btu/lb
Density of waste gas at 77 °F (ρ_{wi}) =		0.0739	lb/ft^3 (actual = 0.0486)
Mean Heat Capacity of Air (C_{pmair})	(For thermal oxidizers)	0.255	Btu/lb °F

Parameter	Equation	Calculated Value	Units	Value	Units
Sum of volume fraction of combustible components =	= ($\sum x_i$) =	16	ppmv		
Lower Explosive Limit of waste gas (LEL_{mix})	= $[\sum((x_j)/((\sum x_j \times LEL_j))]^{-1}$ =	125,000	ppmv		
	Where x_j is the volume fraction and LEL_j the lower explosive limit for each combustible component in the waste gas.				
% LEL_{mix}	= (Total Combustible Conc. In Mixture/LEL_{mix}) × 100 =	0.01	percent	* Note: Since the LEL of the waste gas stream is below 25%, no dilution air is needed.	
Dilution Factor	= (LEL_{mix} x 0.249)/($\sum x_i$) =	Not applicable			
Lower Explosive Limit (LEL) of waste gas after addition of dilution air	= (Total Adjusted Conc. With Dilution Air/LEL_{mix}) × 100 =	Not Applicable			
Inlet volumetric flow rate(Qwi) at 77°F and 1 atm.	(From Data Inputs Tab) =	62,594	scfm		
Oxygen Content of gas stream	= 100 - ($\sum x_j \times 100/10^6$) x 0.209 =	20.90	percent		
Fan Power Consumption (FP)	= $[(1.17 \times 10^{-4}) \times Q_{wi} \times \Delta P]/\varepsilon$	276.4	kW		
Q_{wo}	≈ Q_{wi} =	62,594	scfm		
Operating temperature of oxidizer (T_{fi})	(From Data Inputs Tab)	1,900	°F		
Temperature of waste gas at outlet to preheater (T_{wo})	= Heat Recovery × (T_{fi} - T_{wi}) + T_{wi} =	1,381	°F		
Temperature of flue gas exiting the regenerative oxidizer (T_{fo})	= T_{fi} - 0.95(T_{fi} - T_{wi}) =	257	°F		
Heat Input of waste gas ($-\Delta h_{cwi}$)					
	= $\sum (-\Delta h_{ci})\ x_i$				
	Where ($-\Delta h_{ci}$) is the heat of combustion and x_i the fraction of component "i" at 77 °F.	0.01	Btu/scf	0.1	Btu/lb
Estimated Auxiliary Fuel Flow (Q_{af}) at 77 °F and 1 atm.	(Calculated using Equation 2.45 in Appendix B)	2.25	scfm		
Auxiliary fuel Energy Input =		1,976	Btu/min		
Minimum Energy required for combustion stabilization =	= 5% × Total Energy Input = 0.05 × ρ_{fi} × Q_{fi} × C_{pmfi} × (T_{fi} - T_{ref}) =	107,521	Btu/min		
Is the calculated auxiliary fuel sufficient to stabilize combustion?	(Note: If the auxiliary fuel energy input > 5% of Total Energy Input, then the auxilary fuel is sufficient.)	No		Note: Additional auxiliary fuel equivalent to 5% of total energy input is required to stabilize combustion.	
Auxiliary fuel flow (Qaf) (adjusted for fuel required for combustion stabilization)at 77°F and 1 atm. =		123	scfm		
Total Volumetric Throughput (Q_{tot}) at 77 °F and 1 atm.	= Q_{fi} = Q_{wo} + Q_a + Q_{af} = Q_{wi} + Q_{af} =	62,717	scfm		

Capital Recovery Factor:

Parameter	Equation	Calculated Value
Capital Recovery Factor (CRF) =	$i\ (1+i)^n/(1+i)^n - 1$ =	0.0944
	Where n = Equipment Life and i= Interest Rate	

Cost Estimate

Direct Costs			
Total Purchased equipment costs (in 2022 dollars)			
Incinerator + auxiliary equipment[a] (A) =			
Equipment Costs (EC) for Regenerative Oxidizer	=[2.664 x 100,000 + (13.98 x Qtot)] x (2022 CEPI/2016 CEPCI) =	$1,683,227	in 2022 dollars
Instrumentation[b] =	0.10 × A =	$168,323	
Sales taxes =	0.03 × A =	$50,497	
Freight =	0.05 × A =	$84,161	
	Total Purchased equipment costs (B) =	$1,986,207	in 2022 dollars

Footnotes
a - Auxiliary equipment includes equipment (e.g., duct work) normally not included with unit furnished by incinerator vendor.
b - Includes the instrumentation and controls furnished by the incinerator vendor.

Direct Installation Costs (in 2022 dollars)			
Foundations and Supports =	0.08 × B =	$158,897	
Handlong and Errection =	0.14 × B =	$278,069	
Electrical =	0.04 × B =	$79,448	
Piping =	0.02 × B =	$39,724	
Insulation for Ductwork =	0.01 × B =	$19,862	
Painting =	0.01 × B =	$19,862	
Site Preparation (SP) =		$0	
Buildings (Bldg) =		$0	
	Total Direct Installaton Costs =	$595,862	
Total Direct Costs (DC) =	Total Purchase Equipment Costs (B) + Total Direct Installation Costs =	$2,582,070	in 2022 dollars

Total Indirect Installation Costs (in 2022 dollars)			
Engineering =	0.10 × B =	$198,621	
Construction and field expenses =	0.05 × B =	$99,310	
Contractor fees =	0.10 × B =	$198,621	
Start-up =	0.02 × B =	$39,724	
Performance test =	0.01 × B =	$19,862	
	Total Indirect Costs (IC) =	$556,138	
Continency Cost (C) =	CF(IC+DC)=	$313,821	
Total Capital Investment =	**DC + IC +C =**	**$3,452,028**	**in 2022 dollars**

Direct Annual Costs			
Annual Electricity Cost	= Fan Power Consumption × Operating Hours/year × Electricity Price =	$205,780	
Annual Fuel Costs for Natural Gas	= $Cost_{fuel}$ × Fuel Usage Rate × 60 min/hr × Operating hours/year	$553,997	
Operating Labor	Operator = 0.5hours/shift × Labor Rate × (Operating hours/8 hours/shift)	$14,569	
	Supervisor = 15% of Operator	$2,185	
Maintenance Costs	Labor = 0.5 hours/shift × Labor Rate × (Operating Hours/8 hours/shift)	$15,002	
	Materials = 100% of maintenance labor	$15,002	
Direct Annual Costs (DC) =		**$806,535**	**in 2022 dollars**

Indirect Annual Costs			
Overhead	= 60% of sum of operating, supervisor, maintenance labor and maintenance materials	$28,054	
Administrative Charges	= 2% of TCI	$69,041	
Property Taxes	= 1% of TCI	$34,520	
Insurance	= 1% of TCI	$34,520	
Capital Recovery	= CRF[TCI-1.08(cat. Cost)]	$325,847	
Indirect Annual Costs (IC) =		**$491,983**	**in 2022 dollars**
Total Annual Cost =	**DC + IC =**	**$1,298,518**	**in 2022 dollars**

Cost Effectiveness

Cost Effectiveness = (Total Annual Cost)/(Annual Quantity of VOC/HAP Pollutants Destroyed)

Total Annual Cost (TAC) =	$1,298,518	per year in 2022 dollars
CO Destroyed =	17.4	tons/year
Cost Effectiveness =	$74,754	per ton of pollutants removed in 2022 dollars

Data Inputs

Select the type of oxidizer: Catalytic Oxidizer - Fixed Bed

Enter the following information for your emission source:

Composition of Inlet Gas Stream

Pollutant Name	Concentration (ppmv)	Lower Explosive Limit (LEL) (ppmv)*	Heat of Combustion (Btu/scf)	Molecular Weight
Carbon monoxide	16	125,000	323	28.01

Note: The lower explosion limit (LEL), heat of combustion and molecular weight for some commonly used VOC/HAP are provided in the table below.

Enter the design data for the proposed oxidizer:

Number of operating hours/year	8,760	hours/year	
Inlet volumetric flow rate(Q_{wi}) at 77°F and 1 atm.	62,594	scfm	
Inlet volumetric flow rate(Q_{wi}) (actual conditions)	74,592	acfm	
Pressure drop (ΔP)	23	inches of water*	* 23 inches of water is the default pressure drop for thermal oxidizers; 19 inches of water is the default pressure drop for catalytic oxidizers. Enter actual value, if known.
Motor/Fan Efficiency (ε)	60	percent*	* 60% is a default fan efficiency. User should enter actual value, if known.
Inlet Waste Gas Temperature (T_{wi})	170.5	°F	
Operating Temperature (T_{fi})	900	°F	* Note: Default value for Tfi is 900°F for catalytic oxidizers. Use actual value if known. Tfi for catalytic oxidizers is typically between 300 and 900°F.
Destruction and Removal Efficiency (DRE)	90	percent	
Estimated Equipment Life	20	Years*	* 20 years is the typical equipment life. User should enter actual value, if known.
Catalyst Data:			
Estimated catalyst life (y)	4	years	* 4 years is a default value. User should enter actual value, if known.
Catalyst Unit Cost (CC)	0	$/ft^3	
Space velocity for catalyst (Φ)	30,000	/hour	* 30,000 per hour is a default value. User should enter actual value, if known.

Percent Energy Recovery (HR) = 50 percent

Enter the cost data:

Desired dollar-year	2022			
CEPCI* for 2022	797.6	Enter the CEPCI value for 2022	390.6	1999 CEPCI
Annual Interest Rate (i)	7	Percent		
Electricity ($Cost_{elect}$)	0.085	$/kWh		
Natural Gas Fuel Cost ($Cost_{fuel}$)	0.00860	$/scf		
Operator Labor Rate	$26.61	per hour		* $26.61 per hour is a default labor rate. User should enter actual value, if known.
Maintenance Labor rate	$27.40	per hour		* $27.40 per hour is a default labor rate. User should enter actual value, if known.
Contingency Factor (CF)	10.0	Percent		* 10 percent is a default value for construction contingencies. User may enter values between 5 and 15 percent.

* CEPCI is the Chemical Engineering Plant Cost Escalation/De-escalation Index. The use of CEPCI in this spreadsheet is not an endorsement of the index for purposes of cost escalation or de-escalation, but is there merely to allow for availability of a well-known cost index to spreadsheet users. Use of other well-known cost indexes (e.g., M&S) is acceptable.

Design Parameters

The following design parameters for the oxidizer were calculated based on the values entered on the *Data Inputs* tab. These values were used to prepare the costs shown on the *Cost Estimate* tab.

Composition of Inlet Gas Stream		
Pollutant Name	Concentration in Waste Stream (ppmv) From Data Inputs Tab	Adjusted Concentration with Dilution Air (ppmv)
Carbon monoxide	16	NA
0	0	NA
0	0	NA
0	0	NA
0	0	NA
0	0	NA
0	0	NA
0	0	NA
0	0	NA
0	0	NA
Total	16	0

Constants used in calculations:

Temperature of auxiliary fuel (T_{af}) =	Reference Temperature (T_{ref}) =	77.0	°F
Density of auxiliary Fuel at 77 °F (ρ_{af}) =		0.0408	lb/ft^3
Heat Input of auxiliary fuel ($-\Delta h_{caf}$) =		21,502	Btu/lb
Density of waste gas at 77 °F (ρ_{wi}) =		0.0739	lb/ft^3 (actual = 0.0486)
Mean Heat Capacity of Air (C_{pmair}) =	(For catalytic oxidizers)	0	Btu/lb °F

Parameter	Equation	Calculated Value	Units	Value	Units
Sum of volume fraction of combustible components =	= ($\sum x_i$) =	16	ppmv		
Lower Explosive Limit of waste gas (LEL_{mix})	= $[\sum((x_j)/((\sum x_i) \times LEL_j))]^{-1}$ =	125,000	ppmv		
	Where x_j is the volume fraction and LEL_j the lower explosive limit for each combustible component in the waste gas.				
% LEL_{mix}	= (Total Combustible Conc. In Mixture/LEL_{mix}) × 100 =	0.01	percent	* Note: Since the LEL of the waste gas stream is below 25%, no dilution air is needed.	
Dilution Factor	= (LEL_{mix} x 0.249)/($\sum x_i$) =	Not applicable			
Lower Explosive Limit (LEL) of waste gas after addition of dilution air	= (Total Adjusted Conc. With Dilution Air/LEL_{mix}) × 100 =	Not Applicable			
Inlet volumetric flow rate(Qwi) at 77°F and 1 atm.	(From Data Inputs Tab) =	62,594	scfm		
Oxygen Content of gas stream	= 100 - ($\sum x_j \times 100/10^6$) x 0.209 =	20.90	percent		
Fan Power Consumption (FP)	= $[(1.17 \times 10^{-4}) \times Q_{wi} \times \Delta P]/\varepsilon$	334.5	kW		
Q_{wo}	≈ Q_{wi} =	62,594	scfm		
Operating temperature of oxidizer (T_{fi})	(From Data Inputs Tab)	900	°F		
Temperature of waste gas at outlet to preheater (T_{wo})	= Heat Recovery × (T_{fi} - T_{wi}) + T_{wi} =	535	°F		
Temperature of flue gas exiting the oxidizer (T_{fo})	= T_{fi} - T_{wo} + T_{wi} =	535	°F		
Heat Input of waste gas ($-\Delta h_{cwi}$)					
	= $\sum (-\Delta h_{ci}) x_i$				
	Where ($-\Delta h_{ci}$) is the heat of combustion and x_i the fraction of component "i" at 77 °F.	0.01	Btu/scf	0.1	Btu/lb
Estimated Auxiliary Fuel Flow (Q_{af}) at 77 °F and 1 atm.	(Calculated using Equation 2.21 in Chapter 2 of the Cost Manual)	590.38	scfm		
Auxiliary fuel Energy Input =		517,928	Btu/min		
Minimum Energy required for combustion stabilization =	= 5% × Total Energy Input = 0.05 × ρ_{fi} × Q_{fi} × C_{pmfi} × (T_{fi} - T_{ref}) =	47,652	Btu/min		
Is the calculated auxiliary fuel sufficient to stabilize combustion? (Note: If the auxiliary fuel energy input > 5% of Total Energy Input, then the auxilary fuel is sufficient.)		Yes			
Auxiliary fuel flow (Qaf) at 77°F and 1 atm. =		590	scfm		
Total Volumetric Throughput (Q_{tot}) at 77 °F and 1 atm.	= Q_{fi} = Q_{wo} + Q_a + Q_{af} = Q_{wi} + Q_{af} =	63,185	scfm		
Calculation of Catalyst Volume and Estimated Temperature of Waste Gas Entering the Catalyst Bed					
Volumetric Flow Rate at 60 °F and 1 atm (Q_{fi})	= Q_{tot} × (519)/(77 °F + 460) =	61,067	scfm		
Catalyst Volume (Vol_{cat})	= Q_{fi}/Φ	122.13	ft^3		
Estimated inlet temperature to the catalyst bed (T_{ri}) =	(Calculated using Equation 2.27 in Chapter 2 of the Cost Manual)	900	°F		

Capital Recovery Factor:

Parameter	Equation	Calculated Value
Capital Recovery Factor (CRF) =	$i\ (1+i)^n/(1+i)^n - 1$ =	0.0944
	Where n = Equipment Life and i= Interest Rate	

Cost Estimate

Direct Costs

Total Purchased equipment costs (in 2022 dollars)

Incinerator + auxiliary equipment[a] (A) =			
Equipment Costs (EC) for a Fixed Bed Catalytic Oxidizer	= (1,215 x Qtot^(0.5575)) x (2022 CEPI/1999 CEPCI) =	$1,177,527	in 2022 dollars
Instrumentation[b] =	0.10 × A =	$117,753	
Sales taxes =	0.03 × A =	$35,326	
Freight =	0.05 × A =	$58,876	
	Total Purchased equipment costs (B) =	$1,389,482	in 2022 dollars

Footnotes
a - Auxiliary equipment includes equipment (e.g., duct work) normally not included with unit furnished by incinerator vendor.
b - Includes the instrumentation and controls furnished by the incinerator vendor.

Direct Installation Costs (in 2022 dollars)

Foundations and Supports =	0.08 × B =	$111,159	
Handlong and Errection =	0.14 × B =	$194,528	
Electrical =	0.04 × B =	$55,579	
Piping =	0.02 × B =	$27,790	
Insulation for Ductwork =	0.01 × B =	$13,895	
Painting =	0.01 × B =	$13,895	
Site Preparation (SP) =		$0	
Buildings (Bldg) =		$0	
	Total Direct Installaton Costs =	$416,845	
Total Direct Costs (DC) =	Total Purchase Equipment Costs (B) + Total Direct Installation Costs =	$1,806,327	in 2022 dollars

Total Indirect Installation Costs (in 2022 dollars)

Engineering =	0.10 × B =	$138,948	
Construction and field expenses =	0.05 × B =	$69,474	
Contractor fees =	0.10 × B =	$138,948	
Start-up =	0.02 × B =	$27,790	
Performance test =	0.01 × B =	$13,895	
	Total Indirect Costs (IC) =	$389,055	
Continency Cost (C) =	CF(IC+DC)=	$219,538	
Total Capital Investment =	**DC + IC +C =**	**$2,414,920**	**in 2022 dollars**

Direct Annual Costs

Catalyst Replacement Cost	= 1.08 × CC × Vol_{cat} × FWF Where CC is the $/ft^3 cost for the replacement catalyst; Vol_{cat} is the volume of catalyst required based on the waste gas flow rate (Q_{ft}) and the catalyst space velocity (Φ); and FWF is the future worth factor.	$0	
Annual Electricity Cost	= Fan Power Consumption × Operating Hours/year × Electricity Price =	$249,102	
Annual Fuel Costs for Natural Gas	= $Cost_{fuel}$ × Fuel Usage Rate × 60 min/hr × Operating hours/year	$2,668,605	
Operating Labor	Operator = 0.5hours/shift × Labor Rate × (Operating hours/8 hours/shift)	$14,569	
	Supervisor = 15% of Operator	$2,185	
Maintenance Costs	Labor = 0.5 hours/shift × Labor Rate × (Operating Hours/8 hours/shift)	$15,002	
	Materials = 100% of maintenance labor	$15,002	
Direct Annual Costs (DC) =		**$2,964,465**	**in 2022 dollars**

Indirect Annual Costs

Overhead	= 60% of sum of operating, supervisor, maintenance labor and maintenance materials	$28,054	
Administrative Charges	= 2% of TCI	$48,298	
Property Taxes	= 1% of TCI	$24,149	
Insurance	= 1% of TCI	$24,149	
Capital Recovery	= CRF[TCI-1.08(cat. Cost)]	$227,951	
Indirect Annual Costs (IC) =		**$352,603**	**in 2022 dollars**
Total Annual Cost =	**DC + IC =**	**$3,317,068**	**in 2022 dollars**

Cost Effectiveness

Cost Effectiveness = (Total Annual Cost)/(Annual Quantity of VOC/HAP Pollutants Destroyed)

Total Annual Cost (TAC) =	$3,317,068	per year in 2022 dollars
CO Destroyed =	17.4	tons/year
Cost Effectiveness =	$190,959	per ton of pollutants removed in 2022 dollars

Data Inputs

Select the type of oxidizer: Regenerative Thermal Oxidizer

Enter the following information for your emission source:

Composition of Inlet Gas Stream

Pollutant Name	Concentration (ppmv)	Lower Explosive Limit (LEL) (ppmv)*	Heat of Combustion (Btu/scf)	Molecular Weight
Carbon monoxide	43	125,000	323	28.01

Note: The lower explosion limit (LEL), heat of combustion and molecular weight for some commonly used VOC/HAP are provided in the table below.

Enter the design data for the proposed oxidizer:

Number of operating hours/year	8,760	hours/year	
Inlet volumetric flow rate(Q_{wi}) at 77°F and 1 atm.	255,617	scfm	
Inlet volumetric flow rate(Q_{wi}) (actual conditions)	282,389	acfm	
Pressure drop (ΔP)	19	inches of water	* 23 inches of water is the default pressure drop for thermal oxidizers; 19 inches of water is the default pressure drop for catalytic oxidizers. Enter actual value, if known.
Motor/Fan Efficiency (ε)	60	percent*	* 60% is a default fan efficiency. User should enter actual value, if known.
Inlet Waste Gas Temperature (T_{wi})	126.8	°F	
Operating Temperature (T_{fi})	1,900	°F	* Note: Default value for Tfi is 2000°F for thermal regenerative oxidizers. Use actual value if known. Tfi for regenerative oxidizers typically between 1800 and 2000°F.
Destruction and Removal Efficiency (DRE)	90	percent	
Estimated Equipment Life	20	Years*	* 20 years is the typical equipment life. User should enter actual value, if known.
Heat Loss (η)	1	percent*	* 1 percent is a default value for the heat loss. User should enter actual value, if known. Heat loss is typically between 0.2 and 1.5%.

Percent Energy Recovery (HR) = 70 percent

Enter the cost data:

Desired dollar-year	2022			
CEPCI* for 2022	797.6	Enter the CEPCI value for 2022	541.7	2016 CEPCI
Annual Interest Rate (i)	7	Percent		
Electricity ($Cost_{elect}$)	0.085	$/kWh		
Natural Gas Fuel Cost ($Cost_{fuel}$)	0.00860	$/scf		
Operator Labor Rate	$26.61	per hour		
Maintenance Labor rate	$27.40	per hour		
Contingency Factor (CF)	10.0	Percent		

* $26.61 per hour is a default labor rate. User should enter actual value, if known.

* $27.40 per hour is a default labor rate. User should enter actual value, if known.

* 10 percent is a default value for construction contingencies. User may enter values between 5 and 15 percent.

* CEPCI is the Chemical Engineering Plant Cost Escalation/De-escalation Index. The use of CEPCI in this spreadsheet is not an endorsement of the index for purposes of cost escalation or de-escalation, but is there merely to allow for availability of a well-known cost index to spreadsheet users. Use of other well-known cost indexes (e.g., M&S) is acceptable.

Design Parameters

The following design parameters for the oxidizer were calculated based on the values entered on the *Data Inputs* tab. These values were used to prepare the costs shown on the *Cost Estimate* tab.

Composition of Inlet Gas Stream		
Pollutant Name	**Concentration in Waste Stream (ppmv) From Data Inputs Tab**	**Adjusted Concentration with Dilution Air (ppmv)**
Carbon monoxide	43	NA
0	0	NA
0	0	NA
0	0	NA
0	0	NA
0	0	NA
0	0	NA
0	0	NA
0	0	NA
0	0	NA
Total	43	0

Constants used in calculations:

Temperature of auxiliary fuel (T_{af}) =	Reference Temperature (T_{ref}) =	77.0	°F
Density of auxiliary Fuel at 77 °F (ρ_{af}) =		0.0408	lb/ft^3
Heat Input of auxiliary fuel ($-\Delta h_{caf}$) =		21,502	Btu/lb
Density of waste gas at 77 °F (ρ_{wi}) =		0.0739	lb/ft^3 (actual = 0.0486)
Mean Heat Capacity of Air (C_{pmair})	(For thermal oxidizers)	0.255	Btu/lb °F

Parameter	Equation	Calculated Value	Units	Value	Units
Sum of volume fraction of combustible components =	= ($\sum x_i$) =	43	ppmv		
Lower Explosive Limit of waste gas (LEL_{mix})	= $[\sum((x_j)/((\sum x_i) \times LEL_j))]^{-1}$ =	125,000	ppmv		
	Where x_j is the volume fraction and LEL_j the lower explosive limit for each combustible component in the waste gas.				
% LEL_{mix}	= (Total Combustible Conc. In Mixture/LEL_{mix}) × 100 =	0.03	percent	* Note: Since the LEL of the waste gas stream is below 25%, no dilution air is needed.	
Dilution Factor	= (LEL_{mix} x 0.249)/($\sum x_i$) =	Not applicable			
Lower Explosive Limit (LEL) of waste gas after addition of dilution air	= (Total Adjusted Conc. With Dilution Air/LEL_{mix}) × 100 =	Not Applicable			
Inlet volumetric flow rate(Qwi) at 77°F and 1 atm.	(From Data Inputs Tab) =	255,617	scfm		
Oxygen Content of gas stream	= 100 - ($\sum x_j \times 100/10^6$) x 0.209 =	20.90	percent		
Fan Power Consumption (FP)	= [(1.17 × 10^{-4}) × Q_{wi} × ΔP]/ε	1046.3	kW		
Q_{wo}	≈ Q_{wi} =	255,617	scfm		
Operating temperature of oxidizer (T_{fi})	(From Data Inputs Tab)	1,900	°F		
Temperature of waste gas at outlet to preheater (T_{wo})	= Heat Recovery × (T_{fi} - T_{wi}) + T_{wi} =	1,368	°F		
Temperature of flue gas exiting the regenerative oxidizer (T_{fo})	= T_{fi} - 0.95(T_{fi} - T_{wi}) =	215	°F		
Heat Input of waste gas ($-\Delta h_{cwi}$)					
	= $\sum(-\Delta h_{ci})\ x_i$				
	Where ($-\Delta h_{ci}$) is the heat of combustion and x_i the fraction of component "i" at 77 °F.	0.01	Btu/scf	0.2	Btu/lb
Estimated Auxiliary Fuel Flow (Q_{af}) at 77 °F and 1 atm.	(Calculated using Equation 2.45 in Appendix B)	0.70	scfm		
Auxiliary fuel Energy Input =		614	Btu/min		
Minimum Energy required for combustion stabilization =	= 5% × Total Energy Input = 0.05 × ρ_{fi} × Q_{fi} × C_{pmfi} × (T_{fi} - T_{ref}) =	439,069	Btu/min		
Is the calculated auxiliary fuel sufficient to stabilize combustion? auxiliary fuel energy input > 5% of Total Energy Input, then the auxilary fuel is sufficient.)	(Note: If the	No		Note: Additional auxiliary fuel equivalent to 5% of total energy input is required to stabilize combustion.	
Auxiliary fuel flow (Qaf) (adjusted for fuel required for combustion stabilization)at 77°F and 1 atm. =		500	scfm		
Total Volumetric Throughput (Q_{tot}) at 77 °F and 1 atm.	= Q_{fi} = Q_{wo} + Q_a + Q_{af} = Q_{wi} + Q_{af} =	256,118	scfm		

Capital Recovery Factor:

Parameter	Equation	Calculated Value
Capital Recovery Factor (CRF) =	i $(1+ i)^n/(1+ i)^n$ - 1 =	0.0944
	Where n = Equipment Life and i= Interest Rate	

Cost Estimate

Direct Costs			
Total Purchased equipment costs (in 2022 dollars)			
Incinerator + auxiliary equipment[a] (A) = Equipment Costs (EC) for Regenerative Oxidizer	=[2.664 x 100,000 + (13.98 x Qtot)] x (2022 CEPI/2016 CEPCI) =	$5,664,224	in 2022 dollars
Instrumentation[b] =	0.10 × A =	$566,422	
Sales taxes =	0.03 × A =	$169,927	
Freight =	0.05 × A =	$283,211	
	Total Purchased equipment costs (B) =	$6,683,784	in 2022 dollars

Footnotes
a - Auxiliary equipment includes equipment (e.g., duct work) normally not included with unit furnished by incinerator vendor.
b - Includes the instrumentation and controls furnished by the incinerator vendor.

Direct Installation Costs (in 2022 dollars)			
Foundations and Supports =	0.08 × B =	$534,703	
Handlong and Errection =	0.14 × B =	$935,730	
Electrical =	0.04 × B =	$267,351	
Piping =	0.02 × B =	$133,676	
Insulation for Ductwork =	0.01 × B =	$66,838	
Painting =	0.01 × B =	$66,838	
Site Preparation (SP) =		$0	
Buildings (Bldg) =		$0	
	Total Direct Installaton Costs =	$2,005,135	
Total Direct Costs (DC) =	Total Purchase Equipment Costs (B) + Total Direct Installation Costs =	$8,688,920	in 2022 dollars

Total Indirect Installation Costs (in 2022 dollars)			
Engineering =	0.10 × B =	$668,378	
Construction and field expenses =	0.05 × B =	$334,189	
Contractor fees =	0.10 × B =	$668,378	
Start-up =	0.02 × B =	$133,676	
Performance test =	0.01 × B =	$66,838	
	Total Indirect Costs (IC) =	$1,871,460	
Continency Cost (C) =	CF(IC+DC)=	$1,056,038	
Total Capital Investment =	**DC + IC +C =**	**$11,616,417**	**in 2022 dollars**

Direct Annual Costs			
Annual Electricity Cost	= Fan Power Consumption × Operating Hours/year × Electricity Price =	$779,039	
Annual Fuel Costs for Natural Gas	= $Cost_{fuel}$ × Fuel Usage Rate × 60 min/hr × Operating hours/year	$2,262,287	
Operating Labor	Operator = 0.5hours/shift × Labor Rate × (Operating hours/8 hours/shift)	$14,569	
	Supervisor = 15% of Operator	$2,185	
Maintenance Costs	Labor = 0.5 hours/shift × Labor Rate × (Operating Hours/8 hours/shift)	$15,002	
	Materials = 100% of maintenance labor	$15,002	
Direct Annual Costs (DC) =		**$3,088,083**	**in 2022 dollars**

Indirect Annual Costs			
Overhead	= 60% of sum of operating, supervisor, maintenance labor and maintenance materials	$28,054	
Administrative Charges	= 2% of TCI	$232,328	
Property Taxes	= 1% of TCI	$116,164	
Insurance	= 1% of TCI	$116,164	
Capital Recovery	= CRF[TCI-1.08(cat. Cost)]	$1,096,508	
Indirect Annual Costs (IC) =		**$1,589,219**	**in 2022 dollars**

Total Annual Cost =	**DC + IC =**	**$4,677,302 in 2022 dollars**

Cost Effectiveness

Cost Effectiveness = (Total Annual Cost)/(Annual Quantity of VOC/HAP Pollutants Destroyed)

Total Annual Cost (TAC) =	$4,677,302	per year in 2022 dollars
CO Destroyed =	190.4	tons/year
Cost Effectiveness =	$24,563	per ton of pollutants removed in 2022 dollars

Data Inputs

Select the type of oxidizer: Catalytic Oxidizer - Fixed Bed

Enter the following information for your emission source:

Composition of Inlet Gas Stream

Pollutant Name	Concentration (ppmv)	Lower Explosive Limit (LEL) (ppmv)*	Heat of Combustion (Btu/scf)	Molecular Weight
Carbon monoxide	43	125,000	323	28.01

Note: The lower explosion limit (LEL), heat of combustion and molecular weight for some commonly used VOC/HAP are provided in the table below.

Enter the design data for the proposed oxidizer:

Number of operating hours/year	8,760	hours/year	
Inlet volumetric flow rate(Q_{wi}) at 77°F and 1 atm.	255,617	scfm	
Inlet volumetric flow rate(Q_{wi}) (actual conditions)	282,389	acfm	
Pressure drop (ΔP)	23	inches of water*	* 23 inches of water is the default pressure drop for thermal oxidizers; 19 inches of water is the default pressure drop for catalytic oxidizers. Enter actual value, if known.
Motor/Fan Efficiency (ε)	60	percent*	* 60% is a default fan efficiency. User should enter actual value, if known.
Inlet Waste Gas Temperature (T_{wi})	126.8	°F	
Operating Temperature (T_{fi})	900	°F	* Note: Default value for Tfi is 900°F for catalytic oxidizers. Use actual value if known. Tfi for catalytic oxidizers is typically between 300 and 900°F.
Destruction and Removal Efficiency (DRE)	90	percent	
Estimated Equipment Life	20	Years*	* 20 years is the typical equipment life. User should enter actual value, if known.
Catalyst Data:			
Estimated catalyst life (y)	4	years	* 4 years is a default value. User should enter actual value, if known.
Catalyst Unit Cost (CC)	0	$/ft^3	
Space velocity for catalyst (Φ)	30,000	/hour	* 30,000 per hour is a default value. User should enter actual value, if known.

Percent Energy Recovery (HR) = 50 percent

Enter the cost data:

Desired dollar-year	2022			
CEPCI* for 2022	797.6	Enter the CEPCI value for 2022	390.6	1999 CEPCI
Annual Interest Rate (i)	7	Percent		
Electricity ($Cost_{elect}$)	0.085	$/kWh		
Natural Gas Fuel Cost ($Cost_{fuel}$)	0.00860	$/scf		
Operator Labor Rate	$26.61	per hour		* $26.61 per hour is a default labor rate. User should enter actual value, if known.
Maintenance Labor rate	$27.40	per hour		* $27.40 per hour is a default labor rate. User should enter actual value, if known.
Contingency Factor (CF)	10.0	Percent		* 10 percent is a default value for construction contingencies. User may enter values between 5 and 15 percent.

* CEPCI is the Chemical Engineering Plant Cost Escalation/De-escalation Index. The use of CEPCI in this spreadsheet is not an endorsement of the index for purposes of cost escalation or de-escalation, but is there merely to allow for availability of a well-known cost index to spreadsheet users. Use of other well-known cost indexes (e.g., M&S) is acceptable.

Design Parameters

The following design parameters for the oxidizer were calculated based on the values entered on the *Data Inputs* tab. These values were used to prepare the costs shown on the *Cost Estimate* tab.

Composition of Inlet Gas Stream		
Pollutant Name	Concentration in Waste Stream (ppmv) From Data Inputs Tab	Adjusted Concentration with Dilution Air (ppmv)
Carbon monoxide	43	NA
0	0	NA
0	0	NA
0	0	NA
0	0	NA
0	0	NA
0	0	NA
0	0	NA
0	0	NA
0	0	NA
Total	43	0

Constants used in calculations:

Temperature of auxiliary fuel (T_{af}) =	Reference Temperature (T_{ref}) =	77.0	°F
Density of auxiliary Fuel at 77 °F (ρ_{af}) =		0.0408	lb/ft^3
Heat Input of auxiliary fuel ($-\Delta h_{caf}$) =		21,502	Btu/lb
Density of waste gas at 77 °F (ρ_{wi}) =		0.0739	lb/ft^3 (actual = 0.0486)
Mean Heat Capacity of Air (C_{pmair}) =	(For catalytic oxidizers)	0	Btu/lb °F

Parameter	Equation	Calculated Value	Units	Value	Units
Sum of volume fraction of combustible components =	= ($\sum x_i$) =	43	ppmv		
Lower Explosive Limit of waste gas (LEL_{mix})	= $[\sum((x_j)/((\sum x_i) \times LEL_j))]^{-1}$ =	125,000	ppmv		
	Where x_j is the volume fraction and LEL_j the lower explosive limit for each combustible component in the waste gas.				
% LEL_{mix}	= (Total Combustible Conc. In Mixture/LEL_{mix}) × 100 =	0.03	percent	* Note: Since the LEL of the waste gas stream is below 25%, no dilution air is needed.	
Dilution Factor	= (LEL_{mix} x 0.249)/($\sum x_i$) =	Not applicable			
Lower Explosive Limit (LEL) of waste gas after addition of dilution air	= (Total Adjusted Conc. With Dilution Air/LEL_{mix}) × 100 =	Not Applicable			
Inlet volumetric flow rate(Qwi) at 77°F and 1 atm.	(From Data Inputs Tab) =	255,617	scfm		
Oxygen Content of gas stream	= 100 - ($\sum x_j \times 100/10^6$) x 0.209 =	20.90	percent		
Fan Power Consumption (FP)	= $[(1.17 \times 10^{-4}) \times Q_{wi} \times \Delta P]/\varepsilon$	1266.5	kW		
Q_{wo}	≈ Q_{wi} =	255,617	scfm		
Operating temperature of oxidizer (T_{fi})	(From Data Inputs Tab)	900	°F		
Temperature of waste gas at outlet to preheater (T_{wo})	= Heat Recovery × (T_{fi} - T_{wi}) + T_{wi} =	513	°F		
Temperature of flue gas exiting the oxidizer (T_{fo})	= T_{fi} - T_{wo} + T_{wi} =	513	°F		
Heat Input of waste gas ($-\Delta h_{cwi}$)					
	= $\sum (-\Delta h_{ci})\ x_i$				
	Where ($-\Delta h_{ci}$) is the heat of combustion and x_i the fraction of component "i" at 77 °F.	0.01	Btu/scf	0.2	Btu/lb
Estimated Auxiliary Fuel Flow (Q_{af}) at 77 °F and 1 atm.	(Calculated using Equation 2.21 in Chapter 2 of the Cost Manual)	2,526.25	scfm		
Auxiliary fuel Energy Input =		2,216,233	Btu/min		
Minimum Energy required for combustion stabilization =	= 5% × Total Energy Input = 0.05 × ρ_{fi} × Q_{fi} × C_{pmfi} × (T_{fi} - T_{ref}) =	194,683	Btu/min		
Is the calculated auxiliary fuel sufficient to stabilize combustion?	(Note: If the auxiliary fuel energy input > 5% of Total Energy Input, then the auxilary fuel is sufficient.)	Yes			
Auxiliary fuel flow (Qaf) at 77°F and 1 atm. =		2,526	scfm		
Total Volumetric Throughput (Q_{tot}) at 77 °F and 1 atm.	= Q_{fi} = Q_{wo} + Q_a + Q_{af} = Q_{wi} + Q_{af} =	258,144	scfm		

Calculation of Catalyst Volume and Estimated Temperature of Waste Gas Entering the Catalyst Bed			
Volumetric Flow Rate at 60 °F and 1 atm (Q_{ft})	= Q_{tot} × (519)/(77 °F + 460) =	249,491	scfm
Catalyst Volume (Vol_{cat})	= Q_{ft}/Φ	498.98	ft^3
Estimated inlet temperature to the catalyst bed (T_{ri}) =	(Calculated using Equation 2.27 in Chapter 2 of the Cost Manual)	899	°F

Capital Recovery Factor:

Parameter	Equation	Calculated Value
Capital Recovery Factor (CRF) =	$i\ (1+i)^n/(1+i)^n - 1$ =	0.0944
	Where n = Equipment Life and i= Interest Rate	

Cost Estimate

Direct Costs

Total Purchased equipment costs (in 2022 dollars)

Incinerator + auxiliary equipment[a] (A) =			
Equipment Costs (EC) for a Fixed Bed Catalytic Oxidizer	= (1,215 x Qtot^(0.5575)) x (2022 CEPI/1999 CEPCI) =	$2,580,726	in 2022 dollars
Instrumentation[b] =	0.10 × A =	$258,073	
Sales taxes =	0.03 × A =	$77,422	
Freight =	0.05 × A =	$129,036	
	Total Purchased equipment costs (B) =	$3,045,257	in 2022 dollars

Footnotes
a - Auxiliary equipment includes equipment (e.g., duct work) normally not included with unit furnished by incinerator vendor.
b - Includes the instrumentation and controls furnished by the incinerator vendor.

Direct Installation Costs (in 2022 dollars)

Foundations and Supports =	0.08 × B =	$243,621	
Handlong and Errection =	0.14 × B =	$426,336	
Electrical =	0.04 × B =	$121,810	
Piping =	0.02 × B =	$60,905	
Insulation for Ductwork =	0.01 × B =	$30,453	
Painting =	0.01 × B =	$30,453	
Site Preparation (SP) =		$0	
Buildings (Bldg) =		$0	
	Total Direct Installaton Costs =	$913,577	
Total Direct Costs (DC) =	Total Purchase Equipment Costs (B) + Total Direct Installation Costs =	$3,958,834	in 2022 dollars

Total Indirect Installation Costs (in 2022 dollars)

Engineering =	0.10 × B =	$304,526	
Construction and field expenses =	0.05 × B =	$152,263	
Contractor fees =	0.10 × B =	$304,526	
Start-up =	0.02 × B =	$60,905	
Performance test =	0.01 × B =	$30,453	
	Total Indirect Costs (IC) =	$852,672	
Continency Cost (C) =	CF(IC+DC)=	$481,151	
Total Capital Investment =	**DC + IC +C =**	**$5,292,657**	**in 2022 dollars**

Direct Annual Costs

Catalyst Replacement Cost	= 1.08 × CC × Vol_{cat} × FWF Where CC is the $/ft^3 cost for the replacement catalyst; Vol_{cat} is the volume of catalyst required based on the waste gas flow rate (Q_{ft}) and the catalyst space velocity (Φ); and FWF is the future worth factor.	$0	
Annual Electricity Cost	= Fan Power Consumption × Operating Hours/year × Electricity Price =	$943,047	
Annual Fuel Costs for Natural Gas	= $Cost_{fuel}$ × Fuel Usage Rate × 60 min/hr × Operating hours/year	$11,419,055	
Operating Labor	Operator = 0.5hours/shift × Labor Rate × (Operating hours/8 hours/shift)	$14,569	
	Supervisor = 15% of Operator	$2,185	
Maintenance Costs	Labor = 0.5 hours/shift × Labor Rate × (Operating Hours/8 hours/shift)	$15,002	
	Materials = 100% of maintenance labor	$15,002	
Direct Annual Costs (DC) =		**$12,408,859**	**in 2022 dollars**

Indirect Annual Costs

Overhead	= 60% of sum of operating, supervisor, maintenance labor and maintenance materials	$28,054	
Administrative Charges	= 2% of TCI	$105,853	
Property Taxes	= 1% of TCI	$52,927	
Insurance	= 1% of TCI	$52,927	
Capital Recovery	= CRF[TCI-1.08(cat. Cost)]	$499,589	
Indirect Annual Costs (IC) =		**$739,350**	**in 2022 dollars**
Total Annual Cost =	**DC + IC =**	**$13,148,209**	**in 2022 dollars**

Cost Effectiveness

Cost Effectiveness = (Total Annual Cost)/(Annual Quantity of VOC/HAP Pollutants Destroyed)

Total Annual Cost (TAC) =	$13,148,209	per year in 2022 dollars
CO Destroyed =	190.4	tons/year
Cost Effectiveness =	$69,049	per ton of pollutants removed in 2022 dollars

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 · (217) 782-3397
JB PRITZKER, GOVERNOR JOHN J. KIM, DIRECTOR

March 24, 2020

Re: US Steel Granite City (Illinois EPA BOA ID# 119813AAI)
Construction Permit (95010001)

To Distribution List:

In accordance with the Illinois EPA's Environmental Justice Policy, the IEPA wants to provide you with information about a potential action. The agency is sending this letter to notify you of an application received by the Bureau of Air (BOA).

The IEPA has received a construction permit application from US Steel Granite City for the facility located at 1951 State Street in Granite City. The application is a request to revise a 1996 construction permit which addressed an increase in production. The requested revisions do not involve new physical changes to equipment or operations. They also do not include any changes to the limits for production of iron and steel in this permit.

The primary changes being requested involve combining emission limits for individual emission units into overall limits for the annual emissions of various "areas" at the source, e.g., production of iron in the blast furnaces or the boilers and other combustion units. This would be accompanied by use of better emission data for calculating the emissions of certain units. Other changes being requested would include changes to limits for usage of natural gas and blast furnace gas because coke oven gas is no longer made.

The application is currently under review by the BOA.

If you have questions about the application, please contact Chris Pressnall, Environmental Justice Coordinator at (217) 524-1284, chris.pressnall@illinois.gov.

Sincerely,

Chris Pressnall
Environmental Justice Coordinator

Due to COVID-19, we will temporarily only be sending out notifications via email.

4302 N. Main St., Rockford, IL 61103 (815)987-7760
595 S. State, Elgin, IL 60123 (847)608-3131
2125 S. First St., Champaign, IL 61820 (217)278-5800
2009 Mall St., Collinsville, IL 62234 (618)346-5120
9511 Harrison St., Des Plaines, IL 60016 (847)294-4000
412 SW Washington St., Suite D, Peoria, IL 61602 (309)671-3022
2309 W. Main St., Suite 116, Marion, IL 62959 (618)993-7200
100 W. Randolph, Suite 4-500, Chicago, IL 60601

PLEASE PRINT ON RECYCLED PAPER

Distribution List

US Steel Granite City
State Senator Christopher R. Belt - State Senate District #57
State Representative Jay Hoffman - State Representative District #113*
U.S. Representative Mike Bost - U.S. Congressional District #12
U.S. Senator Richard J. Durbin*
U.S. Senator Tammy Duckworth*
Granite City – Ed Hagnauer, Mayor*
Granite City – Granite City Council
Madison County Board*
Madison County Brand NAACP – James Harrell *
Illinois NAACP – Gregory Norris*
Illinois NAACP – Teresa Haley*
American Lung Association of Illinois – Angela Tin*
Respiratory Health Association - Brian P. Urbaszewski*
Sierra Club – Jack Darin*
Sierra Club – Christine Nannicelli*
Prairie Rivers Network – Elliot Brinkman*
Faith in Place – Rev. Brian Sauder*
Illinois Environmental Regulatory Group – Alec Davis*
Chemical Industry Council of Illinois – Lisa Frede*
Illinois EPA – Crystal Myers-Wilkins*
Shawnee Hills & Hollers – Georgia de la Garza*
Shawnee Hills & Hollers – Sabrina Hardenbergh*
Illinois Environmental Council – Jennifer Walling*
LVEJO – Juliana Pino*
Environmental Law & Policy Center – Jeffrey Hammons*
Environmental Law & Policy Center – Kiana Courtney*
Illinois Farm Bureau – Lauren Lurkins*
ComEd – Kareena Wasserman*
Earthjustice – Jennifer Cassel*
Earthjustice – Debbie Chizewer*
Bluhm Legal Clinic – Cary Shepherd*
Northwestern Pritzker School of Law – Nancy Loeb*
Three Rivers Project – Virginia Woulfe-Beile*
Rebuilding Together Southwest Illinois – Jane Ahasay*
Interdisciplinary Environmental Clinic – Liz Hubertz*
Illinois Department of Transportation – John Sherrill*
City of Greenville – Bill Grider*
Madison County Health Department – Erin Boeaster*
Madison County Planning and Development – Jeff Hurst*

***Receiving e-notifications**

Application for Revisions to the Construction Permit / Prevention of Significant Deterioration (PSD) Approval for The 1996 Expansion of the Granite City Works Permit Number 95010001

Submitted to:

Division of Air Pollution Control
Illinois Environmental Protection Agency
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794

Prepared by:

RTP Environmental Associates, Inc.
304-A West Millbrook Rd.
Raleigh, NC 27609

Submitted by:

U. S. Steel Corporation
Granite City Works
20th and State Streets
Granite City, Illinois 62040

February 2020

TABLE OF CONTENTS

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

LIST OF TABLES

SR 0965

APPENDICES

Appendix A	**Application Forms**
Appendix B	**Emissions Calculations (Including Calculations from the 1995 Application)**
Appendix C	**Air Quality Modeling Report**
Appendix D	**Copy of the 1996 Construction Permit**
Appendix E	**Copies of EPA Determinations**

1. Introduction

United States Steel Corporation Granite City ("USS Granite City") owns and operates an integrated iron and steel manufacturing facility in Granite City, Madison County, Illinois (ID # 119813AAI). The prior owner of this facility was National Steel Corporation. U.S. Steel acquired the assets of the National Steel Granite City facility on May 20, 2003. On January 25, 1996, prior to U.S. Steel acquiring these assets of National Steel Corporation, the Illinois Environmental Protection Agency ("Illinois EPA") issued a Prevention of Significant Deterioration ("PSD") and Construction Permit (Permit Number 95010001) ("1996 Construction Permit") to National Steel Corporation. The 1996 Construction Permit authorized increases in the allowable production rate of iron and steel at the Granite City facility ("1996 Project" or "project").

The requirements of the 1996 Construction Permit were subsequently included in the Clean Air Act Permit Program ("CAAPP") (Permit Number 96030056 or "CAAPP Permit") for the facility that was issued on March 4, 2013. USS Granite City timely appealed some of the terms of the CAAPP Permit.[1]

This application for a construction permit revision requests certain changes to address the underlying issues identified in the CAAPP permit appeal filed by USS Granite City. In addition, this application requests that the Illinois EPA address certain elements under the PSD preconstruction permitting regulations at 40 CFR § 52.21 as provided herein.

USS Granite City also requests that Illinois EPA process the proposed revisions to the 1996 Construction Permit in accordance with the integrated processing procedures and issue the revised construction permit utilizing procedures and compliance requirements that are substantially equivalent to those utilized for issuance of a CAAPP permit, including a public notice period for the revised construction permit. See 35 Illinois Administrative Code (IAC) 270.302(e). USS Granite City understands that the construction permit would then be incorporated into the CAAPP permit by means of the administrative amendment process.

At the time of the 1996 Construction Permit issuance, Granite City area was designated nonattainment for ozone and particulate matter with aerodynamic diameter of 10 micrometer or less ("PM10") national ambient air quality standards ("NAAQS"). The 1996 Construction Permit included limitations on emissions sufficient to ensure that the 1996 Project did not trigger applicability of the Illinois Nonattainment New Source Review ("NNSR") program codified at 35 IAC Part 203 for oxides of nitrogen (NO_X) and volatile organic matter (VOM) (both as precursors for ozone) and PM10. The permit revisions requested by USS Granite City in this application are designed to ensure the continued non-applicability of the NNSR program to the 1996 Project.

No physical changes are proposed in conjunction with the requested revisions to the 1996 Construction Permit.

[1] CAAPP Permit Appeal IPCB No. 2013-053, pending before the Illinois Pollution Control Board.

1.1 Facility Information

The USS Granite City steel mill is an integrated steel manufacturer employing raw material processing and preparation, iron production, steel production, and steel finishing. The steel mill previously produced metallurgical coke in by-product coke plant, but those operations were permanently idled in 2015. Coke is now purchased from the heat recovery coke batteries located adjacent to the steel mill, which are owned and operated by Gateway Energy and Coke Company, and from other sources.

USS Granite City and certain other collocated and separately owned facilities are considered by Illinois EPA to be a single stationary source as that term is defined in 35 IAC 203.136 and 40 CFR § 52.21(b)(5). This stationary source is a major stationary source as defined by 35 IAC 203.206 and 40 CFR § 52.21(b)(1). Only the USS Granite City facility, and none of the separately owned facilities, are directly affected by the changes reflected in this permit application.

1.2 Application Organization

This application contains the following analyses and supporting information for the requested updates and revisions of the 1996 Construction Permit (Permit Number 95010001).

- Section 2 presents the overview of the requested permit revisions.
- Section 3 presents a discussion of proposed changes to carbon monoxide (CO) emission limitations.
- Section 4 contains a best available control technology (BACT) demonstration for CO.
- Section 5 summarizes the source impacts analyses (including air dispersion modeling) for CO.
- Section 6 addresses the additional impacts analyses.
- Section 7 provides details of requested changes to permit terms for particulate matter (PM/PM10) emissions and updated emissions increase analyses.
- Section 8 addresses requested changes to permit terms for NO_X emissions and updated emissions increase analysis.
- Section 9 addresses requested changes to permit terms relating to the volatile organic materials (VOM) emissions and updated emissions increase analysis.
- Section 10 summarizes pertinent regulatory applicability and changes thereto.

2. Overview of Requested Permit Revisions

2.1 Background on Construction Permit

National Steel Corporation submitted an application on January 3, 1995 for a construction permit for a proposed increase in production at the Granite City Works ("1995 Application"). Illinois EPA issued Construction Permit PSD Approval No. 95010001 on January 25, 1996. The 1996 Construction Permit authorized National Steel Corporation to increase throughput and fuel use at the Granite City Works as follows:

(a) The limits on total combined production of hot metal (*i.e.*, iron) from blast furnaces A and B increased to 9,849 net tons per day, averaged over any calendar month, and 3,165,000 net tons per calendar year. [Permit Conditions 2(a)-(b), 32(a)-(c), and 34(a).] Previously, under Construction Permit No. 95090167, hot metal production rate had been limited to 7,150 net tons per day, averaged over any calendar month, and 2,609,750 net tons per rolling 12-month period.

(b) The limits on total combined production of liquid steel from the Basic Oxygen Process Furnaces (BOFs) increased to 11,000 net tons per day, averaged over any calendar month, and 3,580,000 net tons per calendar year. [Permit Conditions 6(a)-(b), 32(a)-(c), and 34(b).) Previously, under Construction Permit No. 95090167, liquid steel production rate had been limited to 8,250 net tons per day, averaged over any calendar month, and 3,011,250 net tons per rolling 12-month period.

(c) The limits on combined use of blast furnace gas (BFG) at the boilers #1 through #12, blast furnace stoves, BFG flare #1, and ladle drying preheaters increased to 30,800 million cubic feet (MMcf) per calendar month and 185,030 MMcf per calendar year. [Permit Conditions 21(b) and 32(b)-(c).] The prescribed method of determining BFG usage is an assumed ratio of 0.05846 MMcf per ton of hot metal produced.[2] [Permit Condition 34(c).] Previously, under Construction Permit No. 95090167, BFG usage had been limited to 21,613 MMcf per calendar month and 129,681 MMcf per rolling 12-month period.

(d) The limits on combined use of fuel oil at the boilers #1 through #12, blast furnace stoves, BFG flare #1, and ladle drying preheaters increased to 60,000 gallons per calendar month and 365,000 gallons per calendar year. [Permit Conditions 21(c) and 32(b)-(c).] Previously, under Construction Permit No. 95090167, fuel oil usage had been limited to 18,000 gallons per calendar month and 113,000 gallons per rolling 12-month period.[3]

These increases in permitted throughput and associated fuel usage resulted in increases in emissions from the various project-affected emissions units. The net emissions increase

[2] Using this prescribed ratio, these limits are redundant with the hot metal production limits as BFG generation directly correlates with the hot metal production in the Blast Furnace and the BFG usage limits cannot be exceeded without first exceeding the hot metal production limits.
[3] With this application, USS Granite City is proposing to eliminate the use of fuel oil in the project-affected burning units.

calculations for the 1996 Project as summarized in the 1996 Construction Permit are presented in Table 2-1.

Table 2-1. Summary of 1996 Construction Permit Net Emissions Increase Calculations

	Emissions (tons/year)						
	PM	**PM10**	**NO_X**	**SO_2**	**CO**	**VOM**	**Pb**
Project Emissions Increases	-52.0	51.6	238.8	476.0	5,685.0	59.3	0.54
Contemporaneous Decreases	-58.0	-58.0	-226.5	-0.38	-23.31	-32.8	n/a
Contemporaneous Increases	20.3	20.7	26.0	0.25	11.8	1.6	n/a
Net Emissions Increases	**-89.2**	**14.3**	**38.3**	**475.9**	**5,673**	**28.1**	**0.54**
Significant Emission Rate	25.0	15.0	40.0	40.0	100.0	40.0	0.6

For PM, PM10, NO_X, and VOM, the net emissions increases, including contemporaneous changes, were below the applicable significant emission rates for these pollutants. For Pb, the project emissions increase was below the significant emission rate. Finally, for SO_2 and CO, the project resulted in net emissions increases that were greater than the significant emission rates. As the project was a major modification for SO_2 and CO, Illinois EPA and National Steel Corporation addressed the PSD review requirements for these pollutants in the 1996 Construction Permit.

2.2 General Description of Requested Permit Revisions

USS Granite City is not requesting any changes to the monthly or annual limits on hot metal production rate and liquid steel production rate, nor are any changes to the scope of the 1996 Project proposed. This application proposes the following two categories of changes. This permit application does not request any changes to the SO_2 and Pb emission limits in the 1996 Construction Permit, so SO_2 and Pb emissions will not be discussed further.

2.2.1 Requested Changes Relating to CO Emissions Rates

The 1996 Project was a major modification for CO and was subject to PSD review for this regulated NSR pollutant. As summarized below, USS Granite City is requesting revisions to certain permit terms arising from this PSD review.

For CO, as discussed in detail in Section 3 of this permit application, the primary changes are requested increases in the permitted emissions from burning of BFG and natural gas. The emission limits in the 1996 Construction Permit were based upon information in the 1995 Application, which was based on published emission factors and other literature information. However, actual emissions testing data generated since the original PSD application was submitted and updated literature information indicate that corrections to the emission factors and corresponding limits are necessary and appropriate. Because these revisions are not necessitated by any action taken subsequent to the 1996 Project, these changes are considered revisions to the original PSD permit based upon better emissions information; accordingly, updates to the substantive PSD reviews presented in the 1995 Application are provided in Sections 4, 5 and 6 herein. In addition, revisions are requested with respect to certain other permit terms in order to improve operational flexibility and to clarify compliance demonstration requirements.

2.2.2 Requested Changes Relating to PM, PM10, NO_X, and VOM Emissions

The 1996 Construction Permit includes a number of emission limitations and other permit conditions that are not explicitly required by any regulation. These emission limitations and permit conditions were included in the permit in order to restrict the potential to emit ("PTE") of certain operations at the Granite City Works and to memorialize non-applicability determinations under the PSD and NNSR permitting programs with respect to net emissions increases of PM, PM10, NO_X, and VOM resulting from the 1996 Project.

The annual emission limitations for major processes and activities at the Granite City facility listed in Table 5 of the 1996 Construction Permit, referred to herein as "emissions caps," address the PTE and limit the net emissions increases of PM, PM10, Pb, NO_X, and VOM to less than the corresponding applicability thresholds (the "significant emission rates") under the PSD and NNSR permitting programs.

USS Granite City is not requesting any material revisions to the PM and PM10 emissions caps as part of this permit application. The only requested changes to the 1996 Construction Permit that are pertinent to emissions of these pollutants are minor revisions to certain permit terms as follows:

- Reorganization of the emissions caps, consistent with changes that Illinois EPA made when issuing the CAAPP permit in 2013, to shift minor material handling activities to a separate "material handling" emissions cap.
- Addition of numerous monitoring, testing, and recordkeeping requirements.

These requested changes will clarify compliance demonstration requirements, improve operational flexibility, and enhance the enforceability of the emissions caps. The specific requested changes to permit terms relating to PM and PM10 emissions are discussed in Section 7 herein.

USS Granite City is requesting increases in BOF Shop NO_X and VOM emissions caps which are based upon updated emission factors information and not related to any post-1996 Project changes at the source. USS Granite City is also requesting revisions to gaseous fuel usage limits for natural gas and blast furnace gas.[4] In addition, as with permit terms relating to PM and PM10 emissions, USS Granite City is requesting changes to certain other permit terms that were established for NO_X and VOM. These changes will clarify compliance demonstration requirements, improve operational flexibility, and enhance the enforceability of the emissions caps. The specific requested changes to permit terms relating to NO_X and VOM emissions, respectively, including demonstrations that the net emissions increase for these pollutants remain below the corresponding significant emission rates, are discussed in Sections 8 and 9 herein.

2.2.3 "Source Obligation" Provisions of PSD and NNSR Rules

The emissions caps for PM, PM10, NO_X, and VOM in the 1996 Construction Permit and certain other permit terms, and the resultant restrictions on PTE, appear to have been deemed by Illinois

[4] In 2015, USS Granite City shut down Coke Oven Batteries A and B. This change eliminated coke oven gas as process fuel at the plant necessitating higher natural gas usage for Boilers 11 and Boiler 12 at the site. This natural gas usage increase is also being addressed in this permit revision application.

EPA to be necessary to prevent the 1996 Project from being a major modification.[5] Because the requested revisions to the 1996 Construction Permit include increases in the NO_X and VOM emissions caps, as well as changes to certain other permit terms that could allow increases in PM and PM10 emissions, the following "source obligation" provisions of the PSD and NNSR are pertinent to this permit application:

> At such time that a particular source or modification becomes a major stationary source or major modification solely by virtue of a relaxation in, or expiration of, any enforceable limitation which was established after August 7, 1980, on the capacity of the source or modification otherwise to emit a pollutant, such as a restriction on hours of operation, then the requirements of this Part shall apply as though construction had not yet commenced on the source or modification. 35 IAC 203.210(b).

> At such time that a particular source or modification becomes a major stationary source or major modification solely by virtue of a relaxation in any enforceable limitation which was established after August 7, 1980, on the capacity of the source or modification otherwise to emit a pollutant, such as a restriction on hours of operation, then the requirements or paragraphs (j) through (s) of this section shall apply to the source or modification as though construction had not yet commenced on the source or modification. 40 CFR § 52.21(r)(4).

In Sections 7-9 of this permit application and in Appendix B of this permit application, USS Granite City presents updated net emissions increase calculations for PM, PM10, NO_X, and VOM. These updated calculations demonstrate that the changes to permit terms requested by USS Granite City will not trigger after-the-fact PSD or NNSR permitting for emissions of PM, PM10, NO_X, or VOM under the "source obligation" provisions because the project is not a major modification for these pollutants.

2.2.4 Enforceability of PTE Restrictions

As noted above, USS Granite City is proposing to retain the monthly and annual limits on hot metal production rate and liquid steel production rate; all of the PM and PM10 emissions caps; and certain NO_X and VOM emissions caps in the 1996 Construction Permit. As discussed in greater detail in Sections 8-9 of this permit application, USS Granite City also is proposing that the NO_X and VOM emissions caps for the BOF shop and certain other units in the 1996 Construction Permit as identified herein be revised and that the revised permit include appropriate monitoring, testing, and recordkeeping requirements. Collectively, under the following provisions in the pertinent definitions in the PSD and NNSR rules, these proposed limitations and permit terms will restrict the PTE of the affected emissions units:

> Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its

[5] USS Granite City does not agree with this interpretation. The definitions of "major modification" and related provisions in the PSD and NNSR rules in effect in 1996 were based on increases in actual emissions, except in the narrow circumstances where the emissions unit at issue had not begun normal operations at the time of the project. *See, e.g.,* 56 *Fed. Reg.* 27630 (June 14, 1991). Nonetheless, for purposes of this permit application, USS Granite City has demonstrated that the 1996 Project is not a major modification even under use of what U.S. EPA refers to as the "actual-to-potential" test.

> design only if the limitation or the effect it would have on emissions is federally enforceable. 35 IAC 203.128.
>
> Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable. 40 CFR § 52.21(b)(4).[6]

Under the provisions above, what is required for restricting PTE is that the limits be enforceable as a practical matter.[7] Practical enforceability is a matter of technical judgment of the permitting authority – Illinois EPA – but there is a substantial body of policy and precedent regarding preferred forms for emissions caps that are enforceable as a practical matter. These policies can be summarized as follows:

- If not used to restrict emissions over a period shorter than one year, emissions caps should be expressed in terms of tons per year on a 12-month rolling sum basis or on a more frequent basis.
- If the emissions cap will cover multiple activities or emissions units, the permit should require at least monthly emissions calculation and recordkeeping.
- The permit should prescribe methods of calculating actual emissions for each unit and each pollutant and should prescribe how monitoring and recordkeeping of relevant parameters will be used in those calculations.
- Where the permit prescribes an emission factor to be used in conjunction with operational data in demonstrating compliance, the permitting authority should describe the basis for its determination that the emission factor is representative.
- Where the permit requires development and use of a site-specific emission factor to be used in conjunction with operational data in demonstrating compliance, the permit should prescribe the method by which the emission factor will be developed, such as through performance testing with a specified frequency.

Two recent and significant examples of these policies are U.S. EPA's final agency actions in issuing the permits for construction of a drilling operation in the Beaufort Sea off the North Coast of Alaska in March 2012 and installation of new stationary reciprocating internal

---

[6] Although the federal PSD regulation as codified at 40 CFR § 52.21(b)(4) continue to include the component term "federally enforceable," this criterion was vacated by the U.S. Court of Appeals for the D.C. Circuit in 1995. *Chemical Manufacturers Ass'n v. EPA*, 70 F.3d 637. Federal case law and U.S. EPA policy now suggest the provision should be interpreted to mean, "federally enforceable or legally and practicably enforceable by a state or local air pollution control agency." See, e.g., 67 *Fed. Reg.* 80186 at 80191; *see, also, U.S. v. Questar Gas Mgmt. Co.*, No. 2:08-CV-167 (D. Utah, May 11, 2011).

[7] *See, e.g.*, Administrative Order, *In the Matter of Orange Recycling and Ethanol Production Facility, Pencor-Masada Oxynol, LLC*, Petition No.: II-2000-07, C.T. Whitman, U.S. EPA Administrator, May 2, 2001, upholding use of annual emission caps with a rolling cumulative total methodology and rejecting petitioners' "concern that the permit appears to rely on after-the-fact monitoring, rather than engineering practices, test data, or vendor guarantees" to establish restrictions on PTE. U.S. EPA based its findings on the fact that "[i]f the source has no room to operate under the PTE limiting emissions cap, it must cease operation or face a violation" and that "all PTE limits rely on after the fact monitoring of some kind."

combustion engines at an existing power plant in Arizona in December 2018.[8,9] The Alaska permit, issued by U.S. EPA Region 10, includes annual emissions caps for NO_X and CO, with compliance determined on a 365-day rolling sum basis, and annual emissions caps for SO_2 and greenhouse gases, with compliance determined on a 12-month rolling sum basis. The Arizona permit, issued by the Pima County Department of Environmental Quality pursuant to a delegation of authority from U.S. EPA, includes an annual NO_X emissions cap with compliance determined on a 12-month rolling sum basis. Copies of the Alaska and Arizona documents referred here are provided in Appendix E.

Each of these permits includes some emissions units for which the emission factor used to quantify that unit's contribution to the emissions cap over a particular time period is directly prescribed in the permit and also some emissions units for which the permit prescribes the method by which the emission factor will be developed. In each instance where the emission factor is directly prescribed in the permit, this approach was used because the permitting authority determined the emission factor to be sufficiently representative of actual emissions, provided that required monitoring of operating parameters shows the process and control device to be operating within ranges or conditions established during the permitting process. (For example, in the Alaska permit, the NO_X and CO emission factors for periods when the control devices are operating assume control efficiencies of 90 percent and 80 percent, respectively; in the Arizona permit, the NO_X emission factor for engine startup events, during which the air pollution control equipment does not operate, is based on the estimate provided by the engine manufacturer.) In each instance where emission factors are developed through site-specific testing subsequent to permit issuance, the permit carefully prescribes the testing conditions that will be followed, the frequency of that testing, and the calculations to be used to derive the emission factor.

The approach proposed by USS Granite City with respect to the PM, PM10, NO_X and VOM emissions caps to be used in any revised Construction Permit No. 95010001, including the proposed revised emissions limitations and compliance demonstration requirements discussed in detail in Sections 7-9 of this permit application, is consistent with this policy and precedent.

---

[8] *In re: Shell Offshore, Inc., OCS Permit No. R10 OCS030000*, OCS Appeal Nos. 11-05, 11-06 & 11-07. Mar. 30, 2012. Docket available on the U.S. EPA internet web site at https://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/77355bee1a56a5aa8525711400542d23/f24b9734e6894b9385257958006dad34!OpenDocument (last accessed Aug. 28, 2019).

[9] *In re: Tucson Electric Power, PSD Permit No. 1052*, PSD Appeal No. 18-02. Dec. 3, 2018. Docket available on the U.S. EPA internet web site at https://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/77355bee1a56a5aa8525711400542d23/64a784010e968b9b852583050073ebe5!OpenDocument (last accessed Aug. 28, 2019).

3. Changes to CO Emission Limitations

This section describes the proposed changes to the 1996 Construction Permit requested by USS Granite City pertaining to CO emissions rates for fuel burning emissions units. These requested changes are not based upon any post-1996 Project changes but are based on the updated information regarding CO emission factors for gaseous fuels. As outlined later in this section, adjustments to the CO emission rates are proposed. The proposed changes to the CO emissions factors and CO emission rates for gaseous fuels do not change the applicability of PSD review.

3.1 Process Background and Project

Blast furnace gas (BFG) is a byproduct of the blast furnace operation and is used as fuel in the process. The blast furnaces produce molten iron from iron ore pellets through a reduction reaction with metallurgical coke. In this reaction, carbon monoxide (CO) is formed along with other gases and rises to the top of the blast furnace. At the top of the blast furnace, the BFG that is generated in the furnace is collected and routed to a BFG pretreatment system. BFG has heating value (80-110 Btu/scf) and is preferentially used as fuel in the stoves to heat the cold blast air for the blast furnace. BFG is also used as a fuel in the boilers at the USS Granite City facility. Any excess BFG is combusted in a flare.

Each blast furnace has a set of three stoves that combust BFG and supply hot blast air to the blast furnace.

As explained earlier, BFG is also used as fuel in the boilers used to produce steam for use at the site, including steam to power the fans that supply blast air to the blast furnaces. Two of these boilers – Boiler 11 and Boiler 12 – were in existence at the time of the 1996 Project and are covered by the 1996 Construction Permit. Both boilers and stoves also use supplemental natural gas.

The 1996 Project involved increases in the production rate for the blast furnaces and corresponding increases in BFG generation and usage as outlined in subsection 2.1. The CO net emissions increase from the 1996 Project was significant and the project was subject to PSD review with respect to this pollutant. In the 1995 Application, on page 1-3, National Steel Corporation noted that the existing boilers were not undergoing any changes as part of the project. Therefore, pursuant to 40 CFR § 52.21(j)(3), these emissions units were not subject to BACT requirements. In terms of the fuel burning emissions units, the BACT-affected operations listed in the 1995 Application were the blast furnace stoves, the ladle drying preheaters, and the ancillary fuel burning units at the continuous casters. Of these emissions units, both the ladle drying preheaters and the ancillary units (tundish dryers and other heaters) at the continuous casters use only natural gas.

3.2 1996 Construction Permit Requirements

Table 4 of the 1996 Construction Permit contains the CO emission limitations for the fuel burning emissions units affected by the Project. Table 3-1 of this permit application presents information from Table 4 of the 1996 Construction Permit pertaining to the CO emissions limitations from ‘certain fuel burning emissions units,’ *i.e.*, Boiler 11, Boiler 12, Blast Furnace

Flare 1, Blast Furnace Stoves, ladle drying preheaters, and continuous casters.[10,11] A copy of the 1996 Construction Permit is provided in Appendix D of this permit application.

The 1996 Construction Permit also set CO emissions limitations for processes affected by the Project. No changes are being proposed to the CO emission limitations for the BOF electrostatic precipitator ("ESP") Stack in Table 2 of the 1996 Construction Permit.

Table 3-1. Table 4 of 1996 Construction Permit CO Limitations for Gaseous Fuels Burning

Fuel Used for Boilers, Stoves, Flare, Ladle Drying Preheaters, and Ancillary Fuel Burning Units at the Continuous Casters	Emission Factor (lb/MMcf)	Maximum Emissions (tons/year)
Natural Gas	40	22.90
Blast Furnace Gas	13.7	1,267.46

3.3 Updated CO Emission Factors for Gaseous Fuels

For natural gas combustion, the CO emission factor included in the 1996 Construction Permit was from Chapter 1.4 AP-42 as updated in August 1982. The U.S. EPA revised Chapter 1.4 of AP-42 in July 1998 and updated the CO emission factor for natural gas combustion to 84 lb per million cubic feet. For natural gas combustion in Boiler 11, Boiler 12, blast furnace stoves, ladle drying preheaters, and ancillary fuel burning units at the continuous casters, the updated CO emission factor has been used to calculate the CO emission rates in this permit application and in the requested proposed revisions to the permit.

As previously explained, BFG is combusted in the boilers and blast furnace stoves at the site (excess BFG is combusted in the flares). The CO emission factor for BFG burning in the 1996 Construction Permit was from the U.S. EPA's AIRS 1990 database (WebFIRE). However, based on recent performance tests for boilers burning BFG, engineering evaluations of BFG burning in blast furnace stoves, and updates to AP-42 Section 13.5, this factor is not representative. Updated CO emission factors for BFG burning in the blast furnace stoves, Boiler 11, Boiler 12, and Blast Furnace Flare 1 are being proposed for purposes of this revision to the CO emission rates. The proposed CO emission rates are as follows:

- Based on the information regarding CO emission rates from another blast furnace stove, and engineering evaluations of BFG burning in blast furnace stoves at USS Granite City,

[10] The 1996 Construction Permit omits the ancillary fuel burning units at the continuous caster under Table 4. However, emissions from fuel combustion at these units are appropriately accounted for in the natural gas combustion rates.
[11] The 1996 Construction Permit also included limits for fuel oil combustion. However, as noted in footnote 3 of this permit application, USS Granite City has ceased fuel oil combustion in the affected units and is proposing to delete from the permit the provisions relating to fuel oil combustion.

the CO emission factor for burning of BFG in the blast furnace stoves is 322 pounds per million cubic feet.[12]

- Based on CO stack testing performed at Boiler 11 and Boiler 12, the emission factor for burning of blast furnace gas is 32 pounds per million cubic feet.[13]
- The CO emission factor for the Blast Furnace Flare 1 is calculated using CO concentration of 24 percent in BFG and a efficiency of 98 percent.[14] [15] This results in a CO emission factor of 350 pounds per million cubic feet.

Table 3-2 presents the updated maximum annual CO emissions from burning of fuel in the blast furnace stoves, Boiler 11, Boiler 12, Blast Furnace Flare 1, ladle drying preheaters, and ancillary fuel burning units at the continuous casters. Emissions calculations for CO are provided in Appendix B of this permit application.

Table 3-2. Proposed CO Limitations for Gaseous Fuels Burning

Fuel Used for Boilers, Stoves, Flare, Ladle Drying Preheaters, and the Ancillary Fuel Burning Units at the Continuous Casters	Maximum Emissions (tons/year)
Natural Gas	83
Blast Furnace Gas	19,260

3.4 CO PSD Review Requirements

As previously explained, the 1996 Project was subject to PSD review for CO because the CO net emissions increase was greater than the significant emission rate of 100 tons per year. Sections 4 through 6 of this permit application address the proposed changes to the CO emission factors for gaseous fuel burning under the PSD review requirements of 40 CFR §§ 52.21(j) through (o), to the extent applicable.

3.5 Requested Changes to Permit Terms Relating to CO Emissions for Certain Fuel Burning Emissions Units

As part of this application for revision to the 1996 Construction Permit, USS Granite City is proposing the following revisions to the emission limitations and other permit terms relating to CO emissions from the 1996 Construction Permit Condition.

---

[12] CO emission factor for AK Steel Dearborn / Severstal Dearborn Michigan permit for C Blast Furnace Stoves in the PTI 182-05C was specified as 328.9 lb/MMcf of BFG. See https://www.deq.state.mi.us/aps/downloads/permits/finpticon/2005/182-05C.pdf (accessed on January 29, 2020). In addition, USS Granite City evaluated CO emissions from the blast furnace stove stacks using non-reference method to compare against data from other furnaces. The Granite City Works blast furnace stoves stack configuration did not allow for application of a reference method for estimating CO emissions. Therefore, as part of an engineering evaluation, USS used a non-reference method to collect CO concentration in the stove stack exhaust.

[13] Boiler 11 tests were conducted in July 2011. Boiler 12 tests were conducted in May 2011.

[14] Data from the quarterly BFG component analyses for 2019 for USS Granite City shows CO concentration in BFG ranging from 20% to 22%.

[15] U.S. EPA's *Compilation of Air Pollutant Emission Factors, AP-42, Volume 1: Stationary Point and Area Sources*, Section 13.5, April 2015 ("Properly operated flares achieve at least 98 percent destruction efficiency in the flare plume").

3.5.1.1 Proposed CO Emission Limitations

USS Granite City proposes the inclusion of Condition 22.b in the revised version of the 1996 Construction Permit as follows.

> *22.b Total CO emissions from burning of blast furnace gas and natural gas in the blast furnace stoves (A and B), Boiler 11, Boiler 12, ladle drying preheaters, ancillary fuel burning units at the continuous casters, and blast furnace gas flare No. 1 shall not exceed 19,343 tons per year based on a monthly rolling 12-month total.*

As the CO emission limitation is to be incorporated in Condition 22 itself, USS Granite City also proposes to delete the CO emission limitations in Table 4 of the 1996 Construction Permit as they would be redundant.[16]

3.5.1.2 Proposed Compliance Demonstration, Monitoring, and Recordkeeping Requirements

USS Granite City proposes the following requirements for demonstrating compliance with the proposed emissions limitations under Condition 22.b of the revised version of the 1996 Construction Permit.

(a) In order to update or verify the CO emission factors for Boilers 11 and 12, the Permittee shall conduct periodic stack tests for Boiler 11 and Boiler 12 stacks.
(b) Use CO emission factors from the performance tests to determine CO emission rates from Boiler 11 or Boiler 12.
(c) For Blast Furnace Stoves (BFG), use CO emission factor of 322 lb/MMcf.
(d) For Blast Furnace Flare 1 (BFG), use CO emission factor of 350 lb/MMcf.
(e) For natural gas, use CO emission factor of 84 lb/MMcf.
(f) Use the following equations for determining monthly CO emissions from the specified emissions units.

For Boilers 11 and Boiler 12 CO (tons/month)	=	((CO (lb/MMcf of BFG) from Stack test × Blast Furnace Gas Use (MMcf/month))+ (CO (lb/MMcf of NG) from Stack test × Natural Gas Use (MMcf/month))) ÷ 2000 (lb/ton)
For Blast Furnace Stoves CO (tons/month)	=	((CO (lb/MMcf of BFG) emission factor × Blast Furnace Gas Use (MMcf/month))+ (CO (lb/MMcf of NG) emission factor × Natural Gas Use (MMcf/month)))÷ 2000 (lb/ton)
For Blast Furnace Flare 1 CO (tons/month)	=	((CO (lb/MMcf of BFG) emission factor × Blast Furnace Gas Use (MMcf/month))+ (CO (lb/MMcf of NG) emission factor × Natural Gas Use (MMcf/month)))÷ 2000 (lb/ton)
For ladle drying preheaters (tons/month)	=	CO (lb/MMcf of NG) emission factor × Natural Gas Use (MMcf/month) ÷ 2000 (lb/ton)
For ancillary fuel burning units at the continuous casters (tons/month)	=	CO (lb/MMcf of NG) emission factor × Natural Gas Use (MMcf/month) ÷ 2000 (lb/ton)

[16] USS is also proposing a fuel usage limitation for the fuel burning emissions units. This limitation is listed under the NOx section of this application.

For recordkeeping requirements, USS Granite City proposes the following:

(a) Maintain monthly records of fuel usage for blast furnace stoves (A and B), Boiler 11, Boiler 12, ladle drying preheaters, ancillary fuel burning units at the continuous casters, and blast furnace gas flare No. 1.
(b) Compile monthly emissions as required above and calculate 12-month rolling total emissions.

4. Best Available Control Technology for CO

In accordance with 40 CFR § 52.21(j)(3), the BACT requirement applies for each regulated NSR pollutant for which the major modification resulted in a significant net emission increase at the source. This requirement applies to certain emission units that are undergoing "a physical change or change in the method of operation in the unit." As previously noted, Boiler 11 and Boiler 12 were not subject to BACT as there were no physical changes or changes in the method of operation of these units.

4.1 Historical BACT Evaluation

In the 1995 Application, National Steel provided a CO BACT analysis for the blast furnace stoves, the ladle drying preheaters, and the continuous casters as outlined below.

(a) The blast furnace stoves combust BFG and use good combustion practices. Use of CO add-on control technology options included direct combustion in a flare, thermal oxidation, and catalytic oxidation. National Steel rejected the add-on controls for CO for stoves as technically infeasible. Therefore, good combustion practices was determined to be BACT for this operation.
(b) The ladle drying preheaters and continuous casters use NG fuel, which is inherently lower emitting practice. No add-on controls were demonstrated for these operations. Therefore, the use of NG was determined to be BACT.

Illinois EPA released a "Project Summary for Proposed Issuance of a Construction Permit" in November 1995 along with public notice of the draft permit for the 1996 Construction Permit. This document included a section "Additional Requirements for Major Projects" that addressed BACT requirements for the 1996 Project. BACT for CO was determined to be use of 'work practice' standards. Specifically, Illinois EPA stated the following with respect to CO BACT.

> *The requirements of PSD include a demonstration that best available control technology (BACT) will be used for SO_2 and CO emissions at affected units, an analysis of air quality impacts, and an analysis of the impacts of the project on visibility, vegetations [sic], and soils. The Agency has determined that these requirements have been met.*
>
> *GCD [Granite City Division of National Steel] has shown that **work practices** used for SO_2 and CO constitute BACT as used by other steel mills for these pollutants. [emphasis added]*

4.2 Updated BACT Evaluation

USS Granite City is not proposing any changes to the BACT requirements for CO emissions from the burning of fuels in the subject fuel burning emissions units, *i.e.*, the blast furnace stoves, blast furnace flare 1, ladle drying preheaters, and ancillary fuel burning units at the continuous caster in conjunction with the proposed revisions of the CO emission factors.

The proposed change involves revisions to the CO emission limits for the blast furnace stoves, Boiler 11 and 12, ladle drying preheaters, blast furnace flare No. 1, and continuous casters. For

the proposed revisions to the permit limits, an updated CO BACT evaluation for these emission units, consistent with 40 CFR § 52.21(j)(3), is presented below.[17]

4.2.1 BACT General Approach

This section presents a proposed BACT analysis for the subject units for CO.

4.2.1.1 Best Available Control Technology Definition

The definition of BACT at 42 U.S.C. § 7479(3) is as follows:

> *The term "best available control technology" means an emission limitation based on the maximum degree of reduction of each pollutant subject to regulation under this chapter emitted from or which results from any major emitting facility, which the permitting authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such facility through application of production processes and available methods, systems, and techniques, including fuel cleaning, clean fuels, or treatment or innovative fuel combustion techniques for control of each such pollutant. In no event shall application of "best available control technology" result in emissions of any pollutants which will exceed the emissions allowed by any applicable standard established pursuant to section 7411 or 7412 of this title. Emissions from any source utilizing clean fuels, or any other means, to comply with this paragraph shall not be allowed to increase above levels that would have been required under this paragraph as it existed prior to November 15, 1990.*

The regulatory definition of BACT at 40 CFR § 52.21(b)(12) is similar.

4.2.1.2 Methodology for the BACT Analysis

In a memorandum dated December 1, 1987, the U.S. EPA stated its preference for a "top-down" analysis.[18] U.S. EPA outlined the BACT determination methodology following the top-down approach.[19] Accordingly, the BACT analyses presented in this application utilize the top-down approach. Under the "top-down" approach, progressively less stringent control technologies are analyzed until a level of control considered BACT is determined, based on the most effective control option that is determined to result in acceptable environmental, energy, and economic impacts. More specifically, the top-down BACT analysis methodology consists of five steps as follows:

1. Identify all "available" control options that might be utilized to reduce emissions of the subject pollutant for the type of unit subject to BACT.

---

[17] Even though Boilers 11 and 12 did not undergo 'any physical change or change in the method of operation' as part of the 1996 Project, this permit revision application conservatively assumes these emissions units are subject to BACT for CO as part of the proposed CO emissions limitations revisions.
[18] Memorandum from J.C. Potter to the Regional Administrators; U.S. EPA, Office of Air and Radiation; Washington, D.C.; December 1, 1987.
[19] See: *1990 New Source Review Workshop Manual, DRAFT,* at page B.2. (Environmental Appeals Board in *Prairie State Generating Station,* PSD Appeal No. 05-05, August 24, 2006, in footnote 2, noted that "[t]he NSR Manual has been used as a guidance document in conjunction with new source review workshops and training, and as a guide for state and federal permitting officials with respect to PSD requirements and policy. Although it is not a binding Agency regulation, the NSR Manual has been looked to by this Board as a statement of the Agency's thinking on certain PSD issues.")

2. Eliminate those available options that are technically infeasible to apply to the specific unit under consideration.
3. Rank the remaining feasible control options by control effectiveness.
4. Evaluate economic, energy and/or environmental impacts of each control option as applied to the subject units, rejecting those options for which the adverse impacts are inappropriate.
5. Based on the most effective control option not rejected in Step 4, select an emission limit or work practice standard as BACT, reflecting the level of control continuously achievable with the selected control option.

4.2.1.3 Baseline Emission Rate

As used in the BACT analyses presented herein, the term "baseline emission rate" refers to the legal floor established in the definition of BACT, i.e., applicable standards under 40 CFR parts 60 and 61.

4.2.1.4 Available Control Options

In the first step of the BACT analysis, all potentially "available" control strategies are identified for further consideration. In the context of the first step of a top-down BACT analysis, U.S. EPA's guidance describes "available" control strategies as:

> *Available control options are those air pollution control technologies or techniques with a practical potential for application to the emissions unit and the regulated pollutant under evaluation.*[20]

In the BACT analyses herein, the term "available" is used, consistent with the U.S. EPA guidance, to refer to any control strategy that is potentially applicable to the source type in question (*i.e.*, a technology or control option that has a practical potential for application to the source category in general). These may include fuel cleaning or treatment, inherently lower polluting processes, and end of pipe control devices. All identified control strategies that are not inconsistent with the fundamental purpose and basic design of the proposed facility are listed in this step.

The second step of the BACT analysis addresses source-specific or unit-specific factors that would prevent an otherwise available technology from being applied in the particular case. The criteria for "technical feasibility" are separate and distinct from the criteria used to determine whether a control option is considered to be "available" for purposes of BACT.

4.2.1.5 BACT Technical Feasibility Criteria

In the second step of a top-down BACT analysis, potentially available control strategies are evaluated for technical feasibility. A technically feasible control strategy is one that has been demonstrated to function efficiently on an emissions unit that is identical or similar to the emissions unit under review.[21] For the purposes of assessing technical feasibility of an add-on

---

[20] See: *1990 New Source Review Workshop Manual, DRAFT*, at page B.5.
[21] See, *Prevention of Significant Deterioration Workshop Manual*, EPA-450/2-80-081, October 1980, at pp. I-B-6 through I-B-7.

control technology, the determination of whether an emissions unit should be considered to be identical or similar is usually based on the physical and chemical characteristics of the gas stream to be controlled. An add-on control technology applicable to one emissions unit may not be technically feasible for application to an apparently similar unit depending on differences in physical and chemical gas stream characteristics, and rejection of a control option based on technical infeasibility for BACT purposes is appropriate if "it is uncertain the control device will work in the situation currently undergoing review."[22]

For control strategies that are not demonstrated, the analysis of technical feasibility is somewhat more involved. Two key concepts are important in determining whether an undemonstrated technology is feasible: "availability[23]" and "applicability." A technology is considered "available" if it can be obtained by the applicant through commercial channels or is otherwise available within the common sense meaning of the term. An available technology is "applicable" if it can reasonably be installed and operated on the source type under consideration. A technology that is both available and applicable is technically feasible.

4.2.2 Purpose and Design of Subject Fuel Burning Emissions Units

The fundamental purpose of the subject fuel burning emissions units is to provide heat and steam needs for the plant operations preferentially using the by-product BFG fuel that is produced at the facility. These objectives are met by burning BFG in the blast furnace stoves and Boilers 11 and 12. Any excess by-product BFG unable to be used is flared through the No. 1 Flare. Natural gas is burned in blast furnace stoves and Boiler 11 and Boiler 12 as supplemental fuel and in the ladle drying preheaters and ancillary fuel burning units at the continuous casters. In accordance with U.S. EPA guidance, alternative raw materials, production processes, or products that would be inconsistent with these fundamental objectives would impermissibly redefine the source and are not a part of the BACT analyses presented herein.[24]

4.2.3 CO BACT Analysis

This section presents the CO BACT analysis for the subject fuel burning emissions units. CO emissions from these units result primarily from incomplete combustion during the firing of BFG and natural gas. Therefore, the most direct approach for reducing these emissions is efficient combustion in the fuel burning emissions units, *i.e.*, appropriate combustion temperatures, adequate excess air, and good air/fuel mixing during combustion. Measures taken to reduce the formation of NOx during combustion can increase CO emissions. In particular lowering combustion temperatures through staged combustion to reduce NOx emissions can be counterproductive with regard to CO emissions.

4.2.3.1 CO BACT Baseline

There are no federal emissions standards applicable to CO emissions from the fuel burning emission units.

[22] See, *PSD and Title V Permitting Guidance for Greenhouse Gases*, EPA-457/B-11-001, March 2011, at p. 34.
[23] In Step 2 of a top-down BACT analysis, the term "availability" has a different meaning than the term "available" in Step 1. Control strategies that are not "available" in Step 1 are not considered in Step 2.
[24] See: *1990 New Source Review Workshop Manual, DRAFT*, at page B.13.

4.2.3.2 Step 1– Identify Available CO Control Options

Based on a review of recent BACT determinations in U.S. EPA's RBLC database and other literature survey, the control options (individually and in certain combinations) that are being used to limit CO emissions from emissions units burning gaseous fuels include:

- CO Oxidation Catalysts;
- Thermal Incineration;
- Work Practice Standards, including fuel selection and good combustion practices.

CO oxidation catalysts have previously been applied to natural gas fired boilers located in CO and/or ozone nonattainment areas but are primarily used on large combustion turbines. The oxidation catalyst is typically a precious metal catalyst (e.g., platinum) that has been applied over a metal or ceramic substrate. The catalyst lowers the activation energy for the oxidation of CO so that it is oxidized at lower flue gas temperatures (range of 650 - 1,100 °F). The CO removal efficiency in natural gas-fired systems is typically greater than 90 percent.

Other technology used for the control of CO for other sources include thermal incineration. Incineration requires the exhaust gas containing CO to be heated up to a temperature sufficiently high enough (> 1300 °F) to thermally destroy CO. Typical methods used include regenerative thermal oxidizers, recuperative incinerators, and direct flame incinerators. These devices are typically employed to control sources with high levels of CO and VOM requiring less supplemental fuel for reheating the exhaust gas. Additionally, the exhaust gas CO concentrations from these devices would be similar to that expected from a gaseous fuel combustion device with good combustion design and operation.

Good combustion practices, as the name implies, are based upon maintaining good fuel/air mixing, a proper fuel/air ratio, and adequate time at an appropriate combustion temperature. These practices are part of the routine operation of the units, as maintaining good combustion practices is essential to the plant for efficient use of fuel.

4.2.3.3 Step 2– Eliminate Technically Infeasible CO Control Options

Technical feasibility of the CO emissions controls, identified in Step 1, for the subject gaseous fuel burning emissions units, is presented in this section.

Blast Furnace Stoves
Exhaust temperature for the blast furnace stoves is around 500 °F. In addition, there is significant variability, both in exhaust flow and temperature, due to cycling of the individual stoves when switching from blow to heat steps. Also, CO concentration in the stove exhaust is relatively low at less than 0.3%. As the lower explosive limit for CO is 12.5%, the exhaust from the blast furnace stoves will not have enough CO to combust in thermal incineration.[25] Exhaust temperature is also below the operating range for CO oxidation catalyst. Use of end-of-the-pipe control such as thermal incineration or CO oxidation catalyst at blast furnace stoves poses risks arising from operating conditions that have not been encountered for units where these operations are used. Such an application will result in potential backpressure on the stoves that

[25] See https://www.indsci.com/training/general-gas-education/lel-of-combustible-gas/ (last accessed January 3, 2020).

will cause undesirable combustion conditions within the stoves. As previously explained, blast furnace stoves operate in cycles. This results in non-steady-state operations and variable exhaust temperature and flow rates adversely affecting performance of any add-on CO emissions controls. There are no known applications of add-on CO controls to the blast furnace stove exhausts. Therefore, add-on controls are technically infeasible for the blast furnace stoves.

Boilers 11 and Boiler 12
CO concentration in the boilers exhaust is relatively low at less than 0.02%. Application of a thermal oxidizer is technically infeasible to control CO emissions at such low concentration. The exhaust temperatures for Boiler 11 and Boiler 12 are around 340 °F. These exhaust temperatures are also below the required temperature for effective catalyst oxidation. In addition, BFG contains sulfur resulting in SO_2 emissions. Presence of SO_2 in the flue gas would be accompanied by SO_2 to SO_3 conversion in the CO oxidation catalyst. The presence of SO_3, as well as other contaminants present in BFG, would degrade CO oxidation catalyst reliability and performance unacceptably. There are no known applications of add-on CO controls to boilers firing BFG. Therefore, add-on controls are technically infeasible for this application.

Other Fuel Burning Emissions Units
The No. 1 Flare, ladle drying preheaters, and fuel burning units at the continuous casters do not have specific stacks but exhaust through building ventilation. It is not feasible to enclose the ladle drying preheaters and fuel burning units at the continuous casters as the vessels need to be moved using overhead cranes in the building. Therefore, use of post-combustion control devices, such as CO oxidation catalyst, are not technically feasible for these operations.

4.2.4 Steps 3 & 4– Rank and Evaluate CO Control Options

No add-on control devices options are technically feasible for CO emissions from the fuel burning emissions units. The only remaining control option is to follow good combustion practices. No further evaluation is necessary.

4.2.5 Step 5 – Establish CO BACT

Based on the information presented above, USS Granite City proposes use of work practice, *i.e.*, good combustion practices, as BACT for the subject fuel burning emissions units. This is consistent with the BACT determination made by Illinois EPA in issuing the 1996 Construction Permit.

5. CO Source Impact Analysis (Including Dispersion Modeling)

In accordance with 40 CFR §§ 52.21 (k) through (m), requirements to conduct ambient air impacts analysis apply to a major modification for pollutants which are subject to PSD review. The 1996 Construction Permit included PSD requirements for CO as the project was a major modification for CO. The proposed changes to the CO emission factors for gaseous fuels will result in increases in short term (pounds per hour) emission rates for various fuel burning emissions units at the facility. The air impacts analysis for the proposed CO emission factors changes for gaseous fuels is provided in Appendix C of this application. This analysis includes all of the CO emitting operations at the USS Granite City facility (including certain units that were constructed since 1996 *i.e.*, Cogeneration Boiler) and offsite sources in the area. Results of this analysis confirms that the cumulative ambient impacts for CO remain below the applicable NAAQS.

6. Additional Impacts Analyses for CO

An additional impacts analysis was performed consistent with the requirements of 40 CFR § 52.21 (o) to determine potential air emissions impacts on soils, vegetation, visibility, and growth as part of this application. The 1996 Project was a major modification for CO as its increase was in excess of the PSD significant emission rates. This application addresses revisions to some of the CO emission limitations for certain fuel burning emissions units and therefore, CO emissions are considered in the additional impacts analyses.

6.1 Soils and Vegetation Surveys

The only pollutant included in this analysis of the potential impairment to soils is CO. The results of this analysis show that no material impairment will occur as a result of the proposed revisions.

6.1.1 Soil Survey

Over 66,000 acres surrounding the Granite City site were evaluated for the soils analysis using the U.S. Department of Agriculture ("USDA") Natural Resource Conservation Service Web Soil Survey application. The area evaluated encompasses parts of Madison and St. Clair Counties in Illinois and a portion of St. Louis County in Missouri.[26] As presented in Table 6-1, the primary soil type in this area is some variety of silt clay or sandy loam or silty clay loam. These soils account for over 70 percent of the total acreage in the study. The types of soil in significant quantities around the facility include Tice-Fluvents, Landes-Fluvents, Shaffton-Fluvents. The pH of these soils ranged from 5.0 to 7.0.

[26] Source of data: U.S. Department of Agriculture, Natural Resource Conservation Service, Custom Soil Resource Report. February 18, 2020.

Table 6-1. Major Soil Types in Study Area

Map Unit Name	Acres	Percent of Total	pH	Cation Exchange Capacity (CEC) (milliequivalents per 100 grams of soil)
Darwin silty clay, 0 to 2 percent slopes	7,542.3	16.39%	7.1	32
Landes very fine sandy loam, 2 to 5 percent slopes, occasionally flooded	3,870.60	8.41%	6.9	9.4
Beaucoup silty clay loam, 0 to 2 percent slopes	3,473.80	7.55%	7	20
Nameoki silty clay loam, 0 to 2 percent slopes, frequently flooded	2,731.80	5.94%	6.8	19.5
Orthents loamy	2,415.5	5.25%	6.5	10.5
Shaffton clay loam, 0 to 2 percent slopes, occasionally flooded	2,222.60	4.83%	5.8	20
Shaffton-Fluvents-Urban land complex, 0 to 2 percent slopes, occasionally flooded	1,684.30	3.66%	5.6	16.2
Fults silty clay, 0 to 2 percent slopes, occasionally flooded	1,585.80	3.45%	6.7	21.3
Worthen silt loam	1,496.9	3.25%	6.8	16.1
Rocher loam, 2 to 5 percent slopes, frequently flooded	1,460.50	3.17%	7.8	7.8
Landes-Fluvents-Urban land complex, 2 to 5 percent slopes, occasionally flooded	1,323.70	2.88%	6.9	9.4
Dupo silt loam, 0 to 2 percent slopes, occasionally flooded	1,314.1	2.86%	6.6	26.8
Nameoki-Fluvents-Urban land complex, 0 to 2 percent slopes, occasionally flooded	1,215.40	2.64%	6.7	20
Menfro silt loam	1,173.2	2.55%	6	16
Tice silty clay loam, 0 to 2 percent slopes, occasionally flooded	1,164.90	2.53%	6.8	19
Sylvan-Bold silt loams	1,108.3	2.41%	7.1	16
Fishpot-Urban land complex, 0 to 5 percent slopes, rarely flooded	944.1	2.05%	6.5	14.2
Dozaville silt loam, 0 to 2 percent slopes, occasionally flooded	930.6	2.02%	6.6	13.3
Other soil types	8,367.3	18.18%	5.6-8.0	5.8-31.6

The cation exchange capacity ("CEC") is the total amount of extractable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality or a pH of 7.0. Soils having a low CEC hold fewer cations and may require more frequent applications of fertilizer than soils having a high CEC. The ability to retain cations reduces the hazard of ground water pollution. The CEC of the types of soil in significant quantities in the study range from 8.0 to 31.0 milliequivalents per 100g soil.

The USDA considers a significant part of this land to be prime farmland. Additional land would be considered prime farmland if drained and/or protected from flooding. Further, the USDA soil survey rated all of the soil types listed in Table 6-1 as having somewhat or very limited use for recreational activities such as camping, paths and trails, picnic areas, and playgrounds. None of the total study area is identified as having unlimited recreational value.

6.1.2 Vegetation Survey

The natural vegetation located in these counties is primarily deciduous forest consisting of oaks, hickory, eastern white and red pine, ash, and cottonwood varieties.[27] According to a 2017 U.S. Department of Agriculture Forests of Illinois survey, approximately 21% of Madison County is forest land. [28]

Information provided in the 2012 USDA Census reports for Illinois was used to identify commercial vegetation in the study area.[29] The major crops are presented in Table 6-2. As shown, approximately 60 percent of the land included in the study area is used for harvested crops. Of this total, 26 percent is used for corn for grain and 29 percent is used for soybeans. Other crops, each harvested from less than 3 percent of the harvested area include forage, wheat for grain, and vegetables. Specific locations for the farms for these harvested crops are not provided in the Census reports.

Table 6-2. Land Use for Commercially Significant Crops

Vegetation	Area (Acres)
Corn	121,675
Wheat	16,331
Forage	7,145
Soybeans	137,628
Vegetables	2,331
Total Cropland	285,110
Total Land Area of Study	474,240

6.2 Pollutant Impacts on Soils and Vegetation

As explained in Section 5 and Appendix C of this permit application, ambient CO impacts from the 1996 Project and the proposed revisions to the CO limitations are below the primary CO NAAQS. CO emissions, at ambient impact concentrations, are not known to cause any soils or vegetation impacts.[30] However, elevated CO may produce some impacts such as epinasty,

[27] Forest Inventory and Analysis. Design and Analysis Toolkit for Inventory and Monitoring web application, Version November 30, 2018 10.0 c9ded9d. St. Paul, MN: U.S. Department of Agriculture, Forest Service, Northern Research Station. Available only on internet: https://www.fs.fed.us/emc/rig/DATIM/index.shtml (last accessed February 26, 2020).
[28] Forests of Illinois 2017, https://www.nrs.fs.fed.us/pubs/55799 (last accessed on February 26, 2020).
[29] 2017 Census of Agriculture, Illinois State and County Data, https://www.nass.usda.gov/Publications/AgCensus/2017/Online_Resources/County_Profiles/Illinois/cp17119.pdf (last accessed on February 26, 2020).
[30] Secondary NAAQS provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings [https://www.epa.gov/criteria-air-pollutants/naaqs-table (last accessed on November 27, 2019)]. The U.S. EPA revoked the secondary NAAQS for CO in 1985 noting that "[c]arbon monoxide is a normal constituent of the plant environment. Plants can both metabolize and produce CO. This may explain the fact that relatively high levels of CO are necessary before damage occurs to vegetation. The lowest level for which significant effects on vegetation have been reported is 100 ppm for 3 to 35 days. The effect observed in this study was an inhibition of nitrogen fixation in legumes. Since CO concentrations of this magnitude

chlorosis, and abscission. However, plant injury occurs at concentration over 100 ppm which is well over the CO primary NAAQS.[31] As noted in Section 5 and Appendix C, CO impacts from the facility are well below the CO primary NAAQS. Therefore, no adverse soil and vegetation impacts are expected from this permit revision request.

In addition, CO emissions do not contribute to formation of the particulate that causes visibility impairment.[32] Finally, USS Granite City is an existing facility and the 1996 Project did not cause any quantifiable growth impacts due to additional industrial, commercial, or residential growth in the area.

---

are rarely if ever observed in the ambient air, it is very unlikely that any damage to vegetation will occur from CO air pollution. No other effects on welfare have been associated with CO exposures at or near ambient levels. Because no standards appear to be requisite to protect the public welfare from any known or anticipated adverse effects from ambient CO exposures, EPA is rescinding the existing secondary standards." 50 Fed. Reg. 37484, September 13, 1985.

[31] "The Effects of Air Pollutants on Vegetation and the Role of Vegetation in Reducing Atmospheric Pollution," Iuliana Florentina Gheorghe and Barbu Ion, September 26, 2011, https://www.intechopen.com/books/the-impact-of-air-pollution-on-health-economy-environment-and-agricultural-sources/the-effects-of-air-pollutants-on-vegetation-and-the-role-of-vegetation-in-reducing-atmospheric-pollu (last accessed on February 26, 2020).

[32] https://www.epa.gov/visibility/basic-information-about-visibility (last accessed on November 3, 2019).

7. Proposed Changes to Permit Terms for PM and PM10 Emissions Increases Analyses

This section describes the proposed changes to the 1996 Construction Permit requested by USS Granite City related to PM and PM10 emissions and provides a demonstration that, even with the requested revisions, the 1996 Project would still not be a major modification under the PSD program at 40 CFR § 52.21 with respect to emissions of PM and under the NNSR program at 35 IAC Part 203 with respect to emissions of PM10.[33] The net emissions increase calculations for PM and PM10 from the 1995 Application submitted by National Steel Corporation are reproduced in Appendix B of this permit application.

7.1 1996 Construction Permit Applicability and Requirements

Table 7-1 summarizes the provisions from the 1996 Construction Permit pertaining to PM and PM10 emissions limitations from the project-affected emissions units. A copy of the 1996 Construction Permit is provided in Appendix D of this application.

Table 7-1. Construction Permit Conditions Addressing PM and PM10

Permit Condition	Requirements
5	Emissions from Blast Furnace operations shall not exceed the limits in attached Tables 1 and 5.
18	Emissions from the BOF Shop operations shall not exceed the limits in attached Tables 2 and 5.
20	Emissions from the continuous casting operations shall not exceed the limits in Tables 3 and 5
22	Emissions from the listed fuel combustion units shall not exceed the limits in Tables 4 and 5.

The annual PM and PM10 emissions caps listed in Table 5 of the 1996 Construction Permit are presented in Table 7-2 below. These annual PM and PM10 emissions caps cover all emissions units associated with the four main processes or activities at the USS Granite City facility (as listed in Table 7-1). Each emissions cap is calculated as the sum of the unit-specific emissions limitations in Tables 1 through 4 of the 1996 Construction Permit, plus the listed PTE estimates for certain roadways and material handling activities at the facility.

[33] At the time of 1996 Construction Permit, the Granite City area was designated as nonattainment for PM10 NAAQS.

Table 7-2. PM and PM10 Emissions Information from Table 5 of 1996 Construction Permit

Processes and Activities	Emissions Caps (tons/year)	
	PM	PM10
Blast Furnace Operations	218	194
BOF Shop Operations	510	451
Continuous Casting Operations	71	71
Certain Fuel Combustion Units	273	273
Roadways	27	27
Material Handling	2	2
Total	1,101	1,018

The PM and PM10 emissions caps restricted the PTE of the project affected-emissions units. The project emissions increases for PM and PM10 were calculated by subtracting pre-project actual emissions (August 1992 to July 1994, 24-month period) from the PTE as restricted by the limitations in the 1996 Construction Permit. Table 6 of the 1996 Construction Permit summarized the net emissions increases from the project and summarized Illinois EPA's determination that the project was not a major modification with respect to PM or PM10 emissions. Because the net emissions increases for PM and PM10 were below the applicable significant emission rates, these pollutants were not subject to PSD or NNSR review.

7.2 Pre-Project Actual Emissions for 1996 Project

This section presents the pre-project actual emissions and proposed updates/revisions to some of the PM and PM10 emission factors. Corrections to the emissions factors are the result of updated information available regarding some of the operations affected by the project as discussed in Section 7.2.2 below.

7.2.1 Historical Throughput Rates

The PM and PM10 net emissions increase calculations presented in Table 6 of the 1996 Construction Permit were based on calculations provided by National Steel Corporation in Tables 3-4, 3-5, and 3-7 of the construction permit application. Those tables from the prior construction permit application are reproduced in Appendix B to this permit application.

The pre-project annual emissions were calculated using the same production and operating rates as the 1995 Application shown in Table 7-3.

Table 7-3. Pre-Project Production and Operating Rates for PM and PM10

Parameters	Units	1995 Application
Blast Furnace Production	Net tons of hot metal/year	2,059,557
Blast Furnace Charging	Charge Material tons/year	2,803,241
BOF Shop	Molten steel tons/year	2,413,406
Combined BFG Combustion	MMcf/year	121,039
Combined NG Combustion	MMcf/year	1,145

7.2.2 PM and PM10 Emission Factors Basis and Revisions

USS Granite City has reviewed the PM and PM10 emission factors used to calculate pre-project actual emissions from the project-affected emissions units based on stack testing and updated literature-based information. As a result of this review, emission factors for two operations were revised as described below. The updated pre-project actual emissions for PM and PM10 for the project are presented in Table 7-5 and Table 7-6 of this permit application, respectively; explanations are provided in the following paragraphs.

7.2.2.1 A&B Blast Furnace Charging Fugitive Emissions (PM10 Revised)

The Blast Furnace charging fugitive PM emissions were calculated using the emission factor of 0.0024 lb/ton from the U.S. EPA's AIRS 1990 database (WebFIRE). For PM10, the 1995 Application assumed PM10 was the same as PM. However, based on particle size distribution data in AP-42 Table 12.5-2, which indicates 51% of PM is PM10, the PM10 emission factor for this operation was revised. The updated PM10 emission factor is 0.0012 lb/ton.

7.2.2.2 A&B Blast Furnace Casthouse Stack (Baghouse) Emissions (No Change)

The pre-project actual emissions for the A and B Blast Furnaces Casthouse (baghouse) stack as presented by National Steel Corporation in the 1995 Application were calculated using the design outlet concentration of 0.010 grains per dry standard cubic foot in the baghouse exhaust gas and an exhaust gas flow factor of 49,000 dry standard cubic feet per ton of hot metal. PM10 was assumed to be same as PM. No changes are necessary for this emission factor.

7.2.2.3 A&B Blast Furnace Casthouse Roof Monitor Emissions (PM10 Revised)

The Blast Furnace Casthouse roof monitor actual emissions were calculated using the AP-42 Section 12.5 Table 12.5-1 PM emission factor of 0.6 lb per ton for the uncontrolled casthouse. A 95% capture efficiency, which has been recognized by U.S. EPA as representative for this source type,[34] was applied for the A&B Blast Furnace Casthouse capture systems. Based on the particle size distribution in AP-42 Table 12.5-2, 51% of PM was assumed to be PM10. The PM10 emission factor was revised to correct an arithmetic error in the 1995 Application. The new PM10 emission factor is 0.0153 lb/ton vs 0.0155 lb/ton in the 1995 Application.

7.2.2.4 A&B Blast Furnace Iron Spout Baghouse Emissions (No Change)

The pre-project actual emissions for the A and B Blast Furnaces Iron Spout baghouse stack as presented by National Steel Corporation in the 1995 Application were based on an emission factor of 0.02548 lb per ton of hot metal. All PM was assumed to be PM10. This emission factor appears to have been developed based on the results of stack testing conducted in 1992. No changes are necessary for this emission factor.

---

[34] See, for example, "Technology Review for the Integrated Iron and Steel NESHAP," memorandum from D.L. Jones, U.S. EPA, *et al.*, to the Integrated Iron and Steel (II&S) Residual Risk and Technology Review (RTR) Project File, May 1, 2019. Available in the electronic docket at www.regulations.gov/document?D=EPA-HQ-OAR-2002-0083-0964.

7.2.2.5 Blast Furnace Slag Pits Emissions (No Change)

The pre-project actual emissions for the A and B Blast Furnaces slag pits as presented by National Steel Corporation in the 1995 Application were calculated using an emission factor of 0.00417 lb per ton of hot metal. This emission factor is the sum of PM and PM10 emissions rate of 0.0026 lb per ton for slag quenching (derived from EPA assessment) for slag quenching and 0.00157 for slag transfers (using AP-42 Section 13.2.4 equation for aggregate handling). For purposes of emissions calculations, PM was assumed to be same as PM10. No changes are necessary for this emission factor.

7.2.2.6 BOF ESP Stack (BOF 2 Vessels) Emissions (No Change)

The pre-project actual emissions for the BOF ESP stack as presented by National Steel Corporation in the 1995 Application were calculated using data from the stack tests conducted during 1989 to 1993 timeframe on the BOF ESP exhaust. PM and PM10 was assumed to be identical for this operation. No changes are necessary for this emission factor.

7.2.2.7 BOF Roof Monitor Emissions (No Change)

The BOF roof monitor actual emissions were calculated using the information from AP-42 Chapter 12.5 and AIRS database. For pre-change actual PM and PM10 emissions, National Steel used 90% capture efficiency during the charging and tapping steps and 99% capture efficiency during the refining step for the BOF operations. A detailed description of the baseline roof monitor PM and PM10 emission factors is provided in Appendix C of the 1995 Application. For the BOF operations, per particle size distribution in AP-42 Table 12.5-2, 67% of PM is PM10. No changes are necessary for this emission factor.

7.2.2.8 Desulfurization Station & Transfer Pit Baghouse Stack Emissions (No Change)

The pre-project actual emissions for the Desulfurization Station and Transfer Pit Baghouse stack as presented by National Steel Corporation in the 1995 Application were calculated using an emission factor of 0.03721 lb per ton of hot metal. No new information is available that would require any revisions to this emission factor.

7.2.2.9 Hot Metal Charging and Ladle Skimming Stack Emissions (No Change)

The pre-project actual emissions for the Hot Metal Charging and Ladle Skimming Baghouse stack as presented by National Steel Corporation in the 1995 Application were calculated using an emission factor of 0.005 lb per ton of hot metal. No new information is available that would require any revisions to this emission factor.

7.2.2.10 Argon Stirring & Material Handling Tripper Baghouse Stack Emissions (No Change)

The pre-project actual emissions for the Argon Stirring and Material Handling Tripper Baghouse stack as presented by National Steel Corporation in the 1995 Application were calculated using an emission factor of 0.00417 lb per ton of steel. No new information is available that would require any revisions to this emission factor.

7.2.2.11 Deslagging Station & Material Handling Baghouse Stack Emissions (No Change)

The pre-project actual emissions for the Deslagging Station and Material Handling Tripper Baghouse stack as presented by National Steel Corporation in the 1995 Application were calculated using an emission factor of 0.00355 lb/ton of hot metal. No new information is available that would require any revisions to this emission factor.

7.2.2.12 Caster Mold Process Emissions (No Change)

The pre-project actual emissions for the Caster Mold as presented by National Steel Corporation in the 1995 Application were calculated using the emission factor from the Illinois EPA 1991 EIS PM/PM10 report. No changes are necessary for this emission factor.

7.2.2.13 Continuous Caster Spray Chamber Emissions (No Change)

The pre-project actual emissions for the Continuous Caster Spray Chamber as presented by National Steel Corporation in the 1995 Application were calculated using the emission factor from a stack test in the 1980s. PM and PM10 emissions are assumed to be identical. No changes are necessary for this emission factor.

7.2.2.14 Slab Cut Off Casters Emissions (No Change)

The pre-project actual emissions for the Slab Cut Off Casters as presented by National Steel Corporation in the 1995 Application were calculated using the emission factor from the Illinois EPA 1991 EIS PM/PM10 report. No changes are necessary for this emission factor.

7.2.2.15 Slab Ripping Casters Emissions (No Change)

The pre-project actual emissions for the Slab Ripping Casters as presented by National Steel Corporation in the 1995 Application were calculated using the emission factor from the Illinois EPA 1991 EIS PM/PM10 report. No changes are necessary for this emission factor.

7.2.2.16 Fuel Burning Emissions Units Emissions (Revised for NG)

The pre-project actual emission for various fuels used in certain fuel burning emissions units affected by the project were calculated using the emission factors presented in Table 7-4.

Table 7-4. PM and PM10 Emission Factors for Fuel Burning

Fuel	Emission Factor and Units	Basis
Blast Furnace Gas	2.9 lb/MMcf	AIRS 1990
Natural Gas	1.9 lb/MMcf *(revised)*	AP-42 Table 1.4-2 (Based on updated AP-42 information)
Fuel Oil (*Shown for historical purposes. USS Granite City no longer plans to use fuel oil.*)	9.72 lb/1000 gallon	AP-42 Page 1.3-2

7.2.2.17 Iron Pellet Screen Emissions (Revised)

The pre-project actual emissions for the Iron Pellet Screen were revised to be based on AP-42 Chapter 11.19.2 for crushed stone screening under Table 11.19.2-2. A control efficiency of 85% was applied for this operation.

7.2.2.18 BOF Hopper Baghouse Emissions (No Change)

The pre-project actual emissions for the BOF Hopper baghouse stack were based on transfer point calculations using AP-42 Chapter 13.2.4 for aggregate handling. A control efficiency of 99.9% was applied for the baghouse used in this operation. No changes are necessary for this emission factor.

7.2.2.19 Flux Conv and Transfer Points Baghouse Emissions (No Change)

The pre-project actual emissions for the Flux Conv and Transfer Points baghouse stack were based on transfer point calculations using AP-42 Chapter 13.2.4 for aggregate handling. A control efficiency of 99.3% was applied for the baghouse used in this operation. No changes are necessary for this emission factor.

Table 7-5. Pre-project Actual Emissions and Summary of Proposed Changes to Pre-Project PM Emission Factors for Affected Emissions Units

Emission Point[a]	Emission Factors[b]		Units	Basis	Baseline Emissions (TPY)	
	Original	Corrected			Original	Corrected
A & B Blast Furnace Casthouse Fugitives	0.031	0.031	lb/ton of hot metal	No change	31.92	31.92
A & B Blast Furnace Charging	0.0024	0.0024	lb/ton of material	No change	3.36	3.36
A & B Blast Furnace Casthouse Baghouse	0.07026	0.07026	lb/ton of hot metal	No change	72.35	72.35
Blast Furnace Slag Pits	0.00417	0.00417	lb/ton of hot metal	No change	4.29	4.29
Iron Spout Baghouse	0.02548	0.02548	lb/ton of hot metal	No change	26.24	26.24
Blast Furnace Operations					***138.17***	***138.17***
BOF 2 Vessels	0.16	0.16	lb/ton of steel	No change	193.07	193.07
BOF Roof Monitor	0.428	0.428	lb/ton of steel	No change	516.72	516.72
Desulfurization Station [inside BOF shop] & Transfer Pit	0.03721	0.03721	lb/ton of hot metal	No change	38.32	38.32
Hot Metal Charging Ladle Slag Skimmer	0.00502	0.00502	lb/ton of hot metal	No change	5.17	5.17
BOF Shop Operations					***753.28***	***753.28***
Argon Stirring #1 & #2 Material Handling Tripper	0.00715	0.00715	lb/ton of steel	No change	8.63	8.63
Deslagging Station & Material HS	0.00355	0.00355	lb/ton of steel	No change	4.28	4.28
Caster Mold - Casters #1 & #2	0.006	0.006	lb/ton of steel	No change	7.24	7.24
Continuous Casters #1 & #2 - Spray Chamber	0.00852	0.00852	lb/ton of steel	No change	10.28	10.28
Slab Cutoff Casters #1 & #2	0.0071	0.0071	lb/ton of steel	No change	8.57	8.57
Slab Ripping Casters #1 & #2	0.00722	0.00722	lb/ton of steel	No change	8.71	8.71
Continuous Casting Operations					***47.71***	***47.71***
Combined BFG in stoves, B11 & B12, ladle drying preheaters, and BFG flares	2.90	2.90	lb/MMcf	No change	175.51	175.51
Combined NG in stoves, B11 & B12, ladle drying preheaters, and BFG flares	5.10	1.90	lb/MMcf	Note [c]	2.92	1.09
Combined FO in stoves, B11 & B12, ladle drying preheaters, and BFG flares	9.72	9.72	lb/Mgal	No change	0.08	0.08
Certain Fuel Burning Units					***178.51***	***176.68***
Iron Pellet Screen[a]	0.00279	0.00375	lb/ton of material	Note [d]	3.91	5.26
BOF Hopper Baghouse[a]	0.00032	0.00032	lb/ton of steel	No change	0.39	0.39
Flux Conv. & Transfer Points Bin Floor - BOF[a]	0.0016	0.0016	lb/ton of steel	No change	1.93	1.93
Material Handling Operations at BF and BOF					***6.23***	***7.57***
Total					***1,123.90***	***1,123.42***

(a) Emission unit groupings have been revised slightly: The identified line items associated with material handling operations were grouped with the blast furnace operations or BOF shop in the 1996 Construction Permit.

(b) Except as noted in subsequent sections of this permit application, the same emission factors used to calculate pre-project actual emissions are also used to calculate post-project actual emissions. The BOF Roof Monitor is a notable exception, as the 1996 Project included measures to improve PM control efficiency.

(c) Updated AP-42 emission factor for natural gas combustion.

(d) Calculated using AP-42 emission factor for crushed stone, assuming 85% control efficiency.

Table 7-6. Pre-project Actual Emissions and Summary of Proposed Changes to Pre-Project PM10 Emission Factors for Affected Emissions Units

Emission Point[a]	Emission Factors[b]		Units	Basis	Baseline Emissions (TPY)	
	Original	Corrected			Original	Corrected
A & B Blast Furnace Casthouse Fugitives	0.0155	0.0153	lb/ton of hot metal	Correction to calculation	15.96	15.76
A & B Blast Furnace Charging	0.0024	0.0012	lb/ton of material	Note [c]	3.36	1.68
A & B Blast Furnace Casthouse Baghouse	0.07026	0.07026	lb/ton of hot metal	No change	72.35	72.35
Blast Furnace Slag Pits	0.00417	0.00417	lb/ton of hot metal	No change	4.29	4.29
Iron Spout Baghouse	0.02548	0.02548	lb/ton of hot metal	No change	26.24	26.24
Blast Furnace Operations					***122.21***	***120.32***
BOF 2 Vessels	0.16	0.16	lb/ton of steel	No change	193.07	193.07
BOF Roof Monitor	0.287	0.287	lb/ton of steel	No change	346.20	346.20
Desulfurization Station [inside BOF shop] & Transfer Pit	0.03721	0.03721	lb/ton of hot metal	No change	38.32	38.32
Hot Metal Charging Ladle Slag Skimmer	0.00502	0.00502	lb/ton of hot metal	No change	5.17	5.17
BOF Shop Operations					***582.76***	***582.76***
Argon Stirring #1 & #2 Material Handling Tripper	0.00715	0.00715	lb/ton of steel	No change	8.63	8.63
Deslagging Station & Material HS	0.00355	0.00355	lb/ton of steel	No change	4.28	4.28
Caster Mold - Casters #1 & #2	0.006	0.006	lb/ton of steel	No change	7.24	7.24
Continuous Casters #1 & #2 - Spray Chamber	0.00852	0.00852	lb/ton of steel	No change	10.28	10.28
Slab Cutoff Casters #1 & #2	0.0071	0.0071	lb/ton of steel	No change	8.57	8.57
Slab Ripping Casters #1 & #2	0.00722	0.00722	lb/ton of steel	No change	8.71	8.71
Continuous Casting Operations					***47.71***	***47.71***
Combined BFG in stoves, B11 & B12, ladle drying preheaters, and BFG flares	2.90	2.90	lb/MMcf	No change	175.51	175.51
Combined NG in stoves, B11 & B12, ladle drying preheaters, and BFG flares	5.10	1.90	lb/MMcf	Note [d]	2.92	1.09
Combined FO in stoves, B11 & B12, ladle drying preheaters, and BFG flares	9.72	9.72	lb/Mgal	No change	0.08	0.08
Certain Fuel Burning Units					***178.51***	***176.68***
Iron Pellet Screen [a]	0.00279	0.00131	lb/ton of material	Note [e]	3.91	1.83
BOF Hopper Baghouse [a]	0.00032	0.00032	lb/ton of steel	No change	0.39	0.39
Flux Conv. & Transfer Points Bin Floor - BOF [a]	0.0016	0.0016	lb/ton of steel	No change	1.93	1.93
Material Handling Operations at BF and BOF					***6.23***	***4.15***
Total					***937.42***	***931.62***

(a) Emission unit groupings have been revised slightly: The identified line items associated with material handling operations were grouped with the blast furnace operations or BOF shop in the 1996 Construction Permit.
(b) Except as noted in subsequent sections of this permit application, the same emission factors used to calculate pre-project actual emissions are also used to calculate post-project actual emissions. The BOF Roof Monitor is a notable exception, as the 1996 Project included measures to improve PM10 control efficiency.
(c) Applied PM to PM10 ratio from AP-42, Chapter 13.2.4.
(d) Updated AP-42 emission factor for natural gas combustion.
(e) Calculated using AP-42 emission factor for crushed stone, assuming 85% control efficiency.

7.3 Post-Project PM and PM10 Emissions Caps

As noted in Sections 2.2.2 through 2.2.4 herein, and as discussed further below, for each pollutant, the project emissions increase and/or net emissions increase from the 1996 Project was calculated using the difference between the pre-project actual emissions (August 1992 to July 1994, 24-month period) and the post-project emissions cap for each major operational group of affected emissions units. The post-project emissions caps and emissions increases from the 1996 Project, respectively, were listed in Tables 5 and 6 of the 1996 Construction Permit.

This Section 7.3 presents a discussion of the post-project PM and PM10 emissions caps and a summary of the updated emissions increase calculations for the 1996 Project, reflecting the proposed changes to the emissions caps. Section 7.4 of this permit application presents a summary of the updated net emissions increase calculations and Section 7.5 of this permit application presents the permit terms proposed by USS Granite City for purposes of ensuring the emissions caps are enforceable as a practical matter.

The proposed emissions caps for the project-affected emissions units were developed by USS Granite City using the operating rates shown in Table 7-7. Other than the natural gas usage, which is proposed to increase, and the oil usage, which is proposed to be deleted entirely, these rates are unchanged from the operating rates in the 1996 Construction Permit. USS Granite City shut down Coke Oven Batteries A and B in 2015. The shutdown of the Coke Plant eliminated coke oven gas as process fuel at the plant for use in various fuel burning units. This requires use of additional natural gas for the project affected fuel burning units at the site. The natural gas usage increase is also being addressed in this permit revision application.

Table 7-7. Projected Post-Project Operating Rates for PM and PM10

Parameters	Units	Post Project Rates
Blast Furnace Production	Net tons of hot metal/year	3,165,000
BOF Shop	Molten steel tons/year	3,580,000
Combined BFG Combustion	MMcf/year	185,030
Combined NG Combustion	MMcf/year	1,980
Combined Oil Combustion	n/a	0

A comparison of the PM and PM10 emissions caps from Table 5 of the 1996 Construction Permit and the proposed revisions to these emissions caps is provided in Table 7-8. USS Granite City is proposing only non-material changes to these emissions caps as part of this permit application. (The changes are primarily attributable to the redistribution of the emission caps, including establishment of a separate emissions cap for certain material handling operations, in the facility's CAAPP permit issued by Illinois EPA.) Detailed emissions calculations are provided in Appendix B.

The proposed revisions to the post-project PM and PM10 emissions caps reflect three categories of changes: corrections of certain emission factors used to calculate both pre-project and post-

project emissions, as shown in Table 7-5 and Table 7-6 herein; [35] changes to post-project operating rates as shown in Table 7-7; and changes to emissions unit groups for certain material handling operations, as discussed in footnote (a) of both Table 7-5 and Table 7-6 herein. A separate group for material handling mirrors the approach taken by Illinois EPA in the CAAPP permit for the USS Granite City facility.

Table 7-8. PM and PM10 Emissions Caps

Processes and Activities	Emissions Caps (TPY) from Table 5 of 1996 Construction Permit		Proposed Revised Emissions Caps (TPY)	
	PM	PM10	PM	PM10
Blast Furnace Operations	218	194	212	185
BOF Shop	510	451	506	448
Continuous Casting Operations	71	71	71	71
Certain Fuel Burning Units	273	273	272	272
Roadways	27	27	27	27
Material Handling	2	2	2	2
Material Handling Operations at BF and BOF (New group accounts for emissions from material handling operations previously grouped under the BF and BOF Shop operations)			12	6
Total	1,101	1,018	1,102	1,011

Updated project emissions increase analyses for PM and PM10, reflecting proposed revisions to the emissions increase calculations in Table 6 of the 1996 Construction Permit, are provided in Table 7-9. This table incorporates the effects of the corrected pre-project emission factors and annual emissions as shown in Table 7-5 and Table 7-6 and the requested updates to the emissions caps as shown in Table 7-8. In addition, adjustments to the emissions caps reflect reorganization of material handling operations affected by the project under a separate operational group for Material Handling Operations at BF and BOF (like the approach in the CAAPP Permit).

[35] In the 1995 Application, for post-project PM and PM10 emissions from the BOF roof monitor, National Steel proposed lower emission factors reflecting the implementation of measures to improve capture and control efficiency in the BOF shop. Illinois EPA agreed with this proposal, incorporated the lower emission factors into the 1996 Construction Permit, and recognized the PM and PM10 emission reductions in the netting analyses for these pollutants. No changes are proposed by USS Granite City to the post-project PM and PM10 emission factors for the BOF roof monitor.

Table 7-9. PM and PM10 Project Emissions Increase Analyses

Processes and Activities	Pre-Project Actual Emissions (TPY)		Proposed Revised Emissions Caps (TPY)		Change (TPY)	
	PM	PM10	PM	PM10	PM	PM10
Blast Furnace Operations	138	120	212	185	74	65
BOF Shop	753	583	506	448	-247	-135
Continuous Casting Operations	48	48	71	71	23	23
Certain Fuel Burning Units	177	177	272	272	95	95
Material Handling Operations at BF and BOF	8	4	12	6	4	2
Total					-50	50

7.4 Changes to Net Emissions Increases for PM and PM10

As part of the requested revisions to the 1996 Construction Permit, USS is also requesting an update to the analysis for net emissions increases in emissions of PM and PM10 for the 1996 Project. Table 7-10 shows the updated net emissions increases calculations for PM and PM10 based on the updated project emissions increase calculations shown in Table 7-9. This table also incorporates several changes to the netting analysis based on corrections to the contemporaneous period:

- The contemporaneous period for PM10 emissions from the project was established using the definition in 35 IAC 203.208.[36] The start of the contemporaneous period was January 4, 1990, five years prior to the date of submittal of a timely and complete application on January 3, 1995. The end of the contemporaneous period was January 25, 1996, the date on which the emissions increase from the project occurred. The original analysis considered the #8 Galvanizing Line to be contemporaneous. However, the startup of the #8 Galvanizing Line occurred after the end of the contemporaneous period and this project was not contemporaneous for PM10 for the 1996 Project. USS Granite City has updated the netting analysis to reflect the fact that the PM10 emissions increase from installation of the #8 Galvanizing Line did not occur within the contemporaneous period.
- The contemporaneous period for PM emissions from the project was established using the definition in 40 CFR § 52.21(b)(3)(ii). The start of the contemporaneous period was January 25, 1991, five years prior to the date on which construction of the project commenced. The end of the contemporaneous period was January 25, 1996, the date on which the emissions increase from the project occurred. The original analysis considered changes involving the removal of the blast furnace slag spout hood, startup of #2 caster, and the #8 Galvanizing Line to be contemporaneous. However, the removal of the blast furnace slag spout hood and the startup of the #2 caster occurred prior to the beginning of the contemporaneous period and the startup of the #8 Galvanizing Line occurred after the end of the contemporaneous period. Therefore, these changes were not contemporaneous for PM for the 1996 Project. USS Granite City has updated the netting analysis to reflect

[36] The USS Granite City facility was located in area that was designated as nonattainment for PM10 at the time of 1996 Construction Permit issuance.

the fact that the PM emissions increase from installation of the #8 Galvanizing Line did not occur within the contemporaneous period.

Table 7-10. Updated Net Emissions Increases for PM and PM10 for the Project

		PM	PM10
Start of Contemporaneous Period		Jan 1991	Jan 1990
End of Contemporaneous Period		Jan 1996	Jan 1996
		Emissions (TPY)	
Project Emissions Increases (not including project decreases)		220.6	209.1
Significant Emission Rates		25	15
Whether Significant?		Yes	Yes
Project Emissions Changes (includes decreases at BOF shop operations)		-50.5	50.3
Contemporaneous Emissions Increases	Date		
Remove Blast Furnace Slag Spout Hood	Jan-1990	n/a	4.9
#2 Caster Production	Dec-1990	n/a	11.7
Installation of #8 Galvanizing Line	Mar-1996	n/a	n/a
Contemporaneous Emissions Decreases			
Ingot Teeming Shutdown	Apr-1991	-22.4	-22.4
Blooming Mill Shutdown	Apr-1991	-3.4	-3.4
NESHAP Controls Coke By-product	Jul-1991	-	-
Batch Annealing Shutdown	Dec-1991	-0.2	-0.2
Road and Material Handling Fugitive Dust Controls	Nov-1991	-32	-32
Net Emissions Increases		**-108.5**	**8.9**
Whether Significant?		No	No

Net emissions increases for PM and PM10 remain below the applicable significant emission rates. Therefore, the 1996 Project remains a non-major modification under PSD and NNSR.

7.5 Requested Changes to Permit Terms Relating to PM and PM10 Emissions

As part of this application for revision to the 1996 Construction Permit, USS Granite City is proposing the following revisions to the emission limitations and other permit terms relating to PM and PM10 emissions from the processes or activities affected by the 1996 Project.

7.5.1 Blast Furnace Operations

This section addresses the proposed changes to the 1996 Construction Permit Conditions for the blast furnace operations. The 1996 Construction Permit grouped the Iron Pellet Screen as part of the Blast Furnace Operations under Table 1. With this revision, USS Granite City is proposing to move the Iron Pellet Screen, previously listed under the Blast Furnace Operations, under a new Material Handling at Blast Furnace and BOF Group discussed later in this Section.

7.5.1.1 Proposed PM and PM10 Emission Limitations for Blast Furnace Operations

USS Granite City proposes the following to replace Condition 5 in the revised version of the 1996 Construction Permit.

> *5.a Particulate matter emissions from the Blast Furnace Operations (A & B Blast Furnaces Casthouse Roof Monitor and Casthouse Baghouse stack, A & B Blast Furnace Charging, Iron Spout Baghouse, and Blast Furnace Slag Pits) shall not exceed 212 tons per year for PM and 185 tons per year for filterable PM10, each based on a monthly rolling 12-month total.*

As the emission limitations are to be incorporated in Condition 5.a itself, USS Granite City also requests the deletion of the PM and PM10 emission limitations from Table 1 of the 1996 Construction Permit as they would be redundant.

7.5.1.2 Proposed Compliance Demonstration, Monitoring, and Recordkeeping for Blast Furnaces Operations

USS Granite City proposes the following requirements for demonstrating compliance with the emissions limitations under proposed Condition 5.a in the revised version of the 1996 Construction Permit. Consistent with the approach described in Section 2.2.4 herein, USS Granite City is proposing prescribed (*i.e.*, fixed) emission factors for three emissions units for which performance testing is not feasible. Each of these emission factors is the same as the corresponding emission factor used to calculate pre-project actual emissions as shown in Table 7-5 and Table 7-6.

(a) Use PM and PM10 emissions factors from performance tests per 40 CFR 63 Subpart FFFFF to determine PM and PM10 emission rates for the Blast Furnace Casthouse baghouse and Iron Spout baghouse.
(b) For Blast Furnace Casthouse Roof Monitor, use PM emission factor of 0.031 lb/ton and PM10 emission factor of 0.0153 lb/ton.
(c) For Blast Furnace charging, use PM emission factor of 0.0024 lb/ton and PM10 emission factor of 0.0012 lb/ton.
(d) For slag pits, use PM/PM10 emission factor of 0.00417 lb/ton.
(e) Use the following equations for determining monthly PM and PM10 emissions from the Blast Furnace Operations.

For Casthouse Baghouse PM/PM10 (tons/month)	=	PM/PM10 (lb/ton) from Stack test × Blast Furnace Production (hot metal tons/month) ÷ 2000 (lb/ton)
For Iron Spout Baghouse PM/PM10 (tons/month)	=	PM/PM10 (lb/ton) from Stack test × Blast Furnace Production (hot metal tons/month) ÷ 2000 (lb/ton)
For Casthouse Roof Monitor PM/PM10 (tons/month)	=	PM/PM10 (lb/ton) emission factor × Blast Furnace Production (hot metal tons/month) ÷ 2000 (lb/ton)
For Blast Furnace Charging PM/PM10 (tons/month)	=	PM/PM10 (lb/ton) emission factor × Blast Furnace Charge Material (tons/month) ÷ 2000 (lb/ton)
For Slag Pits PM/PM10 (tons/month)	=	PM/PM10 (lb/ton) emission factor × Blast Furnace Production (hot metal tons/month) ÷ 2000 (lb/ton)

For compliance monitoring requirements, USS Granite City proposes the following:

(a) Follow compliance monitoring requirements per 40 CFR 63 Subpart FFFFF including use of bag leak detection systems for the baghouses in the Blast Furnace Operations.
(b) Follow work practice requirements under 40 CFR 63 Subpart FFFFF.
(c) For slag pits, the permittee shall conduct weekly inspections of the quench water system to ensure optimum quenching of hot slag.

For recordkeeping requirements, USS Granite City proposes the following:

(a) Maintain monthly records of Blast Furnace production rates and Blast Furnace throughput for charge material.
(b) Compile monthly emissions as required above and calculate 12-month rolling total emissions.

7.5.2 Basic Oxygen Furnace Shop Operations

This section addresses the proposed changes to the 1996 Construction Permit Conditions for the BOF Shop operations. The 1996 Construction Permit grouped the BOF Additive with BOF Hopper Baghouse and Flux Conveyor & Transfer Pits Bin Floor as part of the BOF Shop Operations under Table 2. With this revision, USS Granite City is proposing to move the BOF Additive with BOF Hopper Baghouse and Flux Conveyor & Transfer Pits Bin Floor, previously listed under the BOF Shop Operations, under a new Material Handling at Blast Furnace and BOF Group discussed later in this Section.

7.5.2.1 Proposed PM and PM10 Emission Limitations for BOF Shop Operations

USS Granite City proposes the following to replace Condition 18 in the revised version of the 1996 Construction Permit.

18.a Particulate matter emissions from the BOF Shop Operations (BOF ESP, BOF Secondary Baghouse, BOF Shop Roof Monitor, Desulf/ Soda Ash and Hot Metal Charging Baghouse (previously identified as 'Desulfurizer and Reladling – Hot Metal Transfer'), and Slag Skimming Baghouse (previously identified as 'Hot Metal Charging Ladle Slag Skimmer')) shall not exceed 506 tons per year for PM

and 448 tons per year for filterable PM10, each based on a monthly rolling 12-month total.

As the emission limitations are to be incorporated in Condition 18.a itself, USS Granite City also requests the deletion of the PM and PM10 emission limitations from Table 2 of the 1996 Construction Permit as it would be redundant.

7.5.2.2 Proposed Compliance Demonstration, Monitoring, and Recordkeeping for BOF Shop Operations

USS Granite City proposes the following requirements for demonstrating compliance with the emissions limitations under proposed Condition 18.a of the revised version of the 1996 Construction Permit in the revised version of the 1996 Construction Permit. Consistent with the approach described in Section 2.2.4 herein, USS Granite City is proposing prescribed (*i.e.*, fixed) emission factors for BOF Shop Roof Monitor for which performance testing is not feasible. This emission factor is the same as the corresponding emission factor used to calculate pre-project actual emissions as shown in Table 7-5 and Table 7-6.

(a) Use PM and PM10 emissions factors from performance tests per 40 CFR 63 Subpart FFFFF to determine PM and PM10 emission rates for the BOF ESP and the BOF Secondary baghouse.[37]
(b) For BOF Shop Roof Monitor, use PM emission factor of 0.013 lb/ton and PM10 emission factor of 0.006 lb/ton.
(c) Use PM and PM10 emissions factors from performance tests per 40 CFR 63 Subpart FFFFF to determine PM and PM10 emission rates for the Desulf/Soda Ash, Hot Metal Charging Baghouse, and Slag Skimming Baghouse.
(d) Use the following equations for determining monthly PM and PM10 emissions from the BOF Shop Operations.

For BOF ESP and BOF Secondary Baghouse PM/PM10 (tons/month)	=	(PM/PM10 (lb/ton) from ESP Stack test + PM/PM10 (lb/ton) from Baghouse Stack test) × BOF Throughput (molten steel tons/month) ÷ 2000 (lb/ton)
For BOF Shop Roof Monitor PM/PM10 (tons/month)	=	PM/PM10 (lb/ton) emission factor × BOF Throughput (molten steel tons/month) ÷ 2000 (lb/ton)
For Desulf/Soda Ash and Hot Metal Charging Baghouse PM/PM10 (tons/month)	=	PM/PM10 (lb/ton) from Stack test × Iron Throughput (hot metal tons/month) ÷ 2000 (lb/ton)
For Slag Skimming Baghouse PM/PM10 (tons/month)	=	PM/PM10 (lb/ton) from Stack test × BOF Throughput (molten steel tons/month) ÷ 2000 (lb/ton)

[37] As required by a Memorandum of Understanding with Illinois EPA, USS installed a secondary capture system for the BOF vessels in the BOF Shop operations. This system captures emissions from charging and tapping of the BOF vessels that were previously mostly exhausted from the building openings or roof monitor. For compliance with the BOF Shop emission caps, emissions from the BOF ESP and secondary baghouse exhausts are included in emissions monitoring and recordkeeping.

For compliance monitoring requirements, USS Granite City proposes the following:

(a) Follow compliance monitoring requirements per 40 CFR 63 Subpart FFFFF including monitoring of ESP performance and use of bag leak detection systems for the control devices in the BOF Shop Operations.
(b) Follow work practice requirements under 40 CFR 63 Subpart FFFFF.

For recordkeeping requirements, USS Granite City proposes the following:

(a) Maintain monthly records of BOF Shop production rates.
(b) Compile monthly emissions as required above and calculate 12-month rolling total emissions.

7.5.3 Continuous Casting Operations

This section addresses the proposed changes to the 1996 Construction Permit Conditions for the Continuous Casting operations.

7.5.3.1 Proposed PM and PM10 Emission Limitations for Continuous Casting Operations

USS Granite City proposes the following to replace Condition 20 in the revised version of the 1996 Construction Permit.

> *20.a Particulate matter emissions from the Continuous Casting Operations (Argon Stirring/LMF Baghouse, Deslagging Station and Material Handling, Caster Mold, Continuous Caster Spray Chamber, Slab Cutoff, Slab Ripping) shall not exceed 71 tons per year for PM and 71 tons per year for filterable PM10, each based on a monthly rolling 12-month total.*

As the emission limitations are to be incorporated in Condition 20.a itself, USS Granite City also requests the deletion of the PM and PM10 emission limitations from Table 3 of the 1996 Construction Permit as they would be redundant.

7.5.3.2 Proposed Compliance Demonstration, Monitoring, and Recordkeeping for Continuous Casting Operations

USS Granite City proposes the following requirements for demonstrating compliance with the emissions limitations under proposed Condition 20.a of the revised version of the 1996 Construction Permit.

(a) Use PM and PM10 emissions factors from performance tests to determine PM and PM10 emission rates for the Argon Stirring/LMF Baghouse.
(b) Perform performance tests to determine PM/PM10 emission rate from the Continuous Caster Spray Chamber exhaust.
(c) For Deslagging Station and Material Handling, use PM/PM10 emission factor of 0.00355 lb/ton.
(d) For Caster Mold, use PM/PM10 emission factor of 0.006 lb/ton.
(e) For Slab Cutoff, use PM/PM10 emission factor of 0.0071 lb/ton.
(f) For Slab Ripping, use PM/PM10 emission factor of 0.00722 lb/ton.

(g) Use the following equations for determining monthly PM and PM10 emissions from the Continuous Casting Operations.

For Argon Stirring/LMF Baghouse PM/PM10 (tons/month)	=	PM/PM10 (lb/ton) from Baghouse Stack test × Throughput (molten steel tons/month) ÷ 2000 (lb/ton)
For Continuous Caster Spray Chamber PM/PM10 (tons/month)	=	PM/PM10 (lb/ton) from Stack test × Throughput (molten steel tons/month) ÷ 2000 (lb/ton)
For Deslagging Station and Material Handling Fugitives PM/PM10 (tons/month)	=	PM/PM10 (lb/ton) emission factor × Throughput (molten steel tons/month) ÷ 2000 (lb/ton)
For Caster Mold Fugitives PM/PM10 (tons/month)	=	PM/PM10 (lb/ton) emission factor × Throughput (molten steel tons/month) ÷ 2000 (lb/ton)
For Slab Cutoff Fugitives PM/PM10 (tons/month)	=	PM/PM10 (lb/ton) emission factor × Throughput (molten steel tons/month) ÷ 2000 (lb/ton)
For Slab Ripping Fugitives PM/PM10 (tons/month)	=	PM/PM10 (lb/ton) emission factor × Throughput (molten steel tons/month) ÷ 2000 (lb/ton)

For compliance monitoring requirements, USS Granite City proposes the following:

(a) Conduct monthly inspections of the continuous casting operations capture systems.
(b) Conduct monthly visible emissions checks of the caster stacks using Method 22.

For recordkeeping requirements, USS Granite City proposes the following:

(a) Maintain monthly records of continuous casting production rates.
(b) Compile monthly emissions as required above and calculate 12-month rolling total emissions.

7.5.4 Certain Fuel Burning Emissions Units

This section addresses the 1996 Construction Permit conditions for the fuel burning emissions units affected by the project.

7.5.4.1 Proposed PM and PM10 Emission Limitations for Certain Fuel Burning Emissions Units

USS Granite City proposes the inclusion of Condition 22.e in the revised version of the 1996 Construction Permit as follows.

22.e PM/PM10 emissions from the blast furnace stoves (A and B), Boiler 11, Boiler 12, ladle drying preheaters, blast furnace gas flare No. 1, and ancillary fuel burning units at the continuous casters from firing blast furnace gas and/or natural gas, shall not exceed 270.18 tons per year based on a monthly rolling 12-month total.

As the PM and PM10 emission limitations are to be incorporated in Condition 22 itself, USS Granite City also proposes the deletion of the PM and PM10 emission limitations in Table 4 of the 1996 Construction Permit as they would be redundant.

7.5.4.2 Proposed Compliance Demonstration, Monitoring, and Recordkeeping for Certain Fuel Burning Emissions Units

USS Granite City proposes the following requirements for demonstrating compliance with the emissions limitations under Condition 22.e of the revised version of the 1996 Construction Permit.

(a) Use the blast furnace gas combustion PM/PM10 emission factor of 2.9 lb/MMcf.
(b) Use the natural gas combustion PM/PM10 emission factor of 1.9 lb/MMcf.
(c) Use the following equations for determining monthly PM and PM10 emissions from the fuel burning emissions units.

For Fuel Burning Emissions Units PM/PM10 (tons/month)	=	PM/PM10 (lb/MMcf) × Fuel Usage (MMcf/month) ÷ 2000 (lb/ton)

For recordkeeping requirements, USS Granite City proposes the following:

(a) Maintain monthly records of fuel usage for blast furnace stoves (A and B), Boiler 11, Boiler 12, ladle drying preheaters, blast furnace gas flare No. 1, and ancillary fuel burning units at the continuous casters.
(b) Compile monthly emissions as required above and calculate 12-month rolling total emissions.

7.5.5 Material Handling Operations at Blast Furnaces and BOF Shop

This section addresses the proposed 1996 Construction Permit Conditions for the material handling operations associated with the Blast Furnace and BOF Shop operations. As previously noted, material handling equipment in the Blast Furnace Operations and the BOF Shop Operations are now proposed to be included in this new section.

7.5.5.1 Proposed PM and PM10 Emission Limitations for Material Handling Operations at Blast Furnaces and BOF Shop

USS Granite City proposes the following new Condition 42 in the revised version of the revised 1996 Construction Permit.

> *42. Particulate matter emissions from the Material Handling Operations in Blast Furnaces and BOF Shop (Iron Pellet Screen, BOF Hopper Baghouse, Flux Conv & Transfer Points Bin Floor - BOF) shall not exceed 6.25 tons per year of PM filterable PM10, each based on a monthly rolling 12-month total.*

As the emission limitations are to be incorporated in Condition 42 itself, USS Granite City also requests the deletion of the PM and PM10 emission limitations from Table 1 and Table 2 of the 1996 Construction Permit as they would be redundant.

7.5.5.2 Proposed Compliance Demonstration, Monitoring, and Recordkeeping for Material Handling Operations at Blast Furnaces and BOF Shop

USS Granite City proposes the following requirements for demonstrating compliance with the emissions limitations under new proposed Condition 42 of the revised 1996 Construction Permit.

(a) For Iron Pellet Screen fugitives, use PM/PM10 emission factor of 0.00131 lb/ton.
(b) For BOF Hopper Baghouse, use PM/PM10 emission factor of 0.00032 lb/ton.
(c) For Flux Conv. & Transfer Points Bin Floor, use PM/PM10 emission factor of 0.0016 lb/ton.
(d) Use the following equations for determining monthly PM and PM10 emissions from the Material Handling Operations at Blast Furnaces and BOF Shop.

For Iron Pellet Screen Fugitives PM/PM10 (tons/month)	=	PM/PM10 (lb/ton) emission factor × Blast Furnace Charging (tons/month) ÷ 2000 (lb/ton)
For BOF Hopper Baghouse PM/PM10 (tons/month)	=	PM/PM10 (lb/ton) emission factor × Throughput (molten steel tons/month) ÷ 2000 (lb/ton)
For Flux Conv. & Transfer Points Bin Floor PM/PM10 (tons/month)	=	PM/PM10 (lb/ton) emission factor × Throughput (molten steel tons/month) ÷ 2000 (lb/ton)

For compliance monitoring requirements, USS Granite City proposes the following:

(a) Conduct monthly inspections of the control devices.
(b) Conduct monthly visible emissions checks of the control devices stacks.

For recordkeeping requirements, USS Granite City proposes the following:

(a) Compile monthly emissions as required above and calculate 12-month rolling total emissions.
(b) Maintain records of monthly emissions from the affected units.

8. Proposed Changes to Permit Terms for NO_X Emission Increase Analysis

This section describes the proposed changes to 1996 Construction Permit being requested by USS Granite City related to NO_X emissions and provides a demonstration that, even with the requested revisions, the 1996 Project would still not be a major modification under the PSD program at 40 CFR § 52.21 with respect to emissions of NO_2 and under the NNSR program at 35 IAC Part 203 with respect to emissions of NO_X.[38] The emissions calculations for NO_X from the 1995 Application submitted by National Steel Corporation are reproduced in Appendix B.

8.1 1996 Construction Permit Applicability and Requirements

Table 8-1 below summarizes the provisions from the 1996 Construction Permit pertaining to NO_X emissions limitations from the project affected emissions units. A copy of the 1996 Construction Permit is provided in Appendix E of this application.

Table 8-1. Construction Permit Conditions Addressing NO_X

Permit Condition	Requirements
5	Emissions from Blast Furnace operations shall not exceed the limits in attached Tables 1 and 5.
18	Emissions from the BOF Shop operations shall not exceed the limits in attached Tables 2 and 5.
20	Emissions from the continuous casting operations shall not exceed the limits in Tables 3 and 5
22	Emissions from the listed fuel combustion units shall not exceed the limits in Tables 4 and 5.

Annual NO_X emissions caps listed in Table 5 of the 1996 Construction Permit are presented in Table 8-2 below. These annual NO_X emissions caps cover all emissions units associated with the four main processes or activities at the USS Granite City facility, each calculated as the sum of the unit-specific NOx emissions limitations in Tables 1 through 4 of the 1996 Construction Permit.

Table 8-2. NO_X Emissions Information from Table 5 of 1996 Construction Permit

Processes and Activities	NOx Emissions Caps (tons/year)
Blast Furnace Operations	24
BOF Shop Operations	70
Continuous Casting Operations	90
Certain Fuel Combustion Units	674
Total	858

The NO_X emissions caps restricted the PTE of the project-affected emissions units. The project emissions increase for NO_X was calculated by subtracting pre-project actual emissions (August

[38] At the time of 1996 Construction Permit, the Granite City area was designated as nonattainment (moderate) for ozone NAAQS.

1992 to July 1994, 24-month period) from the PTE as restricted by the 1996 Construction Permit limitations. Table 6 of the 1996 Construction Permit included the emissions increase from the project and major modification applicability determinations for NO_X. The NO_X net emissions increase was below the applicable significant emission rates and as a result, NO_X emissions were not subject to PSD or NNSR review.

8.2 Pre-Project Actual Emissions for 1996 Project

This section presents the updated pre-project actual emissions with proposed corrections to some of the NO_X emission factors. Corrections to the NO_X emissions factors are the result of more recent performance tests and updated information as discussed in 8.2.2.

8.2.1 Historical Throughput Rates

The NO_X net emissions increase calculations presented in Table 6 of the 1996 Construction Permit were based on calculations provided by National Steel Corporation in Table 3-2 of the 1995 Application. That table from the prior construction permit application is reproduced in Appendix B of this permit application.

The pre-project actual emissions were calculated using the same production and operating rates as the 1995 Application shown in Table 8-3.

Table 8-3. Pre-Project Production and Operating Rates for NO_X

Parameters	Units	Pre-Project Rates
Blast Furnace Production	Net tons of hot metal/year	2,059,557
BOF Shop	Molten steel tons/year	2,413,406
Combined BFG Combustion	MMcf/year	121,039
Combined NG Combustion	MMcf/year	1,145

8.2.2 NO_X Emission Factors Basis and Revisions

USS Granite City has corrected some of the NO_X emission factors used to calculate pre-project actual emissions from the project-affected emissions units based on stack testing and updated literature-based information. USS Granite City has also validated the remaining emissions factors. The results are presented in Table 8-5; explanations are provided in the following paragraphs.

8.2.2.1 Fuel Burning Emissions Units Emissions (No Change)

The pre-project actual emissions for various fuels used in fuel burning emissions units affected by the project are calculated using the emission factors presented in Table 8-4.

Table 8-4. NO_X Emission Factors for Fuel Burning

Fuel	Emission Factor and Units	Basis
Blast Furnace Gas[39]	5.28 lb/MMcf	February 1993 stack test
Natural Gas	306 lb/MMcf	November 1992 stack test
Fuel Oil (*Shown for historical purposes. USS Granite City no longer plans to use fuel oil.*)	55 lb/1000 gallon	AP-42 Page 1.3-2

8.2.2.2 A&B Blast Furnace Casthouse Stack (Baghouse) Emissions (Revised)

The pre-project actual emissions for the A and B Blast Furnace Casthouse stack (baghouse), as presented by National Steel Corporation in the 1995 Application, were calculated using data from a stack test conducted in July 1993. Other than the test results, USS Granite City has no information regarding this stack test, which was conducted by National Steel. In March 2012, USS Granite City performed NO_X stack tests at the Blast Furnace Casthouse stack. This test indicated a lower NO_X emission factor for this operation than previously used (0.0144 lb/ton in the original analysis vs 0.0027 lb/ton based on the March 2012 stack test). In Table 8-5, both the original and updated NO_X emission factors are shown for the Blast Furnace Casthouse stack.

8.2.2.3 A&B Blast Furnace Casthouse Roof Monitor Emissions (Revised)

The pre-project actual emissions for the A and B Blast Furnace Casthouse roof monitor, as presented by National Steel Corporation in the 1995 Application, were calculated using the emission factor as 0.00072 lb/ton. This value was developed using the July 1993 stack test result of 0.0144 lb/ton for the casthouse baghouse stack and an assumption of 95% capture efficiency as described in Section 7.2.2.3 herein. As discussed in Section 8.2.2.2 above, subsequent testing indicated a lower NO_X emission factor for the stack emissions of 0.0027 lb/ton. Assuming a 95% capture efficiency for the casthouse baghouse collection system, the uncaptured portion (5% of NOx generated) is emitted through the roof monitors at the rate of 0.00014 lb/ton. In Table 8-5, both the original and updated NO_X emission factors are shown for the Blast Furnace Casthouse roof monitor emissions.

8.2.2.4 A&B Blast Furnace Iron Spout Baghouse Emissions (Revised)

The 1995 Application and 1996 Construction Permit did not identify any NO_X emissions from the Blast Furnace Iron Spout Baghouse. However, a stack test conducted in March 2012 indicated a NO_X emission factor of 0.0016 pound per ton of hot metal for this emission point. In Table 8-5, the revised analysis includes pre-project actual NO_X emissions from the Blast Furnace Iron Spout Baghouse stack.

8.2.2.5 BOF ESP Stack (BOF 2 Vessels) Emissions (Revised)

The pre-project actual emissions for the BOF ESP stack, as presented by National Steel Corporation in the 1995 Application, were calculated using data from the average of three runs from one stack test conducted in August 1993. As discussed below, the results of this 1993 stack

[39] BFG is a low Btu fuel that results in a cool flame during combustion. This results in relatively low NOx emission rate for this fuel for all types of applications.

test have been shown by subsequent data not to be representative of emissions from the BOF ESP stack. The 1996 Project involved increases in the production limits for the Granite City blast furnaces and BOF Shop operations. The project did not involve any physical changes or changes in the method of operation for the BOF Shop. The BOF Shop operations do not use any add-on NO_X control devices. Thus, variability in NO_X emissions for the BOF process are inherent to the process operation. Beginning in 2012, USS Granite City performed several NO_X stack tests at the BOF ESP stack. This testing provided an updated NO_X emission factor for the BOF ESP stack (0.0389 lb/ton in the original analysis vs 0.1503 lb/ton based on the average of April 2012, July 2012, and November 2014 stack test results). In Table 8-5, both the original and updated NO_X emission factors are shown for the BOF ESP stack.

8.2.2.6 Continuous Caster Mold Process Emissions (Revised)

The pre-project actual emissions for the Continuous Caster Mold – Caster #1 and Caster #2 process, as presented by National Steel Corporation in the 1995 Application listed NOx emissions from this operation. USS Granite City evaluated this analysis and determined that there is no NO_X formation in this operation. Any NO_X emissions from this operation are due to combustion of natural gas and are already accounted for under the gaseous fuel burning activities listed above. Therefore, in the revised analysis, NOx emissions are not included from this operation.

Table 8-5. Pre-project Actual Emissions and Summary of Proposed Changes to Pre-Project NO_X Emission Factors for Affected Emissions Units

Emission Point	Emission Factors[(a)]		Units	Reason for Change	Pre-project Actual Emissions (TPY)	
	Original	Corrected			Original	Corrected
A & B Blast Furnace Casthouse Stack (Baghouse)	0.0144	0.0027	lb/ton of hot metal	Revised based on 3/2012 stack test	14.83	2.78
A & B Blast Furnace Casthouse Roof Monitor	0.0007	0.0001	lb/ton of hot metal	3/2012 test assuming no NO_X control and 5% roof monitor fraction	0.74	0.15
Blast Furnace Operations					***15.57***	***4.57***
BOF ESP Stack (2 Vessels)	0.0389	0.1503	lb/ton of steel	Revised based on average of 2012-2014 stack tests	46.94	181.33
BOF Shop Operations					***46.94***	***181.33***
Continuous Caster Mold - Casters #1 & #2	0.05	0.00	lb/ton of steel	All NO_X formed from natural gas combustion. No additional NO_X	60.34	0.00
Continuous Casting Operations					***60.34***	***0.00***
Combined BFG in stoves, B11 & B12, ladle drying preheaters, and BFG flares	5.28	5.28	lb/MMcf	No change	319.54	319.54
Combined NG in stoves, B11 & B12, ladle drying preheaters, and BFG flares	306.00	306.00	lb/MMcf	No change	175.19	175.19
Combined FO in stoves, B11 & B12, ladle drying preheaters, and BFG flares (*shown here for historical purposes*)	9.72	9.72	lb/Mgal	No change	0.44	0.44
Certain Fuel Burning Units					***495.17***	***495.17***
Total					***618.01***	***681.07***

(a) Except as noted in subsequent sections of this permit application, the same emission factors used to calculate pre-project actual emissions are also used to calculate post-project actual emissions.

8.3 Post-Project NO_X Emissions Caps

As described in subsection 7.3, the post-project emissions caps and emissions increases from the 1996 Project were, respectively, listed in Tables 5 and 6 of the 1996 Construction Permit. Similar to PM and PM10, this Section 8.3 presents a discussion of the post-project NO_X emissions caps and summary of the updated emissions increase calculations for the 1995 Project, reflecting the proposed changes in the emissions caps.

The post-project emissions caps for the project affected emissions units were developed by USS Granite City using the operating rates shown in Table 8-6. Other than the natural gas usage, which is proposed to increase, and the oil usage, which is proposed to be deleted entirely, these rates are unchanged from the operating rates in the 1996 Construction Permit. As previously noted in Section 7.3, due to 2015 shutdown of the Coke Plant this application addresses increase in natural gas usage for the fuel burning units affected by the project.

Table 8-6. Projected Post-Project Operating Rates for NO_X

Parameters	Units	Post Project Rates
Blast Furnace Production	Net tons of hot metal/year	3,165,000
BOF Shop	Molten steel tons/year	3,580,000
Combined BFG Combustion	MMcf/year	185,030
Combined NG Combustion	MMcf/year	1,980
Combined Oil Combustion	n/a	0

A comparison of the NO_X emissions caps from Table 5 of the 1996 Construction Permit and the proposed revisions to these emissions caps is provided in Table 8-7. Detailed emissions calculations are provided in Appendix B. The proposed revisions to the post-project NOx emissions caps reflect changes to some of the emission factors presented in Table 8-5 and changes in post-project operating rates as shown in Table 8-6. USS Granite City also revised NOx emission factors for boilers to reflect the currently applicable emission limitations for boilers under 35 IAC 217.164(b).

Table 8-7. NO_X Emissions Caps

	NO_X Emission Caps (TPY) from Table 5 of 1996 Construction Permit	Proposed Revised NOx Emissions Caps (TPY)
Blast Furnace Operations	24	7.0
BOF Shop	70	304.3
Continuous Casting Operations	90	0.0
Certain Fuel Burning Units	674	632.5
Total	858	944

Updated project emissions increase analysis for NOx reflecting proposed revisions to the emissions increase calculations in Table 6 of the 1996 Construction Permit, is provided in Table 8-8. This table incorporates the effects of the corrected pre-project emission factors as shown in Table 8-5 and the requested updates to the emission caps as shown in Table 8-7.

Table 8-8. NO_X Project Emissions Increase Analyses

	NO_X Pre-Project Actual Emissions (TPY)	**Proposed Revised NO_X Emissions Caps (TPY)**	**NO_X Change (TPY)**
Blast Furnace Operations	5.2	7.0	2.5
BOF Shop	185.2	304.3	123.0
Continuous Casting Operations	0.0	0.00	0.0
Certain Fuel Burning Units	495.2	632.5	137.4
Total			262.8

8.4 Changes to Net Emissions Increase Calculation for NO_X

In conjunction with the requested revisions to the 1996 Construction Permit, USS Granite City is also updating the analysis for net increases in emissions of NO_X for the 1996 Project. Table 8-9 shows the updated net emissions increases calculations for NO_X based on the updated project emissions increase calculations shown in Table 8-8. This table includes a correction to the contemporaneous period for NOx emissions from the project as established using the definition in 35 IAC 203.208.[40] The start of the contemporaneous period was January 4, 1990, five years prior to the date of submittal of a timely and complete application on January 3, 1995. The end of the contemporaneous period was January 25, 1996, the date on which the emissions increase from the project occurred. The original analysis considered the #8 Galvanizing Line to be contemporaneous. However, the startup of the #8 Galvanizing Line occurred after the end of the contemporaneous period and this project was not contemporaneous for the 1996 Project.

Table 8-9. Updated Net Emissions Increases for NO_X for the 1996 Project

		NO_X
Start of Contemporaneous Period		Jan 1990
End of Contemporaneous Period		Jan 1996
Project Emissions Increases		262.8
Significant Emission Rates		40
Whether Significant?		Yes
Contemporaneous Emissions Increases	Date	
Installation of #8 Galvanizing Line	Mar-1996	n/a
Contemporaneous Emissions Decreases		
Blooming Mill Shutdown	Apr-1991	-217.8
Batch Annealing Shutdown	Dec-1991	-8.7
Net Emissions Increase		**36.3**
Whether Significant?		No

[40] The USS Granite City facility was located in area that was designated as nonattainment for ozone at the time of 1996 Construction Permit issuance. Therefore, NNSR provisions under 35 IAC 203 applied for the project at the time.

Net emissions increase for NO_X remains below the applicable significant emission rate. Therefore, the 1996 Project remains a non-major modification under PSD and NNSR.

8.5 Requested Changes to Permit Terms Relating to NO_X Emissions

As part of this application for revision to the 1996 Construction Permit, USS Granite City is proposing the following revisions to the emission limitations and other permit terms relating to NO_X emissions from the processes or activities affected by the 1996 Project.

8.5.1 Blast Furnace Operations

This section addresses the proposed changes to the 1996 Construction Permit conditions for the blast furnace operations.

8.5.1.1 Proposed NO_X Emission Limitations for Blast Furnace Operations

USS Granite City proposes the following as Condition 5.b in the revised version of the 1996 Construction Permit.

> *5.b NO_X emissions from the Blast Furnace Operations (A & B Blast Furnaces Casthouse Roof Monitor, Casthouse Baghouse stack, Iron Spout Baghouse stack) shall not exceed 7.0 tons per year based on a monthly rolling 12-month total.*

As the NO_X emission limitations are to be incorporated in Condition 5.b itself, USS Granite City also proposes the deletion of the NO_X emission limitations from Table 1 of the 1996 Construction Permit as they would be redundant.

8.5.1.2 Proposed Compliance Demonstration, Monitoring, and Recordkeeping for Blast Furnaces Operations

USS Granite City proposes the following requirements for demonstrating compliance with the proposed emissions limitations under proposed Condition 5.b in the revised version of the 1996 Construction Permit. Consistent with the approach described in Section 2.2.4 herein, USS Granite City is proposing prescribed (*i.e.*, fixed) emission factors for casthouse roof monitor for which performance testing is not feasible. This emission factor is the same as the corresponding emission factor used to calculate pre-project actual emissions as shown in Table 8-5.

(a) In order to update or verify the NO_X emission factors, the Permittee shall conduct periodic stack tests for the Blast Furnace Casthouse Baghouse stack and the Iron Spout Baghouse stack.
(b) Use NO_X emission factors from performance tests to determine NO_X emission rates for the Blast Furnace Casthouse Baghouse and the Iron Spout Baghouse stacks.
(c) For Blast Furnace Casthouse roof monitor, use NO_X emission factor of 0.00014 lb/ton of hot metal.
(d) Use the following equations for determining monthly NO_X emissions from the Blast Furnace Operations.

For Casthouse Baghouse NO_X (tons/month)	=	NO_X (lb/ton) from Stack test × Blast Furnace Production (hot metal tons/month) ÷ 2000 (lb/ton)
For Iron Spout Baghouse NO_X (tons/month)	=	NO_X (lb/ton) from Stack test × Blast Furnace Production (hot metal tons/month) ÷ 2000 (lb/ton)
For Casthouse Roof Monitor NO_X (tons/month)	=	NO_X (lb/ton) emission factor × Blast Furnace Production (hot metal tons/month) ÷ 2000 (lb/ton)

For recordkeeping requirements, USS Granite City proposes the following:

(a) Maintain monthly records of Blast Furnace production rates.
(b) Compile monthly emissions as required above and calculate 12-month rolling total emissions.

8.5.2 Basic Oxygen Furnace Shop Operations

This section addresses the proposed changes to the revised 1996 Construction Permit Conditions for the BOF Shop operations.

8.5.2.1 Proposed NO_X Emission Limitations for BOF Shop Operations

USS Granite City proposes the following as Condition 18.b in the revised version of the 1996 Construction Permit.

> *18.b NO_X emissions from the BOF ESP stack shall not exceed 304.3 tons per year based on a monthly rolling 12-month total.*

As the NO_X emission limitations are to be incorporated in Condition 18.b itself, USS Granite City also proposes the deletion of the NO_X emission limitations in Table 2 of the 1996 Construction Permit as they would be redundant.

8.5.2.2 Proposed Compliance Demonstration, Monitoring, and Recordkeeping for BOF Shop Operations

USS Granite City proposes the following requirements for demonstrating compliance with the proposed emissions limitation under Condition 18.b of the revised version of the 1996 Construction Permit.

(a) In order to update or verify the NO_X emission factor, the Permittee shall conduct periodic stack tests for the BOF ESP stack.
(b) Use NO_X emission factor from performance tests to determine NO_X emission rate for the BOF ESP stack.
(c) Use the following equation for determining monthly NO_X emissions from the BOF Shop Operations.

For BOF ESP NO_X (tons/month)	=	NO_X (lb/ton) from BOF ESP stack test × BOF Throughput (Molten steel tons/month) ÷ 2000 (lb/ton)

For recordkeeping requirements, USS Granite City proposes the following:

(a) Maintain monthly records of BOF Shop production rates.
(b) Compile monthly emissions as required above and calculate 12-month rolling total emissions.

8.5.3 Certain Fuel Burning Emissions Units

This section addresses proposed changes to the 1996 Construction Permit Condition for the fuel burning emissions units affected by the project.

8.5.3.1 Proposed NO_X Emission Limitations for Certain Fuel Burning Emissions Units

USS Granite City proposes the replacement of Condition 21 in the revised version of 1996 Construction Permit with the following.

21.a Total consumption of blast furnace gas (BFG) and natural gas (NG) for the blast furnace stoves (A and B), Boiler 11, Boiler 12, ladle drying preheaters, ancillary fuel burning units at the continuous casters, and blast furnace gas flare No. 1 shall not exceed 540,000 MMcf per year, expressed as equivalent BFG, based on a monthly rolling 12-month total. For purposes of demonstrating compliance with this gaseous fuel usage limit, one MMcf NG shall equal 37.2 MMcf BFG equivalent.

21.b No fuel oil shall be combusted in Boiler 11 and Boiler 12.

USS Granite City proposes the inclusion of Condition 22.a in the revised version of 1996 Construction Permit as follows.

22.a NO_X emissions from the blast furnace stoves (A and B), Boiler 11, Boiler 12, ladle drying preheaters, ancillary fuel burning units at the continuous casters, and blast furnace gas flare No. 1, from firing blast furnace gas and/or natural gas shall not exceed 622.5 tons per year based on a monthly rolling 12-month total.

As the NO_X emission limitations are to be incorporated in Conditions 21(a) and (b) and 22.a, itself, USS Granite City also proposes the deletion of the NO_X emission limitations in Table 4 of the 1996 Construction Permit as they would be redundant.

8.5.3.2 Proposed Compliance Demonstration, Monitoring, and Recordkeeping for Certain Fuel Burning Emissions Units

USS Granite City proposes the following requirements for demonstrating compliance with the emissions limitations under Condition 22.a.

(a) In order to update or verify the NO_X emission factors, the Permittee shall conduct periodic stack tests for Boiler 11 and Boiler 12 stacks.
(b) Use NO_X emission factors from performance tests to determine NO_X emission rates from Boiler 11 or Boiler 12.
(c) Use equation specified in Condition 21.a to ensure compliance with the applicable emission limit specified in Condition 22.

For recordkeeping requirements, USS Granite City proposes the following:

(a) Maintain monthly records of fuel usage for blast furnace stoves (A and B), Boiler 11, Boiler 12, ladle drying preheaters, ancillary fuel burning units at the continuous casters, and blast furnace gas flare No. 1.
(b) Compile monthly emissions as required above and calculate 12-month rolling total emissions.

9. Proposed Changes to Permit Terms for VOM Emission Increase Analysis

This section describes the proposed changes to 1996 Construction Permit requested by USS Granite City related to VOM emissions and provides a demonstration that, even with the requested revisions, the 1996 Project would still not be a major modification under the NNSR program at 35 IAC Part 203 with respect to emissions of VOM.[41] The emissions calculations for VOM from the 1995 Application submitted by National Steel Corporation are reproduced in Appendix B.

9.1 1996 Construction Permit Applicability and Requirements

Table 9-1 below summarizes the provisions from the 1996 Construction Permit pertaining to VOM emissions limitations from the project-affected emissions units. A copy of the 1996 Construction Permit is provided in Appendix D of this application.

Table 9-1. Construction Permit Conditions Addressing VOM

Permit Condition	Requirements
5	Emissions from Blast Furnace operations shall not exceed the limits in attached Tables 1 and 5.
18	Emissions from the BOF Shop operations shall not exceed the limits in attached Tables 2 and 5.
22	Emissions from the listed fuel combustion units shall not exceed the limits in Tables 4 and 5.

Annual VOM emissions caps listed in Table 5 of the 1996 Construction Permit are presented in Table 9-2 below. These annual VOM emissions caps cover all emissions units associated with the three main processes or activities at the USS Granite City facility, each calculated as the sum of the unit specific VOM emissions limitations in Tables 1 through 4 of the 1996 Construction Permit.

Table 9-2. VOM Emissions Information from Table 5 of 1996 Construction Permit

Processes and Activities	VOM Emissions Caps (tons/year)
Blast Furnace Operations	157
BOF Shop Operations	12
Certain Fuel Combustion Units	2
Total	171

The VOM emissions caps restricted the PTE of the project affected emissions units. The VOM project emissions increase was calculated by subtracting pre-project actual emissions (August 1992 to July 1994 24-month period) from the PTE as restricted by the 1996 Construction Permit limitations. Table 6 of the 1996 Construction Permit included the emissions increase from the

[41] At the time of 1996 Construction Permit, the Granite City area was designated as nonattainment (moderate) for ozone NAAQS.

project and major modification applicability determinations for VOM. VOM net emissions increases were below the applicable significant emission rates and as a result, VOM emissions were not subject to NNSR review.

9.2 Pre-Project Actual Emissions for 1996 Project

This section presents the updated pre-project actual emissions with proposed corrections to some of the VOM emission factors. Revisions to the emissions factors are the result of more recent performance tests and updated information as discussed in 9.2.2.

9.2.1 Historical Throughput Rates

The VOM net emissions increase calculations presented in Table 6 of the 1996 Construction Permit were based on calculations provided by National Steel Corporation in Table 3-6 of the 1995 Application. That table from the prior construction permit application is reproduced in Appendix B to this permit application.

The pre-project annual emissions were calculated using the same production and operating rates as the 1995 Application shown in Table 9-3.

Table 9-3. Pre-Project Production and Operating Rates for VOM

Parameters	Units	Pre-Project Rates
Blast Furnace Production	Net tons of hot metal/year	2,059,557
BOF Shop	Molten steel tons/year	2,413,406
Combined BFG Combustion	MMcf/year	121,039
Combined NG Combustion	MMcf/year	1,145

9.2.2 VOM Emission Factors Basis and Revisions

USS Granite City has corrected some of the VOM emission factors used to calculate pre-project actual emissions from the project affected emissions units based on stack testing and updated literature-based information and has validated the remaining emissions factors. The results are presented in Table 9-5; explanations are provided in the following paragraphs.

9.2.2.1 Fuel Burning Emissions Units Emissions (Revised for BFG and NG)

The pre-project actual emissions for various fuels used in fuel burning emissions units affected by the project are calculated using the emission factors presented in Table 9-4.

Table 9-4. VOM Emission Factors for Fuel Burning

Fuel	Emission Factors and Units	Basis
Blast Furnace Gas	0.2 lb/MMcf *(revised)*	Updated based on the CoGen Boiler Permit No. 06070023
Natural Gas	5.5 lb/MMcf *(revised)*	Based on AP-42 Chapter 1.4
Fuel Oil	0.28 lb/1000 gallon	AP-42 Page 1.3-2

9.2.2.2 A&B Blast Furnace Casthouse Baghouse Emissions (Revised)

The pre-project actual emissions for the A and B Blast Furnaces Casthouse stack (baghouse) as presented by National Steel Corporation in the 1995 Application were calculated using data from

a stack test conducted in July 1993. Other than the test results, USS Granite City has no information regarding this stack test, which was conducted by National Steel. In March 2012, USS Granite City performed VOM stack tests at the Blast Furnace Casthouse stack. This test indicated a lower VOM emission factor for this operation than previously used (0.09458 lb/ton in the original analysis vs 0.01293 lb/ton based on the March 2012 stack test). In Table 9-5, both the original and updated VOM emission factors are shown for the Blast Furnace Casthouse stack.

9.2.2.3 A&B Blast Furnace Casthouse Roof Monitor Emissions (Revised)

The pre-project actual emissions for the A and B Blast Furnace Casthouse roof monitor, as presented by National Steel Corporation in the 1995 Application, were calculated using an emission factor of 0.0047 lb/ton. This value was developed using the July 1993 stack test result of 0.09548 lb/ton for the casthouse baghouse stack and an assumption of 95% capture efficiency described in Section 7.2.2.3 herein. As discussed in 9.2.2.2 above, subsequent testing indicated a lower VOM emission factor for the stack emissions of 0.01293 lb/ton. Assuming a 95% capture efficiency for the casthouse baghouse collection system, the uncaptured portion (5% of VOM generated) is emitted through the roof monitors at the rate of 0.00068 lb/ton. In Table 9-5, both the original and updated VOM emission factors are shown for the Blast Furnace Casthouse roof monitor emissions.

9.2.2.4 A&B Blast Furnace Iron Spout Baghouse Emissions (Revised)

The 1995 Application and 1996 Construction Permit did not identify any VOM emissions from the Blast Furnace Iron Spout Baghouse. However, a stack test conducted in March 2012 indicated a VOM emission factor of 0.00208 pounds per ton of hot metal for this emission point. In Table 9-5, the revised analysis includes pre-project actual VOM emissions from the Blast Furnace Iron Spout Baghouse stack.

9.2.2.5 BOF ESP Stack (BOF 2 Vessels) Emission (Revised)

The pre-project actual emissions for the BOF ESP stack, as presented by National Steel Corporation in the 1995 Application, were calculated using data from the average of three runs from one stack test conducted in August 1993. As discussed below, the results of this 1993 stack test have been shown by subsequent data to be non-representative of the emissions from the BOF ESP stack. The 1996 Project involved increases in the production limits for the Granite City blast furnaces and BOF Shop operations. The project did not involve any physical changes or changes in the method of operation for the BOF Shop. The BOF Shop operation does not use any add-on VOM control devices. Thus, variability in VOM emissions for the BOF process is inherent to the process operation. Beginning in 2012, USS Granite City performed several VOM stack tests at the BOF ESP stack. This testing provided an updated VOM emission factor for the BOF ESP stack (0.006 lb/ton in the original analysis vs 0.0186 lb/ton based on the average of April 2012, July 2012, and November 2014 stack test results). In Table 9-5, both the original and updated VOM emission factors are shown for the BOF ESP stack.

9.2.2.6 Desulfurization Station & Transfer Pit Baghouse Emission Factor (Revised)

The pre-project VOM baseline emissions for the Desulfurization Station & Transfer Pit Baghouse stack as presented by National Steel Corporation in the 1995 Application were calculated using an emission factor from the U.S. EPA’s AIRS 1990 database (WebFIRE). In May 2012, USS Granite City performed VOM stack tests at the Desulfurization Station &

Transfer Pit Baghouse stack. This testing has provided an updated VOM emission factor for this emission point (0.0010 lb/ton in the original analysis vs 0.00187 lb/ton based on a May 2012 stack test). In Table 9-5, both the original and updated VOM emission factors are shown for the Desulfurization Station & Transfer Pit Baghouse stack.

Table 9-5. Pre-project Actual Emissions and Summary of Proposed Changes to Pre-Project VOM Emission Factors for Affected Emissions Units

Emission Point	Emission Factors		Units	Basis	Baseline Emissions (TPY)	
	Original	Corrected			Original	Corrected
A & B Blast Furnace Casthouse Stack (Baghouse)	0.09458	0.01293	lb/ton of hot metal	Revised based on 3/2012 stack test	97.40	13.32
A & B Blast Furnace Casthouse Roof Monitor	0.00469	0.00068	lb/ton of hot metal	3/2012 test assuming no VOM control and 5% roof monitor fraction	4.83	0.7
Iron Spout Baghouse	0.0000	0.0021	lb/ton of hot metal	Revised based on 3/2012 stack test	0.00	2.14
Blast Furnace Operations					***102.23***	***16.16***
BOF Stack (2 Vessels)	0.0060	0.0150	lb/ton of steel	Revised based on average of 2012-2014 stack tests	7.24	22.40
Desulfurization Station [inside BOF shop] & Transfer Pit	0.00100	0.00187	lb/ton of hot metal	Revised based on 5/2012 stack test	1.03	1.93
BOF Shop Operations					***8.27***	***24.33***
Combined BFG in stoves, B11 & B12, ladle drying preheaters, and BFG flares	0.0	0.2	lb/MMcf	Updated from Cogen Boiler permit	0	14.52
Combined NG in stoves, B11 & B12, ladle drying preheaters, and BFG flares	2.8	5.5	lb/MMcf	1998 update to AP-42 Section 1.4	1.60	3.15
Combined FO in stoves, B11 & B12, ladle drying preheaters, and BFG flares	0.28	0.28	lb/Mgal	No change	0.00	0.00
Certain Fuel Burning Units					***1.61***	***17.68***
Total					***112.10***	***58.17***

9.3 Post-Project VOM Emissions caps

As described in subsection 7.3, the post-project emissions caps and emissions increases from the 1996 Project were, respectively, listed in Tables 5 and 6 of the 1996 Construction Permit. Similar to PM and PM10, this Section 8.3 presents a discussion of the post-project VOM emissions caps and summary of the updated emissions increase calculations for the 1995 Project, reflecting the proposed changes in the emissions caps.

The post-project emissions caps for the project affected emissions units were developed by USS Granite City using the operating rates parameters shown in Table 9-6. Other than the natural gas usage, which is proposed to increase, and the oil usage, which is proposed to be deleted entirely, these rates are unchanged from the operating rates in the 1996 Construction Permit. As previously noted in Section 7.3, due to 2015 shutdown of the Coke Plant this application addresses increase in natural gas usage for the fuel burning units affected by the project.

Table 9-6. Projected Post-Project Operating Rates for VOM

Parameters	Units	Post Project Rates
Blast Furnace Production	Net tons of hot metal/year	3,165,000
BOF Shop	Molten steel tons/year	3,580,000
Combined BFG Combustion	MMcf/year	183,030
Combined NG Combustion	MMcf/year	1,980
Combined Oil Combustion	n/a	0

A comparison of the VOM emissions caps from Table 5 of the 1996 Construction Permit and the proposed revisions to these emissions caps is provided in Table 9-7. Detailed emissions calculations are provided in Appendix B. The proposed revisions to the post-project VOM emissions caps reflect changes to some of the emission factors presented in Table 9-5 and changes in post-project operating rates as shown in Table 9-6.

Table 9-7. VOM Emissions Caps

	VOM Emission Caps (TPY) from Table 5 of 1996 Construction Permit	Proposed Revised VOM Emissions Caps (TPY)
Blast Furnace Operations	157	24.8
BOF Shop	12	44.1
Certain Fuel Burning Units	2	27.7
Total	171	96.7

The updated project emissions increase analysis for VOM reflecting proposed revisions to the emissions increase calculations in Table of the 1996 Construction Permit, is provided in Table 9-8. This table incorporates the effects of the corrected pre-project emission factors as shown in Table 9-5 and the requested updates to the emission limitations as shown in Table 9-7.

Table 9-8. Revised VOM Project Emissions Increase Analyses

	VOM Pre-Project Emissions (TPY)	VOM Revised Emission Limitations (TPY)	VOM Change (TPY)
Blast Furnace Operations	16.2	24.8	8.7
BOF Shop	24.3	44.1	19.8
Certain Fuel Burning Units	17.7	27.7	10.0
Total			38.5

In this case, the project emissions increase for VOM remains below the applicable significant emission rate. Therefore, the 1996 Project remains a non-major modification under NNSR.

9.4 Changes to Net Emissions Increase Calculation for VOM

Even though not required, as part of the VOM applicability evaluation, in conjunction with the requested revisions to the 1996 Construction Permit, USS Granite City is also updating the analysis for net increases in emissions of VOM for the 1996 Project. Table 9-9 shows the updated net emissions increases calculations for VOM based on the updated project emissions increase calculations shown in Table 9-8. This table includes a correction to the contemporaneous period for VOM emissions from the project as established using the definition in 35 IAC 203.208.[42] The start of the contemporaneous period was January 4, 1990, five years prior to the date of submittal of a timely and complete application on January 3, 1995. The end of the contemporaneous period was January 25, 1996, the date on which the emissions increase from the project occurred. The original analysis considered the #8 Galvanizing Line to be contemporaneous. However, the startup of the #8 Galvanizing Line occurred after the end of the contemporaneous period and this project was not contemporaneous for the 1996 Project.

Table 9-9. Updated Net Emissions Increases for VOM for the 1996 Project

		VOM
Start of Contemporaneous Period		Jan 1990
End of Contemporaneous Period		Jan 1996
Project Emissions Increases		38.5
Significant Emission Rates		40
Whether Significant?		No
Contemporaneous Emissions Increases	Date	
Installation of #8 Galvanizing Line	Mar-1996	n/a
Contemporaneous Emissions Decreases		
Blooming Mill Shutdown	Apr-1991	-0.9
NESHAP Controls for Coke By-Product Operations	Jul-1991	-31.6
Batch Annealing Shutdown	Dec-1991	-0.3
Net Emissions Increase		**5.70**
Whether Significant?		No

[42] The USS Granite City facility was located in area that was designated as nonattainment for ozone at the time of 1996 Construction Permit issuance. Therefore, NNSR provisions under 35 IAC 203 applied for the project at the time.

Net emissions increase for VOM remains below the applicable significant emission rate. Therefore, the 1996 Project remains a non-major modification under NNSR.

9.5 Requested Changes to Permit Terms Relating to VOM Emissions

As part of this application for revision to the 1996 Construction Permit, USS Granite City is proposing the following revisions to the emission limitations and other permit terms relating to VOM emissions from the processes or activities affected by the 1996 Project.

9.5.1 Blast Furnace Operations

This section addresses the proposed changes to the 1996 Construction Permit Conditions for the blast furnace operations.

9.5.1.1 Proposed VOM Emission Limitations for Blast Furnace Operations

USS Granite City proposes to add the following as Condition 5.c in the revised version of the 1996 Construction Permit.

> *5.c VOM emissions from the Blast Furnace Operations (A & B Blast Furnaces Casthouse Roof Monitor, Casthouse Baghouse stack, Iron Spout Baghouse stack) shall not exceed 24.8 tons per year based on a monthly rolling 12-month total.*

As the VOM emission limitations are to be incorporated in Condition 5.c itself, USS Granite City also proposes the deletion of the VOM emission limitations from Table 1 of the 1996 Construction Permit as they would be redundant.

9.5.1.2 Proposed Compliance Demonstration, Monitoring, and Recordkeeping for Blast Furnaces Operations

USS Granite City proposes the following requirements for demonstrating compliance with the proposed emissions limitations under proposed Condition 5.c in the revised version of the 1996 Construction Permit. Consistent with the approach described in Section 2.2.4 herein, USS Granite City is proposing prescribed (*i.e.*, fixed) emission factors for casthouse roof monitor for which performance testing is not feasible. This emission factor is the same as the corresponding emission factor used to calculate pre-project actual emissions as shown in Table 9-5.

(a) In order to update or verify the VOM emission factors, the Permittee shall conduct periodic stack tests for the Blast Furnace Casthouse Baghouse stack and the Iron Spout Baghouse stack.
(b) Use VOM emission factors from performance tests to determine VOM emission rates for the Blast Furnace Casthouse Baghouse and the Iron Spout Baghouse stacks.
(c) For the Blast Furnace Casthouse Roof Monitor, use the VOM emission factor of 0.00068 lb/ton.
(d) Use the following equations for determining monthly VOM emissions from the Blast Furnace Operations.

For Casthouse Baghouse VOM (tons/month)	=	VOM (lb/ton) from Stack test × Blast Furnace Production (hot metal tons/month) ÷ 2000 (lb/ton)
For Iron Spout Baghouse VOM (tons/month)	=	VOM (lb/ton) from Stack test × Blast Furnace Production (hot metal tons/month) ÷ 2000 (lb/ton)
For Casthouse Roof Monitor VOM (tons/month)	=	VOM (lb/ton) emission factor × Blast Furnace Production (hot metal tons/month) ÷ 2000 (lb/ton)

For recordkeeping requirements, USS Granite City proposes the following:

(a) Maintain monthly records of Blast Furnace production rates.
(b) Compile monthly emissions as required above and calculate 12-month rolling total emissions.

9.5.2 Basic Oxygen Furnace Shop Operations

This section addresses the proposed changes to the 1996 Construction Permit Conditions for the BOF Shop operations.

9.5.2.1 Proposed VOM Emission Limitations for BOF Shop Operations

USS Granite City proposes to add the following as Condition 18.c in the 1996 revised version of the Construction Permit.

> *18.c VOM emissions from the BOF Shop Operation (BOF ESP and Desulf/Soda Ash and Hot Metal Charging Baghouse) shall not exceed 44.1 tons per year based on a monthly rolling 12-month total.*

As the VOM emission limitations are to be incorporated in Condition 18.c itself, USS Granite City also proposes the deletion of the VOM emission limitations in Table 2 of the 1996 Construction Permit as they would be redundant.

9.5.2.2 Proposed Compliance Demonstration, Monitoring, and Recordkeeping for BOF Shop Operations

USS Granite City proposes the following requirements for demonstrating compliance with the proposed emissions limitations under proposed Condition 18.c of the revised version of the 1996 Construction Permit.

(a) In order to update or verify the VOM emission factor, the Permittee shall conduct periodic stack tests for the BOF ESP stack and the Desulf/Soda Ash and Hot Metal Charging Baghouse stack.
(b) Use VOM emission factors from performance tests to determine VOM emission rates for the BOF ESP stack and the Desulf/Soda Ash and Hot Metal Charging Baghouse stack.
(c) Use the following equations for determining monthly VOM emissions from the BOF Shop Operations.

For BOF ESP VOM (tons/month)	=	VOM (lb/ton) from BOF ESP stack test × BOF Throughput (Molten steel tons/month) ÷ 2000 (lb/ton)
For Desulf/Soda Ash Hot Metal Charging VOM (tons/month)	=	VOM (lb/ton) from Desulf/Soda Ash and Hot Metal Charging Baghouse stack test × Iron Throughput (hot metal tons/month) ÷ 2000 (lb/ton)

For recordkeeping requirements, USS Granite City proposes the following:

(a) Maintain monthly records of BOF Shop production rates.
(b) Compile monthly emissions as required above and calculate 12-month rolling total emissions.

9.5.3 Certain Fuel Burning Emissions Units

This section addresses the 1996 Construction Permit conditions for the fuel burning emissions units affected by the project.

9.5.3.1 Proposed VOM Emission Limitations for Certain Fuel Burning Emissions Units

USS Granite City proposes the inclusion of Condition 22.d in the revised version of 1996 Construction Permit as follows.

> *22.d VOM emissions from the blast furnace stoves (A and B), Boiler 11, Boiler 12, ladle drying preheaters, ancillary fuel burning units at the continuous casters, and blast furnace gas flare No. 1, from firing blast furnace gas and/or natural gas shall not exceed 27.7 tons per year based on a monthly rolling 12-month total.*

As the VOM emission limitations are to be incorporated in Condition 22 itself, USS Granite City also proposes the deletion of the VOM emission limitations in Table 4 of the 1996 Construction Permit as they would be redundant.

9.5.3.2 Proposed Compliance Demonstration, Monitoring, and Recordkeeping for Certain Burning Emissions Units

USS Granite City proposes the following requirements for demonstrating compliance with the emissions limitations under Condition 22.d of 1996 Construction Permit.

(a) Use the blast furnace gas combustion VOM emission factor of 0.2 lb/MMcf.
(b) Use the natural gas combustion VOM emission factor of 5.5 lb/MMcf.
(c) Use the following equations for determining monthly VOM emissions from the fuel combustion units.

For Fuel Burning Units VOM (tons/month)	=	VOM (lb/MMcf) × Fuel Usage (MMcf/month) ÷ 2000 (lb/ton)

For recordkeeping requirements, USS Granite City proposes the following:

(a) Maintain monthly records of fuel usage for blast furnace stoves (A and B), Boiler 11, Boiler 12, ladle drying preheaters, ancillary fuel burning units at the continuous casters, and blast furnace gas flare No. 1.
(b) Compile monthly emissions as required above and calculate 12-month rolling total emissions.

10. Regulatory Applicability Review

USS Granite City reviewed the federal and Illinois air quality regulations to determine their applicability to the proposed revisions to the 1996 Construction Permit. Federal regulations delegated to the Illinois EPA include PSD, New Source Performance Standards ("NSPS"), and National Emission Standards for Hazardous Air Pollutants ("NESHAP"). Illinois air quality regulations are found at Title 35 of the Illinois Administrative Code ("IAC") Subtitle B. Chapters I and II of 35 IAC Subtitle B contain rules administered by the Illinois EPA.

Requirements associated with federal and State air quality regulations found to be applicable to the requested revisions of 1996 Construction Permit are presented in this section.

10.1 Federal Air Quality Regulations

Federal regulations delegated to the Illinois EPA were reviewed to determine their applicability to the requested revisions. USS Granite City's conclusions regarding applicability of these rules and the supporting rationale are presented below.

10.1.1 Prevention of Significant Deterioration (40 CFR § 52.21) and Major Stationary Sources Construction and Modification [in Nonattainment Areas] (35 IAC Part 203)

The federal PSD regulations are codified at 40 CFR § 52.21. Illinois EPA is the delegated permitting authority to administer the federal PSD regulations in attainment/unclassifiable areas within the State. The PSD regulations apply to new major stationary sources and to major modifications at an existing major stationary source. Emissions increases of PM, NOx, SO_2, and CO were evaluated under this program.

In nonattainment areas, Illinois EPA implements the requirements under 35 IAC Part 203((NNSR program), with respect to major stationary sources and major modifications at major stationary sources for criteria pollutants for which the area is designated nonattainment.[43] The area where USS Granite City is located was nonattainment for ozone and PM10 at the time of 1996 Project. Therefore, emissions of NOx, VOM, and PM10 were evaluated under the requirements of this program.

As explained in subsection 2.2, the revisions currently being requested to the 1996 Construction Permit addressed two set of changes:

(a) Changes to the emission limits for PM, PM10, NO_X, and VOM, regulated NSR pollutants not subject to PSD review. (No changes are proposed to Pb emissions increases)
(b) Changes to the emissions rates for CO for some of the emissions units that were subject to PSD review. (No changes are proposed to SO_2 emissions increases)

[43] 35 IAC Part 203 is the state NNSR permitting program. As the applicability requirements under NNSR are similar to PSD, for sake of convenience, we combined the applicability of the NNSR program with the federal PSD program under 40 CFR § 52.21.

As demonstrated in sections 7, 8, and 9, the net emissions increases for PM, PM10, NO_X, and VOM remain below the applicable significant emissions rates for these pollutants after the proposed revisions to the emissions limitations. Therefore, USS Granite City is not proposing any change to the applicability of PSD or NNSR requirements in regard to PM, PM10, NOx, and VOM.

For CO, the 1996 Project was subject to the PSD requirements. Therefore, the proposed changes to the emissions limitations for CO have been evaluated per the PSD requirements. Sections 4, 5 and 6 herein address the PSD review requirements for CO.

10.1.2 New Source Performance Standards (NSPS, 40 CFR Part 60)

The federal NSPS regulations are codified at 40 CFR Part 60. NSPS apply to new or modified "affected facilities" as defined in specific subparts of 40 CFR Part 60. Illinois has been delegated the authority to administer the federal NSPS. The proposed changes do not trigger applicability of NSPS requirements for the units affected under the 1996 Project or the requested revisions under this application.

10.1.3 National Emission Standards for Hazardous Air Pollutants (NESHAP, 40 CFR Parts 61 and 63)

The federal NESHAP regulations are codified at 40 CFR Part 61 and 40 CFR Part 63 (NESHAP for source categories also known as MACT standards). Illinois has been delegated authority to administer the federal NESHAP program.

The Part 61 NESHAPs apply to certain pollutants and/or area source types. None of the Part 61 NESHAPs are applicable to the units affected under the 1996 Project or the requested revisions under this application.

The Part 63 NESHAPs apply to existing, new, or reconstructed affected sources at major sources of HAP emissions in accordance with applicability criteria specified in individual subparts. The following NESHAPs apply to the units affected under the 1996 Project.

I. Boilers 11 and 12 are parts of an existing affected source subject to 40 CFR Part 63 Subpart DDDDD.
II. Each of the blast furnaces and the BOF shop operations is an existing affected source subject to 40 CFR Part 63 Subpart FFFFF.

There will be no changes to the applicability of the Part 63 NESHAPs for the affected sources under the 1996 Project or the requested revisions under this application.

10.2 Illinois Air Quality Regulations

USS Granite City performed a review of 35 IAC Subtitle B regulations to determine the applicability of specific standards to the proposed revisions to the 1996 Construction Permit. A summary of this review and associated regulatory applicability conclusions are documented below. Only those rules deemed potentially relevant to the proposed revisions request are addressed.

10.2.1 35 IAC Part 201.142 Construction Permit Required

The proposed revisions to the 1996 Construction Permit involve changes to an existing construction permit for the modifications of existing emissions sources. Therefore, a revised permit in accordance with 35 IAC 201.142 is required. This permit application, including the permit application forms contained in Appendix A, is intended to fulfill the requirements of 35 IAC 201.142.

10.2.2 35 IAC 201.207 CAAPP Permits

The Clean Air Act Permit Program (CAAPP) requirements are contained in Section 39.5 of the Illinois Environmental Protection Act. USS Granite City facility is a major source subject to CAAPP requirements. As noted in section 1, this application package addresses the 'integrated processing' procedures for the proposed revisions to the 1996 Construction Permit for incorporation in the CAAPP permit via an administrative amendment.

10.2.3 Other State Regulations

There will be no change to the applicability of the limitations and requirements of other emissions standards under the Illinois Administrative Code that have already been addressed in the CAAPP permit for the USS Granite City facility.

Appendix A – Application Forms

Illinois Environmental Protection Agency

Bureau of Air • 1021 North Grand Avenue East • P.O. Box 19506 • Springfield • Illinois • 62794-9506

FEE DETERMINATION FOR CONSTRUCTION PERMIT APPLICATION

FOR AGENCY USE ONLY

ID Number: _____ Permit #: _____

☐ Complete ☐ Incomplete Date Complete: _____

Check Number: _____ Account Name: _____

This form is to be used to supply fee information that must accompany all construction permit applications. This application must include payment in full to be deemed complete. Make check or money order payable to the Illinois Environmental Protection Agency, Division of Air Pollution Control - Permit Section at the above address. Do NOT send cash. Refer to instructions (197-INST) for assistance.

Source Information

1. Source Name: United States Steel Corporation - Granite City Works
2. Project Name: 1996 Construction Permit Revision
3. Source ID #: (if applicable) 1191813AAI
4. Contact Name: Krista Armentrout
5. Contact Phone #: (618) 451-3013

Fee Determination

6. The boxes below are automatically calculated.

Section 1 Subtotal		Section 2, 3 or 4 Subtotal		
$0.00	+	$23,000.00	=	$23,000.00
				Grand Total

Section 1: Status of Source/Purpose of Submittal

7. Your application will fall under only one of the following five categories described below. Check the box that applies. Proceed to applicable sections. For purposes of this form:

- **Major Source** is a source that is required to obtain a CAAPP permit.
- **Synthetic Minor Source** is a source that has taken limits on potential to emit in a permit to avoid CAAPP permit requirements (e.g.,FESOP).
- **Non-Major Source** is a source that is not a major or synthetic minor source.

☑ Existing source without status change or with status change from synthetic minor to major source or vice versa. Proceed to Section 2.

☐ Existing non-major source that will become synthetic minor to major source. Proceed to Section 4.

☐ New major or synthetic minor source. Proceed to Section 4.

☐ New non-major source. Proceed to Section 3.

☐ AGENCY ERROR. If this is a timely request to correct an issued permit that involves only an agency error and if the request is received within the deadline for a permit appeal to the Pollution Control Board. Skip Sections 2, 3 and 4. Proceed directly to Section 5.

$0.00
Section 1 Subtotal

This agency is authorized to require and you must disclose this information under 415 ILCS 5/39. Failure to do so could result in the application being denied and penalties under 415 ILCS 5 ET SEQ. It is not necessary to use this form in providing this information. This form has been approved by the forms management center.

Section 2: Special Case Filing Fee

8. **Filing Fee**. If the application only addresses one or more of the following, check the appropriate boxes, skip Sections 3 and 4 and proceed directly to Section 5. Otherwise, proceed to Section 3 or 4 as appropriate.

Addition or replacement of control devices on permitted units.

Pilot projects/trial burns by a permitted unit

Land remediation projects

Revisions related to methodology or timing for emission testing

Minor administrative-type change to a permit

Section 3: Fees for Current or Projected Non-Major Sources

9.	This application consists of a single new emission unit or no more than two modified emission units. ($500 fee)	9.
10.	This application consists of more than one new emission unit or more than two modified units. ($1,000 fee)	10.
11.	This application consists of a new source or emission unit subject to Section 39.2 of the Act (i.e., Local Siting Review); a commercial incinerator or a municipal waste, hazardous waste, or waste tire incinerator; a commercial power generator; or an emission unit designated as a complex source by agency rulemaking. ($15,000 fee)	11.
12.	A public hearing is held (see instructions). ($10,000 fee)	12.
13.	Section 3 subtotal. (lines 9 through 12 - entered on page 1)	13. $0.00

Section 4: Fees for Current or Projected Major or Synthetic Minor Sources

Application contains modified emission units only	14. For the first modified emission unit, enter $2,000.	14. $2,000.00
	15. Number of additional modified emission units = 25 x $1,000.	15. $25,000.00
	16. Line 14 plus line 15, or $5,000, whichever is less.	16. $5,000.00
Application contains new and/or modified emission units	17. For the first new emission unit, enter $4,000.	
	18. Number of additional new and/or modified emission units = x $1,000.	18. $0.00
	19. Line 17 plus line 18, or $10,000, whichever is less.	19. $0.00
Application contains netting exercise	20. Number of individual pollutants that rely on a netting exercise or contemporaneous emissions decrease to avoid application of PSD or nonattainment area NSR = 4 x $3,000.	20. $12,000.00
Additional Supplemental Fees	21. If the new source or emission unit is subject to Section 39.2 of the Act (i.e. siting); a commercial incinerator or other municipal waste, hazardous waste, or waste tire incinerator; a commercial power generator; or one or more other emission units designated as a complex source by Agency rulemaking, enter $25,000.	21.
	22. If the source is a new major source subject to PSD, enter $12,000.	22.
	23. If the project is a major modification subject to PSD, enter $6,000.	23. $6,000.00
	24. If this is a new major source subject to nonattainment area (NAA) NSR, enter $20,000.	24.
	25. If this is a major modification subject to NAA NSR, enter $12,000.	25.
	26. If the application involves a determination of MACT for a pollutant and the project is not subject to BACT or LAER for the related pollutant under PSD or NSR (e.g., VOM for organic HAP), enter $5,000 per unit for which a determination is requested or otherwise required. ____ x $5,000.	26. $0.00
	27. If a public hearing is held (see instructions), enter $10,000.	27.
28. Section 4 subtotal (line 16 and lines 19 through 28) to be entered on page1		28. $23,000.00

Section 5: Certification

NOTE: Applications without a signed certification will be deemed incomplete.

29. I certify under penalty of law that, based on information and belief formed after reasonable inquiry, the information contained in this fee application form is true, accurate and complete.

by: _____ (Signature)

Michael Patton (Typed or Printed Name of Signatory)

General Manager - Granite City Works (Title of Signatory)

2/25/2020 (Date)

Illinois Environmental Protection Agency
Division Of Air Pollution Control -- Permit Section
P.O. Box 19506
Springfield, Illinois 62794-9506

Construction Permit Application for a Proposed Project at a CAAPP Source	For Illinois EPA use only
	ID No.:
	Appl. No.:
	Date Rec'd:
	Chk No./Amt:

This form is to be used to supply general information to obtain a construction permit for a proposed project involving a Clean Air Act Permit Program (CAAPP) source, including construction of a new CAAPP source. Detailed information about the project must also be included in a construction permit application, as addressed in the "General Instructions For Permit Applications," Form APC-201.

Proposed Project

1. Working Name of Proposed Project:
1996 Construction Permit Revision

2. Is the project occurring at a source that already has a permit from the Bureau of Air (BOA)?
☐ No ☒ Yes If Yes, provide BOA ID Number: 119813AAI

3. Does this application request a revision to an existing construction permit issued by the BOA?
☐ No ☒ Yes If Yes, provide Permit Number: 95010001

4. Brief Description of Proposed Project:
This application proposes revisions to certain emission limits and other requirements in the 1996 Construction Permit for the U.S. Steel Granite City facility.

Source Information

1. Source name:* United States Steel Corporation - Granite City Works

2. Source street address:* 1951 State Street

3. City: Granite City	4. County: Madison	5. Zip code:* 62040

ONLY COMPLETE THE FOLLOWING FOR A SOURCE WITHOUT AN ID NUMBER

6. Is the source located within city limits? ☐ Yes ☐ No
If no, provide Township Name:

7. Description of source and product(s) produced:	8. Primary Classification Code of source: SIC: ____ or NAICS: ____
9. Latitude (DD:MM:SS.SSSS):	10. Longitude (DD:MM:SS.SSSS):

* Is information different than previous information? ☐ Yes ☐ No
If yes, then complete Form CAAPP 273 to apply for an Administrative Change to the CAAPP Permit for the source.

Identification of Permit Applicant

1. Who is the applicant? ☒ Owner ☐ Operator	2. All correspondence to: (check one) ☒ Source ☐ Owner ☐ Operator
3. Applicant's FEIN: 25-1897152	4. Attention name and/or title for written correspondence: Krista Armentrout - Environmental Manager

This Agency is authorized to require and you must disclose this information under 415 ILCS 5/39. Failure to do so could result in the application being denied and penalties under 415 ILCS 5 et seq. It is not necessary to use this form in providing this information. This form has been approved by the forms management center.

Owner Information*		
1. Name: United States Steel Corporation		
2. Address: 600 Grant Street		
3. City: Pittsburgh	4. State: PA	5. Zip code: 15219

* Is this information idifferent than previous information? ☐ Yes ☐ No
If yes, then complete Form CAAPP 273 to apply for an Administrative Change to the CAAPP Permit for the source.

Operator Information (if different from owner)*		
1. Name		
2. Address:		
3. City:	4. State:	5. Zip code:

* Is this information different than previous information? ☐ Yes ☒ No
If yes, then complete Form CAAPP 273 to apply for an Administrative Change to the CAAPP Permit for the source.

Technical Contacts for Application	
1. Preferred technical contact: (check one) ☒ Applicant's contact ☐ Consultant	
2. Applicant's technical contact person for application: Christopher Hardin	
3. Contact person's telephone number(s) (412) 433-5904	4. Contact person's e-mail address: cwhardin@uss.com
5. Consultant for application: RTP Environmental Associates Inc. (Colin Campbell)	
6. Consultant's telephone number(s): (919) 845-1422, 20	7. Consultant's e-mail address: campbell@rtpenv.com

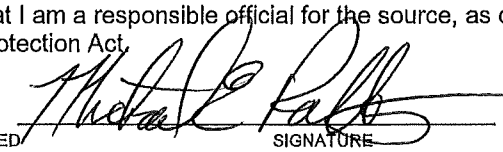
Other Addresses for the Permit Applicant	
ONLY COMPLETE THE FOLLOWING FOR A SOURCE WITHOUT AN ID NUMBER.	
1. Address for billing Site Fees for the source: ☐ Source ☐ Other (provide below):	
2. Contact person for Site Fees:	3. Contact person's telephone number:
4. Address for Annual Emission Report for the source: ☐ Source ☐ Other (provide below):	
5. Contact person for Annual Emission Report:	6. Contact person's telephone number:

Review Of Contents of the Application	
NOTE: ANSWERING "NO" TO THESE ITEMS MAY RESULT IN THE APPLICATION BEING DEEMED INCOMPLETE	
1. Does the application include a narrative description of the proposed project?	☒ Yes ☐ No
2. Does the application clearly identify the emission units and air pollution control equipment that are part of the project?	☒ Yes ☐ No
3. Does the application include process flow diagram(s) for the project showing new and modified emission units and control equipment, along with associated existing equipment and their relationships?	☒ Yes ☐ No
4. Does the application include a general description of the source, a plot plan for the source and a site map for its location?	☐ Yes ☐ No ☒ N/A* * Material previously provided
5. Does the application include relevant technical information for the proposed project as requested on CAAPP application forms (or otherwise contain all relevant technical information)?	☒ Yes ☐ No
6. Does the application include relevant supporting data and information for the proposed project as provided on CAAPP forms?	☒ Yes ☐ No
7. Does the application identify and address all applicable emission standards for the proposed project, including: State emission standards (35 IAC Chapter I, Subtitle B); Federal New Source Performance Standards (40 CFR Part 60)?	☒ Yes ☐ No
8. Does the application address whether the project would be a major project for Prevention of Significant Deterioration, 40 CFR 52.21?	☒ Yes ☐ No ☐ N/A
9. Does the application address whether the project would be a major project for "Nonattainment New Source Review," 35 IAC Part 203?	☒ Yes ☐ No ☐ N/A
10. Does the application address whether the proposed project would potentially be subject to federal regulations for Hazardous Air Pollutants (40 CFR Part 63) and address any emissions standards for hazardous air pollutants that would be applicable?	☒ Yes ☐ No ☐ N/A* * Source not major ☐ Project not major ☐
11. Does the application include a summary of annual emission data for different pollutants for the proposed project (tons/year), including: 1) The requested permitted emissions for individual new, modified and affected existing units*, 2) The past actual emissions and change in emissions for individual modified units* and affected existing units*, and 3) Total emissions consequences of the proposed project? (* Or groups of related units)	☒ Yes ☐ No ☐ N/A * The project does not involve an increase in emissions from new or modified emission units.
12. Does the application include a summary of the current and requested potential emissions of the source (tons/year)?	☒ Yes ☐ No ☐ N/A* * Applicability of PSD, NA NSR or 40 CFR 63 to the project is not related to the source's emissions.
13. Does the application address the relationships and implications of the proposed project on the CAAPP Permit for the source?	☒ Yes ☐ No ☐ N/A* * CAAPP Permit not issued
14. If the application contains information that is considered a TRADE SECRET, has it been properly marked and claimed and all requirements to properly support the claim pursuant to 35 IAC Part 130 been met? Note: "Claimed" information will not be legally protected from disclosure to the public if it is not properly claimed or does not qualify as trade secret information.	☐ Yes ☐ No ☒ N/A* * No information in the application is claimed to be a TRADE SECRET
15. Are the correct number of copies of the application provided? (See Instructions for Permit Applications, Form 201)	☒ Yes ☐ No
16. Does the application include a completed "FEE DETERMINATION FOR CONSTRUCTION PERMIT APPLICATION," Form 197-FEE, a check in the amount indicated on this form, and any supporting material needed to explain how the fee was determined?	☒ Yes ☐ No

Signature Block

Authorized Signature:

I certify under penalty of law that, based on information and belief formed after reasonable inquiry, the statements and information contained in this application are true, accurate and complete and that I am a responsible official for the source, as defined by Section 39.5(1) of the Environmental Protection Act.

BY: 

AUTHORIZED SIGNATURE

General Manager - Granite City Works
TITLE OF SIGNATORY

Michael Patton
TYPED OR PRINTED NAME OF SIGNATORY

02 25 2020
DATE

Appendix B – Emissions Calculations

Updated Emissions Calculations for the 1996 Construction Permit Revision Application

USS Granite City
Revised PM Actual

Point	Emission Point	Past Throughput	Units	Pollutant	Original Emission Factor	Updated Emission Factor	Units	Basis	Original Baseline Emissions (TPY)	Revised Baseline Emissions (TPY)
0005 & 0010	A & B Blast Furnace Casthouse Fugitives	2,059,557	tons of hot metal/year	PM	0.031	0.031	lb/ton of hot metal	No change	31.92	31.92
0006 & 0011	A & B Blast Furnace Charging	2,803,241	tons of charge material/year	PM	0.0024	0.0024	lb/ton of material	No change	3.36	3.36
0007 & 0012	A & B Blast Furnace Casthouse Baghouse	2,059,557	tons of hot metal/year	PM	0.07026	0.07026	lb/ton of hot metal	No change	72.35	72.35
113	Blast Furnace Slag Pits	2,059,557	tons of hot metal/year	PM	0.00417	0.00417	lb/ton of hot metal	No change	4.29	4.29
	Iron Spout Baghouse	2,059,557	tons of hot metal/year	PM	0.02548	0.02548	lb/ton of hot metal	No change	26.24	26.24
	Blast Furnace Operations			PM					138.17	138.17
0033	BOF 2 Vessels	2,413,406	tons of molten steel/year	PM	0.16	0.16	lb/ton of steel	No change	193.07	193.07
0034	BOF Roof Monitor	2,413,406	tons of molten steel/year	PM	0.428	0.428	lb/ton of steel	No change	516.72	516.72
0107 & 0035	Desulfurization Station [inside BOF shop] & Transfer Pit	2,059,557	tons of hot metal/year	PM	0.03721	0.03721	lb/ton of hot metal	No change	38.32	38.32
0040	Hot Metal Charging Ladle Slag Skimmer	2,059,557	tons of hot metal/year	PM	0.00502	0.00502	lb/ton of hot metal	No change	5.17	5.17
	BOF Shop			PM					753.28	753.28
0103, 0104 & 0121	Argon Stirring #1 & #2 Material Handling Tripper	2,413,406	tons of molten steel/year	PM	0.00715	0.00715	lb/ton of steel	No change	8.63	8.63
0105 & 0106	Deslagging Station & Material HS	2,413,406	tons of molten steel/year	PM	0.00355	0.00355	lb/ton of steel	No change	4.28	4.28
0070 & 0120	Caster Mold - Casters #1 & #2	2,413,406	tons of molten steel/year	PM	0.006	0.006	lb/ton of steel	No change	7.24	7.24
0071 & 0119	Continuous Casters #1 & #2 - Spray Chamber	2,413,406	tons of molten steel/year	PM	0.00852	0.00852	lb/ton of steel	No change	10.28	10.28
0072 & 0118	Slab Cutoff Casters #1 & #2	2,413,406	tons of molten steel/year	PM	0.0071	0.0071	lb/ton of steel	No change	8.57	8.57
73	Slab Ripping Casters #1 & #2	2,413,406	tons of molten steel/year	PM	0.00722	0.00722	lb/ton of steel	No change	8.71	8.71
	Continuous Casting Operations			PM					47.71	47.71
	Combined BFG in stoves, B11 & B12, ladle preheaters, and BFG flares	121,039	MMcf	PM	2.90	2.90	lb/MMcf	No change	175.51	175.51
	Combined NG in stoves, B11 & B12, ladle preheaters, and BFG flares	1,145	MMcf	PM	5.10	1.90	lb/MMcf	AP-42 Revised Filt. PM Factor	2.92	1.09
	Combined FO in stoves, B11 & B12, ladle preheaters, and BFG flares	16	Mgal	PM	9.72	9.72	lb/Mgal	No change	0.08	0.08
	Certain Fuel Burning Emissions Units			PM					178.51	176.68
9003	Iron Pellet Screen	2,803,241	tons of charge material/year	PM	0.00279	0.00375	lb/ton of material	85% control to crushed stone screen EF in AP-42 Table 11.19.2-2	3.91	5.26
	BOF Hopper Baghouse	2,413,406	tons of molten steel/year	PM	0.00032	0.00032	lb/ton of steel	No change	0.39	0.39
0037	Flux Conv. & Transfer Points Bin Floor - BOF	2,413,406	tons of molten steel/year	PM	0.0016	0.0016	lb/ton of steel	No change	1.93	1.93
	Material Handling Operations at BF and BOF			PM					6.23	7.57
				Total PM					1,123.90	1,123.42

USS Granite City
Revised PM Analysis

Point	Emission Point	Past Throughput	Future Throughput	Units	Pollutant	Updated Emission Factor	Future Emission Factor	Units	Basis	Baseline Emissions (TPY)	Future Emissions (TPY)	Emissions Increase (TPY)	Emissions Change (TPY)
0005 & 0010	A & B Blast Furnace Casthouse Fugitives	2,059,557	3,165,000	tons of hot metal/year	PM	0.031	0.031	lb/ton of hot metal	No change	31.92	49.06	57.77	
0006 & 0011	A & B Blast Furnace Charging	2,803,241	4,308,581	tons of charge material/year	PM	0.0024	0.0024	lb/ton of material	No change	3.36	5.17		
0007 & 0012	A & B Blast Furnace Casthouse Baghouse	2,059,557	3,165,000	tons of hot metal/year	PM	0.07026	0.07026	lb/ton of hot metal	No change	72.35	111.19		
113	Blast Furnace Slag Pits	2,059,557	3,165,000	tons of hot metal/year	PM	0.00417	0.00417	lb/ton of hot metal	No change	4.29	6.60	2.30	
	Iron Spout Baghouse	2,059,557	3,165,000	tons of hot metal/year	PM	0.02548	0.02548	lb/ton of hot metal	No change	26.24	40.32	14.08	
	Blast Furnace Operations				PM					138.17	212.34		74.16
0033	BOF 2 Vessels	2,413,406	3,580,000	tons of molten steel/year	PM	0.16	0.16	lb/ton of steel	Using 60 lb/hour for PTE	193.07	262.80	0.00	
0034	BOF Roof Monitor	2,413,406	3,580,000	tons of molten steel/year	PM	0.428	0.099	lb/ton of steel	No change (as in original application post-project EF lower than pre-project EF)	516.72	176.67		
0107 & 0035	Desulfurization Station [inside BOF shop] & Transfer Pit	2,059,557	3,165,000	tons of hot metal/year	PM	0.03721	0.03721	lb/ton of hot metal	No change	38.32	58.88	20.57	
0040	Hot Metal Charging Ladle Slag Skimmer	2,059,557	3,165,000	tons of hot metal/year	PM	0.00502	0.00502	lb/ton of hot metal	No change	5.17	7.94	2.77	
	BOF Shop				PM					753.28	506.30		-246.98
0103, 0104 & 0121	Argon Stirring #1 & #2 Material Handling Tripper	2,413,406	3,580,000	tons of molten steel/year	PM	0.00715	0.00715	lb/ton of steel	No change	8.63	12.80	4.17	
0105 & 0106	Deslagging Station & Material HS	2,413,406	3,580,000	tons of molten steel/year	PM	0.00355	0.00355	lb/ton of steel	No change	4.28	6.35	2.07	
0070 & 0120	Caster Mold - Casters #1 & #2	2,413,406	3,580,000	tons of molten steel/year	PM	0.006	0.006	lb/ton of steel	No change	7.24	10.74	3.50	
0071 & 0119	Continuous Casters #1 & #2 - Spray Chamber	2,413,406	3,580,000	tons of molten steel/year	PM	0.00852	0.00852	lb/ton of steel	No change	10.28	15.25	4.97	
0072 & 0118	Slab Cutoff Casters #1 & #2	2,413,406	3,580,000	tons of molten steel/year	PM	0.0071	0.0071	lb/ton of steel	No change	8.57	12.71	4.14	
73	Slab Ripping Casters #1 & #2	2,413,406	3,580,000	tons of molten steel/year	PM	0.00722	0.00722	lb/ton of steel	No change	8.71	12.92	4.21	
	Continuous Casting Operations				PM					47.71	70.78		23.06
	Combined BFG in stoves, B11 & B12, ladle preheaters, and BFG flares	121,039	185,030	MMcf	PM	2.90	2.90	lb/MMcf	No change	175.51	268.30	92.79	
	Combined NG in stoves, B11 & B12, ladle preheaters, and BFG flares	1,145	1,980	MMcf	PM	1.9	1.9	lb/MMcf	AP-42 Revised Filt. PM Factor	1.09	1.88	0.79	
	Combined FO in stoves, B11 & B12, ladle preheaters, and BFG flares	16	365	Mgal	PM	9.72	9.72	lb/Mgal	No change	0.08	1.77	1.70	
	Certain Fuel Burning Emissions Units				PM					176.68	271.95		95.28
9003	Iron Pellet Screen	2,803,241	4,308,581	tons of charge material/year	PM	0.00375	0.00375	lb/ton of material	USS representation of 85% control to crushed stone EF	5.26	8.08	2.82	
	BOF Hopper Baghouse	2,413,406	3,580,000	tons of molten steel/year	PM	0.00032	0.00032	lb/ton of steel	No change	0.39	0.57	0.19	
0037	Flux Conv. & Transfer Points Bin Floor - BOF	2,413,406	3,580,000	tons of molten steel/year	PM	0.0016	0.0016	lb/ton of steel	No change	1.93	2.86	0.93	
	Material Handling Operations at BF and BOF				PM					7.57	11.52		3.94
					Total PM						1,072.88	219.79	-50.53

USS Granite City
Revised PM10 Actual

Point	Emission Point	Past Throughput	Units	Pollutant	Original Emission Factor	Updated Emission Factor	Units	Basis	Original Baseline Emissions (TPY)	Revised Baseline Emissions (TPY)
0005 & 0010	A & B Blast Furnace Casthouse Fugitives	2,059,557	tons of hot metal/year	PM10	0.0155	0.0153	lb/ton of hot metal	Correction to calculation minor change	15.96	15.76
0006 & 0011	A & B Blast Furnace Charging	2,803,241	tons of charge material/year	PM10	0.0024	0.0012	lb/ton of material	Applied AP-42 Ch 13.2.4 ratio of 48% for PM10 vs PM	3.36	1.68
0007 & 0012	A & B Blast Furnace Casthouse Baghouse	2,059,557	tons of hot metal/year	PM10	0.07026	0.07026	lb/ton of hot metal	No change	72.35	72.35
113	Blast Furnace Slag Pits	2,059,557	tons of hot metal/year	PM10	0.00417	0.00417	lb/ton of hot metal	No change	4.29	4.29
	Iron Spout Baghouse	2,059,557	tons of hot metal/year	PM10	0.02548	0.02548	lb/ton of hot metal	No change	26.24	26.24
	Blast Furnace Operations			PM10					122.21	120.32
0033	BOF 2 Vessels	2,413,406	tons of molten steel/year	PM10	0.16	0.16	lb/ton of steel	No change	193.07	193.07
0034	BOF Roof Monitor	2,413,406	tons of molten steel/year	PM10	0.287	0.287	lb/ton of steel	No change	346.20	346.20
0107 & 0035	Desulfurization Station [inside BOF shop] & Transfer Pit	2,059,557	tons of hot metal/year	PM10	0.03721	0.03721	lb/ton of hot metal	No change	38.32	38.32
0040	Hot Metal Charging Ladle Slag Skimmer	2,059,557	tons of hot metal/year	PM10	0.00502	0.00502	lb/ton of hot metal	No change	5.17	5.17
	BOF Shop			PM10					582.76	582.76
0103, 0104 & 0121	Argon Stirring #1 & #2 Material Handling Tripper	2,413,406	tons of molten steel/year	PM10	0.00715	0.00715	lb/ton of steel	No change	8.63	8.63
0105 & 0106	Deslagging Station & Material HS	2,413,406	tons of molten steel/year	PM10	0.00355	0.00355	lb/ton of steel	No change	4.28	4.28
0070 & 0120	Caster Mold - Casters #1 & #2	2,413,406	tons of molten steel/year	PM10	0.006	0.006	lb/ton of steel	No change	7.24	7.24
0071 & 0119	Continuous Casters #1 & #2 - Spray Chamber	2,413,406	tons of molten steel/year	PM10	0.00852	0.00852	lb/ton of steel	No change	10.28	10.28
0072 & 0118	Slab Cutoff Casters #1 & #2	2,413,406	tons of molten steel/year	PM10	0.0071	0.0071	lb/ton of steel	No change	8.57	8.57
73	Slab Ripping Casters #1 & #2	2,413,406	tons of molten steel/year	PM10	0.00722	0.00722	lb/ton of steel	No change	8.71	8.71
	Continuous Casting Operations			PM10					47.71	47.71
	Combined BFG in stoves, B11 & B12, ladle preheaters, and BFG flares	121,039	MMcf	PM10	2.90	2.90	lb/MMcf	No change	175.51	175.51
	Combined NG in stoves, B11 & B12, ladle preheaters, and BFG flares	1,145	MMcf	PM10	5.1	1.9	lb/MMcf	AP-42 Revised Filt. PM Factor	2.92	1.09
	Combined FO in stoves, B11 & B12, ladle preheaters, and BFG flares	16	Mgal	PM10	9.72	9.72	lb/Mgal	No change	0.08	0.08
	Certain Fuel Burning Emissions Units			PM10					178.51	176.68
9003	Iron Pellet Screen	2,803,241	tons of charge material/year	PM10	0.00279	0.00131	lb/ton of material	85% control to crushed stone screen EF in AP-42 Table 11.19.2-2	3.91	1.83
	BOF Hopper Baghouse	2,413,406	tons of molten steel/year	PM10	0.00032	0.00032	lb/ton of steel	No change	0.39	0.39
0037	Flux Conv. & Transfer Points Bin Floor - BOF	2,413,406	tons of molten steel/year	PM10	0.0016	0.0016	lb/ton of steel	No change	1.93	1.93
	Material Handling Operations at BF and BOF			PM10					6.23	4.15
				Total PM10					937.42	931.62

USS Granite City
Revised PM10 Analysis

Point	Emission Point	Past Throughput	Future Throughput	Units	Pollutant	Updated Emission Factor	Future Emission Factor	Units	Basis	Baseline Emissions (TPY)	Future Emissions (TPY)	Emissions Increase (TPY)	Emissions Change (TPY)
0005 & 0010	A & B Blast Furnace Casthouse Fugitives	2,059,557	3,165,000	tons of hot metal/year	PM10	0.0153	0.0153	lb/ton of hot metal	Correction to calculation minor change	15.76	24.21	48.19	
0006 & 0011	A & B Blast Furnace Charging	2,803,241	4,308,581	tons of charge material/year	PM10	0.0012	0.0012	lb/ton of material	USS representation includes basis for EF	1.68	2.59		
0007 & 0012	A & B Blast Furnace Casthouse Baghouse	2,059,557	3,165,000	tons of hot metal/year	PM10	0.07026	0.07026	lb/ton of hot metal	No change	72.35	111.19		
113	Blast Furnace Slag Pits	2,059,557	3,165,000	tons of hot metal/year	PM10	0.00417	0.00417	lb/ton of hot metal	No change	4.29	6.60	2.30	
	Iron Spout Baghouse	2,059,557	3,165,000	tons of hot metal/year	PM10	0.02548	0.02548	lb/ton of hot metal	No change	26.24	40.32	14.08	
	Blast Furnace Operations				PM10					120.32	184.90		64.58
0033	BOF 2 Vessels	2,413,406	3,580,000	tons of molten steel/year	PM10	0.16	0.16	lb/ton of steel	Using 60 lb/hour for PTE	193.07	262.80	0.00	
0034	BOF Roof Monitor	2,413,406	3,580,000	tons of molten steel/year	PM10	0.287	0.066	lb/ton of steel	No change	346.20	118.40		
0107 & 0035	Desulfurization Station [inside BOF shop] & Transfer Pit	2,059,557	3,165,000	tons of hot metal/year	PM10	0.03721	0.03721	lb/ton of hot metal	No change	38.32	58.88	20.57	
0040	Hot Metal Charging Ladle Slag Skimmer	2,059,557	3,165,000	tons of hot metal/year	PM10	0.00502	0.00502	lb/ton of hot metal	No change	5.17	7.94	2.77	
	BOF Shop				PM10					582.76	448.03		-134.74
0103, 0104 & 0121	Argon Stirring #1 & #2 Material Handling Tripper	2,413,406	3,580,000	tons of molten steel/year	PM10	0.00715	0.00715	lb/ton of steel	No change	8.63	12.80	4.17	
0105 & 0106	Deslagging Station & Material HS	2,413,406	3,580,000	tons of molten steel/year	PM10	0.00355	0.00355	lb/ton of steel	No change	4.28	6.35	2.07	
0070 & 0120	Caster Mold - Casters #1 & #2	2,413,406	3,580,000	tons of molten steel/year	PM10	0.006	0.006	lb/ton of steel	No change	7.24	10.74	3.50	
0071 & 0119	Continuous Casters #1 & #2 - Spray Chamber	2,413,406	3,580,000	tons of molten steel/year	PM10	0.00852	0.00852	lb/ton of steel	No change	10.28	15.25	4.97	
0072 & 0118	Slab Cutoff Casters #1 & #2	2,413,406	3,580,000	tons of molten steel/year	PM10	0.0071	0.0071	lb/ton of steel	No change	8.57	12.71	4.14	
73	Slab Ripping Casters #1 & #2	2,413,406	3,580,000	tons of molten steel/year	PM10	0.00722	0.00722	lb/ton of steel	No change	8.71	12.92	4.21	
	Continuous Casting Operations				PM10					47.71	70.78		23.06
	Combined BFG in stoves, B11 & B12, ladle preheaters, and BFG flares	121,039	185,030	MMcf	PM10	2.90	2.90	lb/MMcf	No change	175.51	268.30	92.79	
	Combined NG in stoves, B11 & B12, ladle preheaters, and BFG flares	1,145	1,980	MMcf	PM10	1.9	1.9	lb/MMcf	AP-42 Revised Filt. PM Factor	1.09	1.88	0.79	
	Combined FO in stoves, B11 & B12, ladle preheaters, and BFG flares	16	365	Mgal	PM10	9.72	9.72	lb/Mgal	No change	0.08	1.77	1.70	
	Certain Fuel Burning Emissions Units				PM10					176.68	271.95		95.28
9003	Iron Pellet Screen	2,803,241	4,308,581	tons of charge material/year	PM10	0.001305	0.00131	lb/ton of material	USS representation of 85% control to crushed stone EF	1.83	2.81	0.98	
	BOF Hopper Baghouse	2,413,406	3,580,000	tons of molten steel/year	PM10	0.00032	0.00032	lb/ton of steel	No change	0.39	0.57	0.19	
0037	Flux Conv. & Transfer Points Bin Floor - BOF	2,413,406	3,580,000	tons of molten steel/year	PM10	0.0016	0.0016	lb/ton of steel	No change	1.93	2.86	0.93	
	Material Handling Operations at BF and BOF				PM10					4.15	6.25		2.10
					Total PM10						981.91	208.37	50.29

USS Granite City
Net Emissions Increases

		Emissions (tons/year)	
		PM	PM10
Project Emissions Increases		220.6	209.1
Significant Emission Rates		25	15
Whether Significant?		Yes	Yes
Project Emissions Changes		-50.5	50.3
Contemporaneous Emissions Increases	Date		
Remove Blast Furnace Slag Spout Hood	Jan-1990		4.9
#2 Caster Production	Dec-1990		11.7
Installation of #8 Galvanizing Line	Mar-1996	Not contemporaneous	
Contemporaneous Emissions Decreases			
Ingot Teeming Shutdown	Apr-1991	-22.4	-22.4
Blooming Mill Shutdown	Apr-1991	-3.4	-3.4
NESHAP Controls Coke By-product	Jul-1991		
Batch Annealing Shutdown	Dec-1991	-0.2	-0.2
Road and Material Handling Fugitive Dust Controls	Nov-1991	-32	-32
Project Net Emissions Increases		-108.53	8.89
Whether Significant?		No	No

Date of complete permit application under Rule 203	1/3/1995		
Date Project implemented/operation started	1/25/1996	Same as permit issuance date as permit was for operational changes by revising production limits.	
Contemporaneous Period	1/4/1990	to	1/25/1996

USS Granite City
Revised NO_X Actual

Point	Emission Point	Past Throughput	Units	Pollutant	Original Emission Factor	Updated Emission Factor	Units	Basis	Original Baseline Emissions (tons/year)	Revised Baseline Emissions (tons/year)
0005 & 0010	A & B Blast Furnace Casthouse Fugitives	2,059,557	tons of hot metal/year	NO_X	0.0007	0.0001	lb/ton of hot metal	3/2012 test assuming no NOx control and 5% fugitive	0.74	0.15
0007 & 0012	A & B Blast Furnace Casthouse Baghouse	2,059,557	tons of hot metal/year	NO_X	0.0144	0.0027	lb/ton of hot metal	3/2012 test	14.83	2.78
	Iron Spout Baghouse	2,059,557	tons of hot metal/year	NO_X	0.0000	0.0016	lb/ton of hot metal	3/2012 test	0.00	1.65
	Blast Furnace Operations			NO_X					15.57	4.57
0033	BOF 2 Vessels	2,413,406	tons of molten steel/year	NO_X	0.0389	0.1503	lb/ton of steel	Average of 4/2012, 7/2012, 11/2014 test results	46.94	181.33
	BOF Shop			NO_X					46.94	181.33
0070 & 0120	Caster Mold - Casters #1 & #2	2,413,406	tons of molten steel/year	NO_X	0.0500	0.0000	lb/ton of steel	All NOx formed is from natural gas usage; emissions are accounted for separately.	60.34	0.00
	Continuous Casting Operations			NO_X					60.34	0.00
	Combined BFG in BFG Flare	26,132	MMcf	NO_X	5.2800	5.2800	lb/MMcf	No change	68.99	68.99
	Combined BFG in stoves	44,977	MMcf	NO_X	5.2800	5.2800	lb/MMcf	No change	118.74	118.74
	Combined BFG in Boilers B11 & B12 and BH1	49,930	MMcf	NO_X	5.2800	5.2800	lb/MMcf	No change	131.82	131.82
	Combined NG in stoves, B11 & B12, ladle preheaters, and BFG flares	1,145	MMcf	NO_X	306.0	306.0	lb/MMcf	No change	175.19	175.19
	Combined FO in stoves, B11 & B12, ladle preheaters, and BFG flares	16	Mgal	NO_X	55.00	55.00	lb/Mgal	No change	0.44	0.44
	Certain Fuel Burning Emissions Units			NO_X					495.17	495.17
	Total								618.01	681.07

USS Granite City
Revised NO_X Analysis

Point	Emission Point	Past Throughput	Future Throughput	Units	Pollutant	Updated Emission Factor	Future Emission Factor	Units	Basis	Baseline Emissions (tons/year)	Future Emissions (tons/year)	Emissions Increase (tons/year)	Emissions Change (tons/year)
0005 & 0010	A & B Blast Furnace Casthouse Fugitives	2,059,557	3,165,000	tons of hot metal/year	NO_X	0.0001	0.0001	lb/ton of hot metal	3/2012 test assuming no NOx control and 5% fugitive	0.15	0.22	2.46	
0007 & 0012	A & B Blast Furnace Casthouse Baghouse	2,059,557	3,165,000	tons of hot metal/year	NO_X	0.0027	0.0027	lb/ton of hot metal	3/2012 test	2.78	4.27		
	Iron Spout Baghouse	2,059,557	3,165,000	tons of hot metal/year	NO_X	0.0016	0.0016	lb/ton of hot metal	3/2012 test	1.65	2.53		
	Blast Furnace Operations				NO_X					4.57	7.03		2.46
0033	BOF 2 Vessels	2,413,406	3,580,000	tons of molten steel/year	NO_X	0.1503	0.1700	lb/ton of steel	Average of 4/2012, 7/2012, 11/2014 test results used for baseline; 11/2014 test result used for projection	181.33	304.30	122.97	
	BOF Shop				NO_X					181.33	304.30		122.97
0070 & 0120	Caster Mold - Casters #1 & #2	2,413,406	3,580,000	tons of molten steel/year	NO_X	0.0000	0.0000	lb/ton of steel	All NOx formed is from natural gas usage; emissions are accounted for separately.	0.00	0.00	0.00	
	Continuous Casting Operations				NO_X					0.00	0.00		0.00
	BFG in BFG flare	26,132	39,947	MMcf	NO_X	5.2800	5.2800	lb/MMcf	No change	68.99	105.46	36.47	
	Combined BFG in stoves	44,977	68,755	MMcf	NO_X	5.2800	5.2800	lb/MMcf		118.74	181.51	62.78	
	Combined BFG in Boilers B11 & B12 and BH1	49,930	76,327	MMcf	NO_X	5.2800	5.2800	lb/MMcf		131.82	201.50	69.69	
	Combined NG in stoves, B11 & B12 (past), ladle preheaters, and BFG flares	1,145	340	MMcf	NO_X	306.0	306.0	lb/MMcf		175.19	52.02	0.00	
	B11 (Future)		820	MMcf	NO_X		100.0	lb/MMcf	No change made to baseline factor. Post-project weighted average emission factor reflects current controls. (Limit in 35 IAC 217.164 for boilers is 0.084 lb/MMBtu; boilers were retrofitted with FGR to comply.)		41.00	41.00	
	B12 (Future)		820	MMcf	NO_X		100.0	lb/MMcf	No change made to baseline factor. Post-project weighted average emission factor reflects current controls. (Limit in 35 IAC 217.164 for boilers is 0.084 lb/MMBtu; boilers were retrofitted with FGR to comply.)		41.00	41.00	
	Combined FO in stoves, B11 & B12, ladle preheaters, and BFG flares	16	365	Mgal	NO_X	55.00	55.00	lb/Mgal	No change	0.44	10.04	9.60	
	Certain Fuel Burning Emissions Units				NO_X					495.17	632.54		137.37
					Total NO_X					681	944	385.96	262.80

USS Granite City
Net Emissions Increases

		NOx
Project Emissions Increases		386.0
Significant Emission Rates		40
Whether Significant?		Yes
Project Emissions Changes		262.8
Contemporaneous Emissions Increases	Date	
Installation of #8 Galvanizing Line	Mar-1996	Not contemporaneous
Contemporaneous Emissions Decreases		
Blooming Mill Shutdown	Apr-1991	-217.8
Batch Annealing Shutdown	Dec-1991	-8.7
Project Net Emissions Increases		36.30
Whether Significant?		No

Date of complete permit application under Rule 203	1/3/1995	
Date Project implemented/operation started	1/25/1996	Same as permit issuance date as permit was for operational changes by revising production limits.
Contemporaneous Period	1/4/1990	to 1/25/1996

USS Granite City
Revised VOM Analysis

Point	Emission Point	Past Throughput	Units	Pollutant	Original Emission Factor	Updated Emission Factor	Units	Basis	Original Baseline Emissions (tons/year)	Revised Baseline Emissions (tons/year)
0005 & 0010	A & B Blast Furnace Casthouse Fugitives	2,059,557	tons of hot metal/year	VOM	0.00469	0.0006807	lb/ton of hot metal	3/2012 test assuming no VOM control and 5% fugitive	4.83	0.70
0007 & 0012	A & B Blast Furnace Casthouse Baghouse	2,059,557	tons of hot metal/year	VOM	0.09458	0.01293	lb/ton of hot metal	3/2012 test	97.40	13.32
	Iron Spout Baghouse	2,059,557	tons of hot metal/year	VOM	0.0000	0.0021	lb/ton of hot metal	3/2012 test	0.00	2.14
	Blast Furnace Operations			VOM					102.23	16.16
0033	BOF 2 Vessels	2,413,406	tons of molten steel/year	VOM	0.0060	0.0186	lb/ton of steel	Average of 4/2012, 7/2012, 11/2014 test results used for baseline;	7.24	22.40
0107 & 0035	Desulfurization Station [inside BOF shop] & Transfer Pit	2,059,557	tons of hot metal/year	VOM	0.00100	0.00187	lb/ton of hot metal	5/2012 test	1.03	1.93
	BOF Shop			VOM					8.27	24.33
	Combined BFG in stoves, B11 & B12, ladle preheaters, and BFG flares	121,039	MMcf	VOM	0.0	0.2	lb/MMcf	Updated from Cogen Permit	0.00	14.52
	Combined NG in stoves, B11 & B12, ladle preheaters, and BFG flares	1,145	MMcf	VOM	2.8	5.5	lb/MMcf	1998 update to AP-42 Section 1.4	1.60	3.15
	Combined FO in stoves, B11 & B12, ladle preheaters, and BFG flares	16	Mgal	VOM	0.28	0.28	lb/Mgal	No change	0.00	0.00
	Certain Fuel Burning Emissions Units			VOM					1.61	17.68
	Total								112.10	58.17

USS Granite City
Revised VOM Analysis

Point	Emission Point	Past Throughput	Future Throughput	Units	Pollutant	Updated Emission Factor	Future Emission Factor	Units	Basis	Baseline Emissions (tons/year)	Future Emissions (tons/year)	Emissions Increase (tons/year)	Emissions Change (tons/year)
0005 & 0010	A & B Blast Furnace Casthouse Fugitives	2,059,557	3,165,000	tons of hot metal/year	VOM	0.0006807	0.0006807	lb/ton of hot metal	3/2012 test assuming no VOM control and 5% fugitive	0.70	1.08	8.67	
0007 & 0012	A & B Blast Furnace Casthouse Baghouse	2,059,557	3,165,000	tons of hot metal/year	VOM	0.01293	0.01293	lb/ton of hot metal	3/2012 test	13.32	20.47		
	Iron Spout Baghouse	2,059,557	3,165,000	tons of hot metal/year	VOM	0.00208	0.00208	lb/ton of hot metal	3/2012 test	2.14	3.29		
	Blast Furnace Operations				VOM					16.16	24.84		8.67
0033	BOF 2 Vessels	2,413,406	3,580,000	tons of molten steel/year	VOM	0.0186	0.0230	lb/ton of steel	Average of 4/2012, 7/2012, 11/2014 test results used for baseline; 11/2014 test result used for projection	22.40	41.17	18.77	
0107 & 0035	Desulfurization Station [inside BOF shop] & Transfer Pit	2,059,557	3,165,000	tons of hot metal/year	VOM	0.00187	0.00187	lb/ton of hot metal	5/2012 test	1.93	2.96	1.03	
	BOF Shop				VOM					24.33	44.13		19.80
	Combined BFG in stoves, B11 & B12, ladle preheaters, and BFG flares	121,039	185,030	MMcf	VOM	0.2	0.2	lb/MMcf	Updated from Cogen Permit	14.52	22.20	7.68	
	Combined NG in stoves, B11 & B12, ladle preheaters, and BFG flares	1,145	340	MMcf	VOM	5.5	5.5	lb/MMcf	1998 update to AP-42 Section 1.4	3.15	0.94	2.30	
	B11		820	MMcf	VOM		5.5	lb/MMcf	1998 update to AP-42 Section 1.4		2.26	Included above	
	B12		820	MMcf	VOM		5.5	lb/MMcf	1998 update to AP-42 Section 1.4		2.26	Included above	
	Combined FO in stoves, B11 & B12, ladle preheaters, and BFG flares	16	365	Mgal	VOM	0.28	0.28	lb/Mgal	No change	0.002	0.051	0.05	
	Certain Fuel Burning Emissions Units				VOM					17.68	27.70		10.02
					Total VOM					58.2	96.7	38.50	38.50

USS Granite City
Net Emissions Increases

		Emissions (tons/year) VOM	
Project Emissions Increases		38.5	
Significant Emission Rates		40	
Whether Significant?		No	
Project Emissions Changes		38.5	
Contemporaneous Emissions Increases	Date		
Remove Blast Furnace Slag Spout Hood	Jan-1990		
#2 Caster Production	Dec-1990		
Installation of #8 Galvanizing Line	Mar-1996	Not contemporaneous	
Contemporaneous Emissions Decreases			
Blooming Mill Shutdown	Apr-1991	-0.9	
NESHAP Controls Coke By-product	Jul-1991	-31.6	
Batch Annealing Shutdown	Dec-1991	-0.3	
Road and Material Handling Fugitive Dust Controls	Nov-1991		
Project Net Emissions Increases		38.50	
Whether Significant?		No	
Date of complete permit application under Rule 203	1/3/1995		
Date Project implemented/operation started	1/25/1996	Same as permit issuance date as permit was for operational changes by revising production limits.	
Contemporaneous Period	1/4/1990	to	1/25/1996

Emissions Calculations Included in the 1995 Construction Permit Application

Projected Emissions Based On: Blast Furnace @ 8,571NTPD
BOF @ 9,808 NTPD

TABLE 3-1
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - CO

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	13.7	lb/MMcf	22,774	MMcf	156.00	included in line 17	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	13.7	lb/MMcf	22,203	MMcf	152.09	included in line 17	-	-	-
3	0008	01	Blast Furnace Gas Flare - BFG	13.7	lb/MMcf	26,132	MMcf	179.00	included in line 17	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	13.7	lb/MMcf	37,501	MMcf	256.88	included in line 17	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	40	lb/MMcf	361	MMcf	7.22	included in line 16	-	-	-
6	0044	01	Boiler #11 - BFG	13.7	lb/MMcf	5,323	MMcf	36.46	included in line 17	-	-	-
7	0044	91	Boiler #11 - NG	40	lb/MMcf	226	MMcf	4.52	included in line 16	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	5.0	lb/Mgal	15.00	Mgal	0.04	included in line 18	-	-	-
9	0048	01	Boiler #12 - BFG	13.7	lb/MMcf	7,106	MMcf	48.68	included in line 17	-	-	-
10	0048	91	Boiler #12 - NG	40	lb/MMcf	218	MMcf	4.36	included in line 16	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	5.0	lb/Mgal	1.00	Mgal	0.00	included in line 18	-	-	-
12	0033	01	BOF 2 Vessels	8.993	lb/ton proc.	2,413,406	ton proc.	10,851.88	3,580,000	ton proc.	16,097.47	5,245.59
13	0038	01	BOF Preheaters/Dryers - NG	40	lb/MMcf	283	MMcf	5.66	included in line 16	-	-	-
14	0071 & 0119	01	Continuous Casters #1 & #2 - NG	40	lb/MMcf	57	MMcf	1.14	included in line 16	-	-	-
15			Natural Gas	40	lb/MMcf	1,145	MMcf	inc. above	1,145	MMcf	22.90	-
16			Blast Furnace Gas	13.7	lb/MMcf	121,039	MMcf	inc. above	185,030	MMcf	1,267.46	-
17			Fuel Oil	5.0	lb/Mgal	16	Mgal	inc. above	365	Mgal	0.91	-
	TOTALS:							**11,703.94**			**17,388.74**	**5,684.80**
			Contemporaneous Changes									(11.51)
			Net Change									***5,673.29***

TABLE 3-1
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - CO

Projected Emissions Based On: Blast Furnace @ 8,671NTPD
BOF @ 9,808 NTPD

9849 NTPD/mth
11,000 NTPD/mth

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	13.7	lb/MMcf	22,774	MMcf	156.00	included in line 17	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	13.7	lb/MMcf	22,203	MMcf	152.09	included in line 17	-	-	-
3	0008	01	Blast Furnace Gas Flare - BFG	13.7	lb/MMcf	26,132	MMcf	179.00	included in line 17	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	13.7	lb/MMcf	37,501	MMcf	256.88	included in line 17	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	40	lb/MMcf	361	MMcf	7.22	included in line 16	-	-	-
6	0044	01	Boiler #11 - BFG	13.7	lb/MMcf	5,323	MMcf	36.46	included in line 17	-	-	-
7	0044	91	Boiler #11 - NG	40	lb/MMcf	226	MMcf	4.52	included in line 16	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	5.0	lb/Mgal	15.00	Mgal	0.04	included in line 18	-	-	-
9	0048	01	Boiler #12 - BFG	13.7	lb/MMcf	7,106	MMcf	48.68	included in line 17	-	-	-
10	0048	91	Boiler #12 - NG	40	lb/MMcf	218	MMcf	4.36	included in line 16	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	5.0	lb/Mgal	1.00	Mgal	0.00	included in line 18	-	-	-
12	0033	01	BOF 2 Vessels	8.993	lb/ton proc.	2,413,406	ton proc.	10,851.88	3,580,000	ton proc.	16,097.47	5,245.59
13	0038	01	BOF Preheaters/Dryers - NG	40	lb/MMcf	283	MMcf	5.66	included in line 16	-	-	-
14	0071 & 0119	01	Continuous Casters #1 & #2 - NG	40	lb/MMcf	57	MMcf	1.14	included in line 16	-	-	-
15			Natural Gas	40	lb/MMcf	1,145	MMcf	inc. above	1,145	MMcf	22.90	-
16			Blast Furnace Gas	13.7	lb/MMcf	121,039	MMcf	inc. above	185,030	MMcf	1,267.46	-
17			Fuel Oil	5.0	lb/Mgal	16	Mgal	inc. above	365	Mgal	0.91	-
	TOTALS:							**11,703.94**			**17,388.74**	**5,684.80**
			Contemporaneous Changes								(11.51)	(13.11)
			Net Change								~~5,671.69~~	
											5673.29	

Projected Emissions Based On: Blast Furnace @2,971NTPD
BOF @ 9,808 NTPD

TABLE 3-2
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - NOx

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy	
1	0004	01	"A" Blast Furnace Stoves - BFG	5.28	lb/MMcf	22,774	MMcf	60.12	Included in Line 20	-	-	-	
2	0009	01	"B" Blast Furnace Stoves - BFG	5.28	lb/MMcf	22,203	MMcf	58.62	Included in Line 20	-	-	-	
3	0008	01	Blast Furnace Gas Flare - BFG	5.28	lb/MMcf	26,132	MMcf	68.99	Included in Line 20	-	-	-	
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	5.28	lb/MMcf	37,501	MMcf	99.00	Included in Line 20	-	-	-	
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	306	lb/MMcf	361	MMcf	55.23	Included in Line 19	-	-	-	
6	0044	01	Boiler #11 - BFG	5.28	lb/MMcf	5,323	MMcf	14.05	Included in Line 20	-	-	-	
7	0044	91	Boiler #11 - NG	306	lb/MMcf	226	MMcf	34.58	Included in Line 19	-	-	-	
8	0044	92	Boiler #11 - Fuel Oil	55	lb/Mgal	15.00	Mgal	0.41	Included in Line 21	-	-	-	
9	0048	01	Boiler #12 - BFG	5.28	lb/MMcf	7,106	MMcf	18.76	Included in Line 20	-	-	-	
10	0048	91	Boiler #12 - NG	306	lb/MMcf	218	MMcf	33.35	Included in Line 19	-	-	-	
11	0048	92	Boiler #12 - Fuel Oil	55	lb/Mgal	1.00	Mgal	0.03	Included in Line 21	-	-	-	
12	0033	01	BOF 2 Vessels	0.0389	lb/ton proc.	2,413,406	tons proc.	46.94	3,580,000	ton proc.	69.63	X -	+22.69
13	0038	01	BOF Preheaters/Dryers - NG	306	lb/MMcf	283	MMcf	43.30	Included in Line 19	-	-	-	
14	0007 & 0012	01	"A" & "B" Blast Furnace - Casthouse	0.01440	lb/ton proc.	2,059,557	tons proc.	14.83	3,165,000	tons proc.	22.79	X -	.796
15	0005 & 0010	01	"A" & "B" Blast Furnace - Uncaptured Roof Emiss.	0.00072	lb/ton proc.	2,059,557	tons proc.	0.74	3,165,000	tons proc.	1.14	-	0.4
16	0070 &0120	01	Caster Mold - Casters #1 & #2	0.05	lb/ton prod.	2,413,406	tons prod.	60.34	3,580,000	ton prod.	89.50	X -	29.16
17	0071 & 0119	01	Continuous Casters #1 & #2 - NG	306	lb/MMcf	57	MMcf	8.72	Included in Line 19	-	-	-	60.21
18			Natural Gas	306	lb/MMcf	1,145	MMcf	inc. above	1,145	MMcf	175.19	-	
19			Blast Furnace Gas	5.28	lb/MMcf	121,039	MMcf	inc. above	185,030	MMcf	488.48	+ 168.94	52.8%
20			Fuel Oil	55	lb/Mgal	16	Mgal	inc. above	365	Mgal	10.04	+ 9.59	
	TOTALS:							618.01			856.76	238.75	229.15
			Contemperaneous Changes									(200.54)	
			Net Change									***38.21***	

+15%

TABLE 3-2
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - NOx

Projected Emissions Based On: Blast Furnace @8,671NTPD
BOF @ 9,808 NTPD

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	5.28	lb/MMcf	22,774	MMcf	60.12	Included in Line 20	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	5.28	lb/MMcf	22,203	MMcf	58.62	Included in Line 20	-	-	-
3	0008	01	Blast Furnace Gas Flare - BFG	5.28	lb/MMcf	26,132	MMcf	68.99	Included in Line 20	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	5.28	lb/MMcf	37,501	MMcf	99.00	Included in Line 20	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	306	lb/MMcf	361	MMcf	55.23	Included in Line 19	-	-	-
6	0044	01	Boiler #11 - BFG	5.28	lb/MMcf	5,323	MMcf	14.05	Included in Line 20	-	-	-
7	0044	91	Boiler #11 - NG	306	lb/MMcf	226	MMcf	34.58	Included in Line 19	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	55	lb/Mgal	15.00	Mgal	0.41	Included in Line 21	-	-	-
9	0048	01	Boiler #12 - BFG	5.28	lb/MMcf	7,106	MMcf	18.76	Included in Line 20	-	-	-
10	0048	91	Boiler #12 - NG	306	lb/MMcf	218	MMcf	33.35	Included in Line 19	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	55	lb/Mgal	1.00	Mgal	0.03	Included in Line 21	-	-	-
12	0033	01	BOF 2 Vessels	0.0389	lb/ton proc.	2,413,406	tons proc.	46.94	3,580,000	ton proc.	69.63	-
13	0038	01	BOF Preheaters/Dryers - NG	306	lb/MMcf	283	MMcf	43.30	Included in Line 19	-	-	-
14	0007 & 0012	01	"A" & "B" Blast Furnace - Casthouse	0.01440	lb/ton proc.	2,059,557	tons proc.	14.83	3,165,000	tons proc.	22.79	-
15	0005 & 0010	01	"A" & "B" Blast Furnace - Uncaptured Roof Emiss.	0.00072	lb/ton proc.	2,059,557	tons proc.	0.74	3,165,000	tons proc.	1.14	-
16	0070 &0120	01	Caster Mold - Casters #1 & #2	0.05	lb/ton prod.	2,413,406	tons prod.	60.34	3,580,000	ton prod.	89.50	-
17	0071 & 0119	01	Continuous Casters #1 & #2 - NG	306	lb/MMcf	57	MMcf	8.72	Included in Line 19	-	-	-
18			Natural Gas	306	lb/MMcf	1,145	MMcf	inc. above	1,145	MMcf	175.19	-
19			Blast Furnace Gas	5.28	lb/MMcf	121,039	MMcf	inc. above	185,030	MMcf	488.48	-
20			Fuel Oil	55	lb/Mgal	16	Mgal	inc. above	365	Mgal	10.04	-
	TOTALS:							**618.01**			**856.76**	**238.75**
			Contemperaneous Changes								(260.57) ~~(208.14)~~	
			Net Change								(38.21) ~~30.61~~	

Projected Emissions Based On: Blast Furnace @ 8,071NTPD
BOF @ 9,808 NTPD

TABLE 3-3
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - SO2

LINE #	POINT	MODE	SOURCE OESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy	COMMENTS
1	0004	01	"A" Blast Furnace Stoves - BFG	6.65	lb/MMcf	22,774	MMcf	75.72	included in line 19	-	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	6.65	lb/MMcf	22,203	MMcf	73.82	included in line 19	-	-	-	-
3	0008	01	Blast Furnace Gas Flare - BFG	6.65	lb/MMcf	26,132	MMcf	86.89	included in line 19	-	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	6.65	lb/MMcf	37,501	MMcf	124.69	included in line 19	-	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	0.6	lb/MMcf	361	MMcf	0.11	included in line 18	-	-	-	-
6	0044	01	Boiler #11 - BFG	6.65	lb/MMcf	5,323	MMcf	17.70	included in line 19	-	-	-	-
7	0044	91	Boiler #11 - NG	0.6	lb/MMcf	226	MMcf	0.07	included in line 18	-	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	141.3	lb/Mgal	15.00	Mgal	1.06	included in line 20	-	-	-	-
9	0048	01	Boiler #12 - BFG	6.65	lb/MMcf	7,106	MMcf	23.63	included in line 19	-	-	-	-
10	0048	91	Boiler #12 - NG	0.6	lb/MMcf	218	MMcf	0.07	included in line 18	-	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	141.3	lb/Mgal	1.00	Mgal	0.07	included in line 20	-	-	-	-
12	0038	01	BOF Preheaters/Dryers - NG	0.6	lb/MMcf	283	MMcf	0.08	included in line 18	-	-	-	-
13	0007 & 0012	01	"A & B" Blast Furnace - Casthouse	0.2006	lb/ton proc.	2,059,557	tons proc.	206.57	3,165,000	tons proc.	422.00	215.43	Est. Annual Max
14	0005 & 0010	01	"A & B" Blast Furnace - Uncap. roof	0.0104	lb/ton proc.	2,059,557	tons proc.	10.71	3,165,000	tons proc.	21.94	11.23	Est. Annual Max
15	----	--	Iron Spout Baghouse	0.0073	lb/ton proc.	2,059,557	tons proc.	7.52	3,165,000	tons proc.	13.89	6.37	Est. Annual Max
16	113	1	Blast Furnace Slag Pits	0.0100	lb/ton	2,059,557	tons proc.	10.30	3,165,000	tons proc.	15.83	5.53	
17	0071 & 0119	01	Continuous Casters #1 & #2 - NG	0.6	lb/MMcf	57	MMcf	0.02	included in line 18	-	-	-	
18			Natural Gas	0.6	lb/MMcf	1,145	MMcf	-	1,145	MMcf	0.34	0.00	
19			Blast Furnace Gas	6.65	lb/MMcf	121,039	MMcf	-	185,030	MMcf	615.22	212.77	
20			Fuel Oil	141.3	lb/Mgal	16	Mgal	-	365	Mgal	25.79	24.66	
	TOTALS:							**639.03**			**1,115.01**	**475.98**	
			Contemporaneous Changes									(0.13)	
			Net Change									***475.85***	

TABLE 3-3
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - SO2

Projected Emissions Based On: Blast Furnace @ 8,671NTPD
BOF @ 9,808 NTPD

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy	COMMENTS
1	0004	01	"A" Blast Furnace Stoves - BFG	6.65	lb/MMcf	22,774	MMcf	75.72	included in line 19	-	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	6.65	lb/MMcf	22,203	MMcf	73.82	included in line 19	-	-	-	-
3	0008	01	Blast Furnace Gas Flare - BFG	6.65	lb/MMcf	26,132	MMcf	86.89	included in line 19	-	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	6.65	lb/MMcf	37,501	MMcf	124.69	included in line 19	-	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	0.6	lb/MMcf	361	MMcf	0.11	included in line 18	-	-	-	-
6	0044	01	Boiler #11 - BFG	6.65	lb/MMcf	5,323	MMcf	17.70	included in line 19	-	-	-	-
7	0044	91	Boiler #11 - NG	0.6	lb/MMcf	226	MMcf	0.07	included in line 18	-	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	141.3	lb/Mgal	15.00	Mgal	1.06	included in line 20	-	-	-	-
9	0048	01	Boiler #12 - BFG	6.65	lb/MMcf	7,106	MMcf	23.63	included in line 19	-	-	-	-
10	0048	91	Boiler #12 - NG	0.6	lb/MMcf	218	MMcf	0.07	included in line 18	-	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	141.3	lb/Mgal	1.00	Mgal	0.07	included in line 20	-	-	-	-
12	0038	01	BOF Preheaters/Dryers - NG	0.6	lb/MMcf	283	MMcf	0.08	included in line 18	-	-	-	-
13	0007 & 0012	01	"A & B" Blast Furnace - Casthouse	0.2006	lb/ton proc.	2,059,557	tons proc.	206.57	3,165,000	tons proc.	422.00	215.43	Est. Annual Max
14	0005 & 0010	01	"A & B" Blast Furnace - Uncap. roof	0.0104	lb/ton proc.	2,059,557	tons proc.	10.71	3,165,000	tons proc.	21.94	11.23	Est. Annual Max
15	---	--	Iron Spout Baghouse	0.0073	lb/ton proc.	2,059,557	tons proc.	7.52	3,165,000	tons proc.	13.89	6.37	Est. Annual Max
16	113	1	Blast Furnace Slag Pits	0.0100	lb/ton	2,059,557	tons proc.	10.30	3,165,000	tons proc.	15.83	5.53	
17	0071 & 0119	01	Continuous Casters #1 & #2 - NG	0.6	lb/MMcf	57	MMcf	0.02	included in line 18	-	-	-	
18			Natural Gas	0.6	lb/MMcf	1,145	MMcf	-	1,145	MMcf	0.34	0.00	
19			Blast Furnace Gas	6.65	lb/MMcf	121,039	MMcf	-	185,030	MMcf	615.22	212.77	
20			Fuel Oil	141.3	lb/Mgal	16	Mgal	-	365	Mgal	25.79	24.66	
	TOTALS:							**639.03**			**1,115.01**	**475.98**	
			Contemporaneous Changes								(0.13)	~~(0.18)~~	
			Net Change								475.85	~~475.80~~	

Projected Emissions Based On: Blast Furnace @ 3,571NTPD
BOF @ 9,808 NTPD

TABLE 3-4
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - PM-10

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTEO THRUPUT	UNITS	PROJECTED EMISSION FACTOR	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
3	0008	01	Blast Furnace Gas Flare - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
6	0044	01	Boiler #11 - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
7	0044	91	Boiler #11 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
8	0044	92	Boiler #11 - Fuel Oil	9.72	lb/Mgal	Included in line 40	Mgal	-	Included in line 40	-			-	-
9	0048	01	Boiler #12 - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
10	0048	91	Boiler #12 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
11	0048	92	Boiler #12 - Fuel Oil	9.72	lb/Mgal	Included in line 48	Mgal	-	Included in line 48	-			-	-
12	0033	01	BOF 2 Vessels	0.16	lb/ton proc.	2,413,406	tons proc.	193.07	8,760	hours	60	lbs/hr	262.80	69.73
13	0038	01	BOF Preheaters/Dryers - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
14	0005 & 0010	01	"A" & "B" Blast Furnace - Uncap. Fugitives	0.0155	lb/ton proc.	2,059,557	tons proc.	15.96	3,165,000	tons proc.			24.53	8.57
15	0006 & 0011	01	"A" & "B" Blast Furnace - Charging	0.0024	lb/ton pellets charged	2,803,241	tons proc.	3.36	4,308,581	tons proc.			5.17	1.81
16	0007 & 0012	01	"A" & "B" Blast Furnace - Baghouse Stack	0.0703	lb/ton proc.	2,059,557	tons proc.	72.35	3,165,000	tons proc.			111.19	38.83
17	0034	01	BOF Roof Monitor	0.287	lb/ton proc.	2,413,406	tons proc.	346.20	3,580,000	tons proc.	0.066144		118.40	(227.81)
18	0037	01	Flux Conv. & Xfer Pts., Bin Floor - BOF	0.0016	lb/ton proc.	2,413,406	tons proc.	1.93	3,580,000	tons proc.			2.86	0.93
19	0040	01	Hot Metal Chging Ladle Slag Skimmer	0.0050	lb/ton proc.	2,059,557	tons proc.	5.17	3,165,000	tons proc.			7.94	2.77

Projected Emissions Based On: Blast Furnace @ 8,671NTPD
BOF @ 9,808 NTPD

TABLE 3-4
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - PM-10

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED EMISSION FACTOR	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
3	0008	01	Blast Furnace Gas Flare - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
6	0044	01	Boiler #11 - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
7	0044	91	Boiler #11 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
8	0044	92	Boiler #11 - Fuel Oil	9.72	lb/Mgal	Included in line 40	Mgal	-	Included in line 40	-			-	-
9	0048	01	Boiler #12 - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
10	0048	91	Boiler #12 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
11	0048	92	Boiler #12 - Fuel Oil	9.72	lb/Mgal	Included in line 48	Mgal	-	Included in line 48	-			-	-
12	0033	01	BOF 2 Vessels	0.16	lb/ton proc.	2,413,406	tons proc.	193.07	8,760	hours	60	lbs/hr	262.80	69.73
13	0038	01	BOF Preheaters/Dryers - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
14	0005 & 0010	01	"A" & "B" Blast Furnace - Uncap. Fugitives	0.0155	lb/ton proc.	2,059,557	tons proc.	15.96	3,165,000	tons proc.			24.53	8.57
15	0006 & 0011	01	"A" & "B" Blast Furnace - Charging	0.0024	lb/ton pellets charged	2,803,241	tons proc.	3.36	4,308,581	tons proc.			5.17	1.81
16	0007 & 0012	01	"A" & "B" Blast Furnace - Baghouse Stack	0.0703	lb/ton proc.	2,059,557	tons proc.	72.35	3,165,000	tons proc.			111.19	38.83
17	0034	01	BOF Roof Monitor	0.287	lb/ton proc.	2,413,406	tons proc.	346.20	3,580,000	tons proc.	0.066144		118.40	(227.81)
18	0037	01	Flux Conv. & Xfer Pts., Bin Floor - BOF	0.0016	lb/ton proc.	2,413,406	tons proc.	1.93	3,580,000	tons proc.			2.86	0.93
19	0040	01	Hot Metal Chging Ladle Slag Skimmer	0.0050	lb/ton proc.	2,059,557	tons proc.	5.17	3,165,000	tons proc.			7.94	2.77

Projected Emissions Baaed On: Blast Furnace @ 8,971NTPD
BOF @ 9,808 NTPD

TABLE 3-4
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - PM-10

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED EMISSION FACTOR	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
20	0070 & 0120	01	Caster Mold - Casters #1 & #2	0.006	lb/ton prod.	2,413,406	tons prod.	7.24	3,580,000	ton prod.			10.74	3.50
21	0071 & 0119	01	Cont. Casters #1 & #2 - Spray Chamber	0.00852	lb/ton proc.	2,413,406	tons prod.	10.28	3,580,000	ton prod.			15.25	4.97
22	0071 & 0119	01	Continuous Casters #1 & #2 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
23	0072 & 0118	01	Slab Cutoff - Casters #1 & #2	0.0071	lb/ton proc.	2,413,406	tons prod.	8.57	3,580,000	ton prod.			12.71	4.14
	73	1	Slab Ripping - Casters #1 & #2	0.00722	lb/ton proc.	2,413,406	tons prod.	8.71	3,580,000	ton prod.			12.92	4.21
25	0103, 0104 & 0121	01	LMF Argon Stirring #1 & #2, Material Handling Tripper	0.00715	lb/ton proc.	2,413,406	tons prod.	8.63	3,580,000	ton prod.			12.80	4.17
26	0105 & 0106	01	Deslagging Station & Material HS	0.00355	lb/ton proc.	2,413,406	tons prod.	4.28	3,580,000	ton prod.			6.35	2.07
27			BOF Hopper Baghouse	0.00032	lb/ton proc.	2,413,406	tons proc.	0.39	3,580,000	tons proc.			0.57	0.18
28	0107 & 0035	01	Desulf. Station (inside BOF shop) & Xfer Pit	0.03721	lb/ton proc.	2,059,557	tons prod.	38.32	3,165,000	ton prod.			58.88	20.57
29	0113	01	Blast Furnace Slag Pits	0.00417	lb/ton proc.	2,059,557	tons slag	4.29	3,165,000	ton prod.			6.60	2.30
30	9003	01	Iron Pellet Screen	0.00279	lb/ton pellets charged	2,803,241	tons proc.	3.91	4,308,581	tons proc.			6.01	2.10
31		01	Iron Spout Baghouse	0.02548	lb/ton proc.	2,059,557	tons proc.	26.24	3,165,000	tons proc.			40.32	14.08
32			Road Fugitive Emissions	Included in Contemporaeous Changes. See Appendix F						-				0.00
33			Material Handling	Included in Contemporaeous Changes. See Appendix F						-				0.00
34			Unpaved Parking Lots					-		-			-	-
35			Paved Parking Lots					-		-			-	-
36			Natural Gas	5.1	lb/MMcf	1,145	MMcf	2.92	1,145	MMcf			2.92	0.00
37			Blast Furnace Gas	2.9	lb/MMcf	121,039	MMcf	175.51	185,030	MMcf			268.29	92.79
38			Fuel Oil	9.72	lb/Mgal	16	Mgal	0.08	365	Mgal			1.77	1.70
	TOTALS:							**937.42**					**989.04**	**51.62**
			Contemporaneous Changes											(37.31)
			Net Change											***14.31***

Note: Actual Emissions = Base Year Throughput * Emission Factor / 2000

Projected Actual Emissions = Projected Throughput * Emission Factor / 2000
except -
BOF Vessels Projected Actual Emissions = 60 lb/hr * 8760 hrs
BOF Roof Monitor Projected Actual Emissions = Projected Emission Factor * Projected Throughput

Projected Emissions Based On: Blast Furnace @ 8,671NTPD
BOF @ 9,808 NTPD

TABLE 3-4
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - PM-10

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED EMISSION FACTOR	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
20	0070 & 0120	01	Caster Mold - Casters #1 & #2	0.006	lb/ton prod.	2,413,406	tons prod.	7.24	3,580,000	ton prod.			10.74	3.50
21	0071 & 0119	01	Cont. Casters #1 & #2 - Spray Chamber	0.00852	lb/ton proc.	2,413,406	tons prod.	10.28	3,580,000	ton prod.			15.25	4.97
22	0071 & 0119	01	Continuous Casters #1 & #2 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
23	0072 & 0118	01	Slab Cutoff - Casters #1 & #2	0.0071	lb/ton proc.	2,413,406	tons prod.	8.57	3,580,000	ton prod.			12.71	4.14
	73	1	Slab Ripping - Casters #1 & #2	0.00722	lb/ton proc.	2,413,406	tons prod.	8.71	3,580,000	ton prod.			12.92	4.21
25	0103, 0104 & 0121	01	Argon Stirring #1 & #2, Material Handling Tripper	0.00715	lb/ton proc.	2,413,406	tons prod.	8.63	3,580,000	ton prod.			12.80	4.17
26	0105 & 0106	01	Deslagging Station & Material HS	0.00355	lb/ton proc.	2,413,406	tons prod.	4.28	3,580,000	ton prod.			6.35	2.07
27			BOF Hopper Baghouse	0.00032	lb/ton proc.	2,413,406	tons proc.	0.39	3,580,000	tons proc.			0.57	0.18
28	0107 & 0035	01	Desulf. Station (inside BOF shop) & Xfer Pit	0.03721	lb/ton proc.	2,059,557	tons prod.	38.32	3,165,000	ton prod.			58.88	20.57
29	0113	01	Blast Furnace Slag Pits	0.00417	lb/ton proc.	2,059,557	tons slag	4.29	3,165,000	ton prod.			6.60	2.30
30	9003	01	Iron Pellet Screen	0.00279	lb/ton pellets charged	2,803,241	tons proc.	3.91	4,308,581	tons proc.			6.01	2.10
31		01	Iron Spout Baghouse	0.02548	lb/ton proc.	2,059,557	tons proc.	26.24	3,165,000	tons proc.			40.32	14.08
32			Road Fugitive Emissions	Included in Contemporaneous Changes. See Appendix F						-				0.00
33			Material Handling	Included in Contemporaneous Changes. See Appendix F						-				0.00
34			Unpaved Parking Lots					-		-			-	-
35			Paved Parking Lots					-		-			-	-
36			Natural Gas	5.1	lb/MMcf	1,145	MMcf	2.92	1,145	MMcf			2.92	0.00
37			Blast Furnace Gas	2.9	lb/MMcf	121,039	MMcf	175.51	185,030	MMcf			268.29	92.79
38			Fuel Oil	9.72	lb/Mgal	16	Mgal	0.08	365	Mgal			1.77	1.70
	TOTALS:							937.42					989.04	51.62
			Contemporaneous Changes											37.16 (37.54)
			Net Change											14.46 ~~14.08~~

Note: Actual Emissions = Base Year Throughput * Emission Factor / 2000

Projected Actual Emissions = Projected Throughput * Emission Factor / 2000
except -
BOF Vessels Projected Actual Emissions = 60 lb/hr * 8760 hrs
BOF Roof Monitor Projected Actual Emissions = Projected Emission Factor * Projected Throughput

Projected Emissions Based On: Blast Furnace @ [illegible]71NTPD
BOF @ 9,808 NTPD

TABLE 3-5
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - TSP

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED EMISSION FACTOR	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
3	0008	01	Blast Furnace Gas Flare - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
6	0044	01	Boiler #11 - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
7	0044	91	Boiler #11 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
8	0044	92	Boiler #11 - Fuel Oil	9.72	lb/Mgal	Included in line 40	Mgal	-	Included in line 40	-			-	-
9	0048	01	Boiler #12 - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
10	0048	91	Boiler #12 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
11	0048	92	Boiler #12 - Fuel Oil	9.72	lb/Mgal	Included in line 48	Mgal	-	Included in line 48	-			-	-
12	0033	01	BOF 2 Vessels	0.16	lb/ton proc.	2,413,406	tons proc.	193.07	8,760	hours	60	lbs/hr	262.80	69.73
13	0038	01	BOF Preheaters/Dryers - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
14	0005 & 0010	01	"A" & "B" Blast Furnace - Uncap. Fugitives	0.031	lb/ton proc.	2,059,557	tons proc.	31.92	3,165,000	tons proc.			49.06	17.13
15	0006 & 0011	01	"A" & "B" Blast Furnace - Charging	0.0024	lb/ton pellets charged	2,803,241	tons proc.	3.36	4,308,581	tons proc.			5.17	1.81
16	0007 & 0012	01	"A" & "B" Blast Furnace - Baghouse Stack	0.0703	lb/ton proc.	2,059,557	tons proc.	72.35	3,165,000	tons proc.			111.19	38.83
17	0034	01	BOF Roof Monitor	0.428	lb/ton proc.	2,413,406	tons proc.	516.72	3,580,000	tons proc.	0.0987		176.71	(340.01)
18	0037	01	Flux Conv. & Xfer Pts., Bin Floor - BOF	0.0016	lb/ton proc.	2,413,406	tons proc.	1.93	3,580,000	tons proc.			2.86	0.93
19	0040	01	Hot Metal Chging Ladle Slag Skimmer	0.0050	lb/ton proc.	2,059,557	tons proc.	5.17	3,165,000	tons proc.			7.94	2.77

TABLE 3-5

GRANITE CITY DIVISION of NATIONAL STEEL

NETTING ANALYSIS SUMMARY - TSP

Projected Emissions Based On: Blast Furnace @ [illegible]1NTPD
BOF @ 9,808 NTPD

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED EMISSION FACTOR	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
20	0070 & 0120	01	Caster Mold - Casters #1 & #2	0.006	lb/ton prod.	2,413,406	tons prod.	7.24	3,580,000	ton prod.			10.74	3.50
21	0071 & 0119	01	Cont. Casters #1 & #2 - Spray Chamber	0.00852	lb/ton proc.	2,413,406	tons prod.	10.28	3,580,000	ton prod.			15.25	4.97
22	0071 & 0119	01	Continuous Casters #1 & #2 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
23	0072 & 0118	01	Slab Cutoff - Casters #1 & #2	0.0071	lb/ton proc.	2,413,406	tons prod.	8.57	3,580,000	ton prod.			12.71	4.14
	73	1	Slab Ripping - Casters #1 & #2	0.00722	lb/ton proc.	2,413,406	tons prod.	8.71	3,580,000	ton prod.			12.92	4.21
25	0103, 0104 & 0121	01	Argon Stirring #1 & #2, Material Handling Tripper	0.00715	lb/ton proc.	2,413,406	tons prod.	8.63	3,580,000	ton prod.			12.80	4.17
26	0105 & 0106	01	Deslagging Station & Material HS	0.00355	lb/ton proc.	2,413,406	tons prod.	4.28	3,580,000	ton prod.			6.35	2.07
27			BOF Hopper Baghouse	0.00032	lb/ton proc.	2,413,406	tons proc.	0.39	3,580,000	tons proc.			0.57	0.18
28	0107 & 0035	01	Desulf. Station (inside BOF shop) & Xfer Pit	0.03721	lb/ton proc.	2,059,557	tons prod.	38.32	3,165,000	ton prod.			58.88	20.57
29	0113	01	Blast Furnace Slag Pits	0.00417	lb/ton proc.	2,059,557	tons slag	4.29	3,165,000	ton prod.			6.60	2.30
30	9003	01	Iron Pellet Screen	0.00279	lb/ton pellets charged	2,803,241	tons proc.	3.91	4,308,581	tons proc.			6.01	2.10
31		01	Iron Spout Baghouse	0.02548	lb/ton proc.	2,059,557	tons proc.	26.24	3,165,000	tons proc.			40.32	14.08
32			Road Fugitive Emissions	Included in Contemporaeous Changes. See Appendix F						-				0.00
33			Material Handling	Included in Contemporaeous Changes. See Appendix F						-				0.00
34			Unpaved Parking Lots					-		-			-	-
35			Paved Parking Lots					-		-			-	-
36			Natural Gas	5.1	lb/MMcf	1,145	MMcf	2.92	1,145	MMcf			2.92	0.00
37			Blast Furnace Gas	2.9	lb/MMcf	121,039	MMcf	175.51	185,030	MMcf			268.29	92.79
38			Fuel Oil	9.72	lb/Mgal	16	Mgal	0.08	365	Mgal			1.77	1.70
	TOTALS:							**1,123.90**					**1,071.89**	**(52.01)**
			Contemporaneous Changes											(37.16)
			Net Change											***(89.17)***

Note: Actual Emissions = Base Year Throughput * Emission Factor / 2000

Projected Actual Emissions = Projected Throughput * Emission Factor / 2000
except -
BOF Vessels Projected Actual Emissions = 60 lb/hr * 8760 hrs
BOF Roof Monitor Projected Actual Emissions = Projected Emission Factor * Projected Throughput

TABLE 3-5
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - TSP

Projected Emissions Based On: Blast Furnace @ 8,671NTPD
BOF @ 9,808 NTPD

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED EMISSION FACTOR	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
3	0008	01	Blast Furnace Gas Flare - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
6	0044	01	Boiler #11 - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
7	0044	91	Boiler #11 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
8	0044	92	Boiler #11 - Fuel Oil	9.72	lb/Mgal	Included in line 40	Mgal	-	Included in line 40	-			-	-
9	0048	01	Boiler #12 - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
10	0048	91	Boiler #12 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
11	0048	92	Boiler #12 - Fuel Oil	9.72	lb/Mgal	Included in line 48	Mgal	-	Included in line 48	-			-	-
12	0033	01	BOF 2 Vessels	0.16	lb/ton proc.	2,413,406	tons proc.	193.07	8,760	hours	60	lbs/hr	262.80	69.73
13	0038	01	BOF Preheaters/Dryers - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
14	0005 & 0010	01	"A" & "B" Blast Furnace - Uncap. Fugitives	.03 0.0155	lb/ton proc.	2,059,557	tons proc.	15.96	3,165,000	tons proc.			24.53	8.57
15	0006 & 0011	01	"A" & "B" Blast Furnace - Charging	0.0024	lb/ton pellets charged	2,803,241	tons proc.	3.36	4,308,581	tons proc.			5.17	1.81
16	0007 & 0012	01	"A" & "B" Blast Furnace - Baghouse Stack	0.0703	lb/ton proc.	2,059,557	tons proc.	72.35	3,165,000	tons proc.			111.19	38.83
17	0034	01	BOF Roof Monitor	0.428	lb/ton proc.	2,413,406	tons proc.	516.72	3,580,000	tons proc.	0.0987		176.71	(340.01)
18	0037	01	Flux Conv. & Xfer Pts., Bin Floor - BOF	0.0016	lb/ton proc.	2,413,406	tons proc.	1.93	3,580,000	tons proc.			2.86	0.93
19	0040	01	Hot Metal Chging Ladle Slag Skimmer	0.0050	lb/ton proc.	2,059,557	tons proc.	5.17	3,165,000	tons proc.			7.94	2.77

Projected Emissions Based On: Blast Furnace @ 8,671NTPD
BOF @ 9,808 NTPD

TABLE 3-5
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - TSP

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED EMISSION FACTOR	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
20	0070 & 0120	01	Caster Mold - Casters #1 & #2	0.006	lb/ton prod.	2,413,406	tons prod.	7.24	3,580,000	ton prod.			10.74	3.50
21	0071 & 0119	01	Cont. Casters #1 & #2 - Spray Chamber	0.00852	lb/ton proc.	2,413,406	tons prod.	10.28	3,580,000	ton prod.			15.25	4.97
22	0071 & 0119	01	Continuous Casters #1 & #2 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
23	0072 & 0118	01	Slab Cutoff - Casters #1 & #2	0.0071	lb/ton proc.	2,413,406	tons prod.	8.57	3,580,000	ton prod.			12.71	4.14
	73	1	Slab Ripping - Casters #1 & #2	0.00722	lb/ton proc.	2,413,406	tons prod.	8.71	3,580,000	ton prod.			12.92	4.21
25	0103, 0104 & 0121	01	Argon Stirring #1 & #2, Material Handling Tripper	0.00715	lb/ton proc.	2,413,406	tons prod.	8.63	3,580,000	ton prod.			12.80	4.17
26	0105 & 0106	01	Deslagging Station & Material HS	0.00355	lb/ton proc.	2,413,406	tons prod.	4.28	3,580,000	ton prod.			6.35	2.07
27			BOF Hopper Baghouse	0.00032	lb/ton proc.	2,413,406	tons proc.	0.39	3,580,000	tons proc.			0.57	0.18
28	0107 & 0035	01	Desulf. Station (inside BOF shop) & Xfer Pit	0.03721	lb/ton proc.	2,059,557	tons prod.	38.32	3,165,000	ton prod.			58.88	20.57
29	0113	01	Blast Furnace Slag Pits	0.00417	lb/ton proc.	2,059,557	tons slag	4.29	3,165,000	ton prod.			6.60	2.30
30	9003	01	Iron Pellet Screen	0.00279	lb/ton pellets charged	2,803,241	tons proc.	3.91	4,308,581	tons proc.			6.01	2.10
31		01	Iron Spout Baghouse	0.02548	lb/ton proc.	2,059,557	tons proc.	26.24	3,165,000	tons proc.			40.32	14.08
32			Road Fugitive Emissions	Included in Contemporaneous Changes. See Appendix F						-				0.00
33			Material Handling	Included in Contemporaneous Changes. See Appendix F						-				0.00
34			Unpaved Parking Lots					-		-			-	-
35			Paved Parking Lots					-		-			-	-
36			Natural Gas	5.1	lb/MMcf	1,145	MMcf	2.92	1,145	MMcf			2.92	0.00
37			Blast Furnace Gas	2.9	lb/MMcf	121,039	MMcf	175.51	185,030	MMcf			268.29	92.79
38			Fuel Oil	9.72	lb/Mgal	16	Mgal	0.08	365	Mgal			1.77	1.70
	TOTALS:							**1,107.94**					1,047.36	(60.58)
			Contemporaneous Changes										(37.16)	~~(37.39)~~
			Net Change										(97.74)	~~(97.97)~~

Note: Actual Emissions = Base Year Throughput * Emission Factor / 2000

Projected Actual Emissions = Projected Throughput * Emission Factor / 2000
except -
BOF Vessels Projected Actual Emissions = 60 lb/hr * 8760 hrs
BOF Roof Monitor Projected Actual Emissions = Projected Emission Factor * Projected Throughput

Projected Emissions Based On: Blast Furnace @8,[illegible]1 NTPD
BOF @ 9,808 NTPD

TABLE 3-6
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - VOM

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	0.0	lb/MMcf	22,774	MMcf	0.00	included in line 18	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	0.0	lb/MMcf	22,203	MMcf	0.00	included in line 18	-	-	-
3	0008	01	Blast Furnace Gas Flare - BFG	0.0	lb/MMcf	26,132	MMcf	0.00	included in line 18	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	0.0	lb/MMcf	37,501	MMcf	0.00	included in line 18	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	2.8	lb/MMcf	361	MMcf	0.51	included in line 17	-	-	-
6	0044	01	Boiler #11 - BFG	0.0	lb/MMcf	5,323	MMcf	0.00	included in line 18	-	-	-
7	0044	91	Boiler #11 - NG	1.4	lb/MMcf	226	MMcf	0.16	included in line 17	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	0.28	lb/Mgal	15.00	Mgal	0.00	included in line 19	-	-	-
9	0048	01	Boiler #12 - BFG	0.0	lb/MMcf	7,106	MMcf	0.00	included in line 18	-	-	-
10	0048	91	Boiler #12 - NG	1.4	lb/MMcf	218	MMcf	0.15	included in line 17	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	0.28	lb/Mgal	1.00	Mgal	0.00	included in line 19	-	-	-
12	0033	01	BOF Preheaters/Dryers - NG	2.8	lb/MMcf	283	MMcf	0.40	included in line 17	-	-	-
13	0007 & 0012	01	"A & B" Blast Furnace - Casthouse	0.0946	lb/ton proc.	2,059,557	tons proc.	97.40	3,165,000	tons proc.	149.68	-
14	0005 & 0010	01	"A & B" Blast Furnace - Uncap. roof	0.0047	lb/ton proc.	2,059,557	tons proc.	4.83	3,165,000	tons proc.	7.42	-
15	0033	01	2 BOF Vessels	0.0060	lb/ton proc.	2,413,406	tons proc.	7.24	3,580,000	tons proc.	10.74	-
16	0035	01	Transfer Pits	0.0010	lb/ton proc.	2,059,557	tons proc.	1.03	3,165,000	tons proc.	1.58	-
17	0071 & 0119	01	Continuous Casters #1 & #2 - NG	2.8	lb/MMcf	57	MMcf	0.08	included in line 17	-	-	-
18			Natural Gas	2.8	lb/MMcf	-	MMcf	-	1,145	MMcf	1.60	-
19			Blast Furnace Gas	0.0	lb/MMcf	-	MMcf	-	185,030	MMcf	0.00	-
20			Fuel Oil	0.28	lb/Mgal	-	Mgal	-	365	lb/Mgal	0.05	-
	TOTALS:							**111.80**			**171.08**	**59.28**
			Contemporaneous Changes									(31.23)
			Net Change									***28.05***

Projected Emissions Based On: Blast Furnace @8,671 NTPD
BOF @ 9,808 NTPD

TABLE 3-6
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - VOM

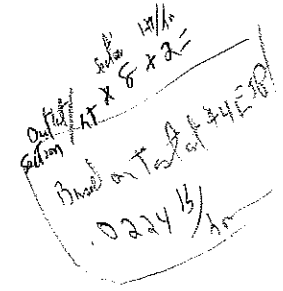
LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	0.0	lb/MMcf	22,774	MMcf	0.00	included in line 18	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	0.0	lb/MMcf	22,203	MMcf	0.00	included in line 18	-	-	-
3	0008	01	Blast Furnace Gas Flare - BFG	0.0	lb/MMcf	26,132	MMcf	0.00	included in line 18	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	0.0	lb/MMcf	37,501	MMcf	0.00	included in line 18	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	2.8	lb/MMcf	361	MMcf	0.51	included in line 17	-	-	-
6	0044	01	Boiler #11 - BFG	0.0	lb/MMcf	5,323	MMcf	0.00	included in line 18	-	-	-
7	0044	91	Boiler #11 - NG	1.4	lb/MMcf	226	MMcf	0.16	included in line 17	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	0.28	lb/Mgal	15.00	Mgal	0.00	included in line 19	-	-	-
9	0048	01	Boiler #12 - BFG	0.0	lb/MMcf	7,106	MMcf	0.00	included in line 18	-	-	-
10	0048	91	Boiler #12 - NG	1.4	lb/MMcf	218	MMcf	0.15	included in line 17	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	0.28	lb/Mgal	1.00	Mgal	0.00	included in line 19	-	-	-
12	0033	01	BOF Preheaters/Dryers - NG	2.8	lb/MMcf	283	MMcf	0.40	included in line 17	-	-	-
13	0007 & 0012	01	"A & B" Blast Furnace - Casthouse	0.0946	lb/ton proc.	2,059,557	tons proc.	97.40	3,165,000	tons proc.	149.68	-
14	0005 & 0010	01	"A & B" Blast Furnace - Uncap. roof	0.0047	lb/ton proc.	2,059,557	tons proc.	4.83	3,165,000	tons proc.	7.42	-
15	0033	01	2 BOF Vessels	0.0060	lb/ton proc.	2,413,406	tons proc.	7.24	3,580,000	tons proc.	10.74	-
16	0035	01	Transfer Pits	0.0010	lb/ton proc.	2,059,557	tons proc.	1.03	3,165,000	tons proc.	1.58	-
17	0071 & 0119	01	Continuous Casters #1 & #2 - NG	2.8	lb/MMcf	57	MMcf	0.08	included in line 17	-	-	-
18			Natural Gas	2.8	lb/MMcf	-	MMcf	-	1,145	MMcf	1.60	-
19			Blast Furnace Gas	0.0	lb/MMcf	-	MMcf	-	185,030	MMcf	0.00	-
20			Fuel Oil	0.28	lb/Mgal	-	Mgal	-	365	lb/Mgal	0.05	-
	TOTALS:							**111.80**			**171.08**	**59.28**

Contemporaneous Changes
Net Change

(31.23) (31.70)
28.05 ~~27.58~~

Projected Emissions Based On: Blast Furnace @ 8,671NTPD
BOF @ 9,808 NTPD

TABLE 3-7
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - Pb



LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	EMISSION RATE lb/hr	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION TPY	PROJECTED THRUPUT OR PRODUCTION RATIO	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0044	03	Boiler #11 - Fuel Oil	0.01600000	lb/Mgal	0.01600000	15.00	Mgal	0.0001	included in line 19	-	-	-
2	0048	03	Boiler #12 - Fuel Oil	0.01600000	lb/Mgal	0.01600000	1.00	Mgal	0.0000	included in line 19	-	-	-
3	0005	01	"A" Blast Furnace - Uncap. Fugitives	0.00039000	lb/hr	0.00039000	8760	hours	0.0017	1.537	tons proc.	0.00262550	-
4	0006	01	"A" Blast Furnace - Charging	0.00055000	lb/hr	0.00055000	8760	hours	0.0024	1.537	tons proc.	0.00370263	-
5	0007	01	"A" Blast Furnace - Baghouse Stack	0.00022000	lb/hr	0.00022000	8760	hours	0.0010	1.537	tons proc.	0.00148105	-
6	0010	01	"B" Blast Furnace - Uncap. Fugitives	0.00036700	lb/hr	0.00036700	8760	hours	0.0016	1.537	tons proc.	0.00247067	-
7	0011	01	"B" Blast Furnace - Charging	0.00053700	lb/hr	0.00053700	8360	hours	0.0024	1.537	tons proc.	0.00361512	-
8	0012	01	"B" Blast Furnace - Baghouse Stack	0.00021400	lb/hr	0.00021400	8360	hours	0.0009	1.537	tons proc.	0.00144066	-
9	0033	01	BOF 2 Vessels Stack	0.19337500	lb/hr	0.19337500	8760	hours	0.8470	1.483	tons prod.	1.25607505	0.2858
10	0034	01	BOF Roof Monitor	0.01290000	lb/hr	0.01290000	8760	hours	0.0565	1.483	tons prod.	0.08379247	-
11	0035	01	Hot Metal Reladling - Xfer Pit	0.00002320	lb/hr	0.00002320	8760	hours	0.0001	1.483	tons prod.	0.00015070	-
12	0037	01	Flux Conv. & Xfer Pts., Bin Floor - BOF	0.00000062	lb/hr	0.00000062	8760	hours	0.0000	1.483	tons prod.	0.00000405	-
13	0040	01	Hot Metal Chging Ladle Slag Skimmer	0.00002250	lb/hr	0.00002250	8760	hours	0.0001	1.483	tons prod.	0.00014615	-
14	0103	01	Argon Stirring #1 & #2	0.00020200	lb/hr	0.00020200	8760	hours	0.0009	1.483	tons prod.	0.00131210	-
15	0105	01	Deslagging Station	0.00240000	lb/hr	0.00240000	8760	hours	0.0105	1.483	tons prod.	0.01558930	-
16	0107	01	Desulf. Station (inside BOF shop)	0.01330000	lb/hr	0.01330000	8760	hours	0.0583	1.483	tons prod.	0.08639068	-
17	0120	01	Caster Mold - Casters	0.00113000	lb/hr	0.00113000	8760	hours	0.0049	1.483	tons prod.	0.00733996	-
18			Boilers -Waste Oil	0.33600000	lb/Mgals		-	-	-	365	Mgals	0.06132000	-
	TOTAL					0.26			0.988			1.527	0.539
			Contemporaneous Changes										0.000
			Net Change										***0.539***

Appendix C – Air Quality Modeling Report

APPENDIX C

CARBON MONOXIDE AIR DISPERSION MODELING FOR A PREVENTION OF SIGNIFICANT DETERIORATION AND CONSTRUCTION PERMIT REVISION FOR UNITED STATES STEEL GRANITE CITY WORKS

Prepared for:
United States Steel Corporation
Granite City Works
20th and State Streets
Granite City, IL 62040

Prepared by:
RTP Environmental Associates, Inc.
304A West Millbrook Road
Raleigh, North Carolina 27609

February 2020

Table of Contents

List of Tables

List of Figures

1.0 INTRODUCTION

This document presents the results of the air quality dispersion modeling analysis conducted for the United States Steel Corporation, Granite City Works ("US Steel") iron and steel making facility in Granite City, Illinois. The analysis has been conducted by RTP Environmental Associates, Inc. ("RTP Environmental") on behalf of US Steel.

The analysis evaluated the emissions of the criteria pollutant carbon monoxide ("CO") as regulated under the applicable provisions of the Prevention of Significant Deterioration ("PSD") regulations of 40 CFR § 52.21, incorporated by reference in the federally approved Illinois State Implementation Plan at 40 CFR § 52.738(b).[1] The criteria pollutant analysis was conducted to ensure that the proposed revisions to the CO emission limitations in the Prevention of Significant Deterioration ("PSD") and Construction Permit (Permit Number 95010001) ("1996 Construction Permit") do not cause or contribute to violation of a National Ambient Air Quality Standard (NAAQS).

As required by 40 CFR § 52.21(l), the analysis conforms with the modeling procedures outlined in the Guideline on Air Quality Models[1] promulgated by United States Environmental Protection Agency ("USEPA") (the "Guideline" or "Appendix W"). It also conforms to the Illinois Environmental Protection Agency's (IEPA) Prevention of Significant Deterioration Modeling Guidance[2], the modeling protocol submitted to the IEPA on February 3, 2020, and associated USEPA modeling policy and guidance.

[1] All citations to the PSD regulations herein are to the currently applicable provisions of 40 CFR § 52.21. The analysis also is designed to satisfy the parallel requirements of the currently pending Illinois PSD rule, 35 Ill. Adm. Code Part 204.

2.0 PROJECT DESCRIPTION

The 1996 Construction Permit authorized National Steel to increase iron and steel production limitations for the blast furnaces and basic oxygen furnace ("BOF") shop at the existing integrated iron and steel manufacturing facility in Granite City, in Madison County, Illinois. US Steel purchased the assets of National Steel in 2003, including Granite City Works. US Steel is proposing revisions to the 1996 Construction Permit that involve increases in the CO emission limitations that were established per the PSD requirements. Therefore, the proposed increases in the CO rates were evaluated for PSD requirements including compliance with the NAAQS for CO. No physical changes are proposed in conjunction with the requested revisions to the 1996 Construction Permit.

3.0 FACILITY AND SITE DESCRIPTION

The US Steel Granite City Works produces high-quality hot-rolled, cold-rolled and coated sheet steel products to customers in the construction, container, piping and tubing, service center, and automotive industries. Granite City Works has an annual raw steelmaking capability of 3.58 million net tons.

The facility occupies approximately 400 acres and is located approximately 12 miles east of Lambert, St. Louis International Airport. The approximate Universal Transverse Mercator (UTM) coordinates of the facility are 749,000m East and 4,287,000m North (NAD83, Zone 15). Figure 1 shows the general location of the facility. Figure 2 shows the specific facility location on a 7.5-minute U.S. Geological Survey (USGS) topographic map.

The US Steel facility is classified under the regulations governing PSD and Title V as a major source. The area of Madison County where US Steel facility is located is classified as attainment or unclassifiable for all regulated pollutants except ozone. St. Louis is classified as marginal nonattainment for the 2015 8-hour ozone standard.

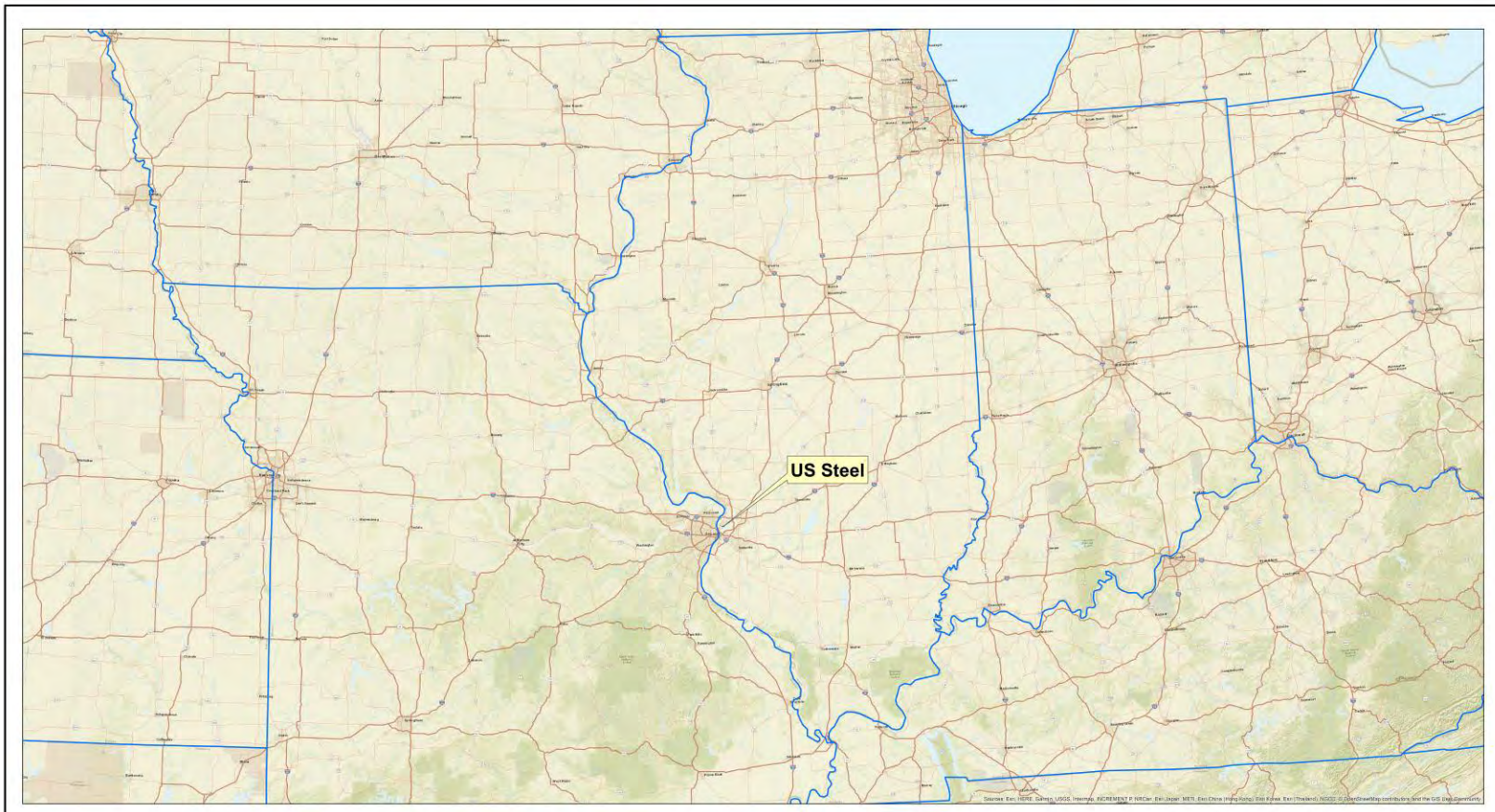


Figure 1. General Location of the US Steel Granite City Works

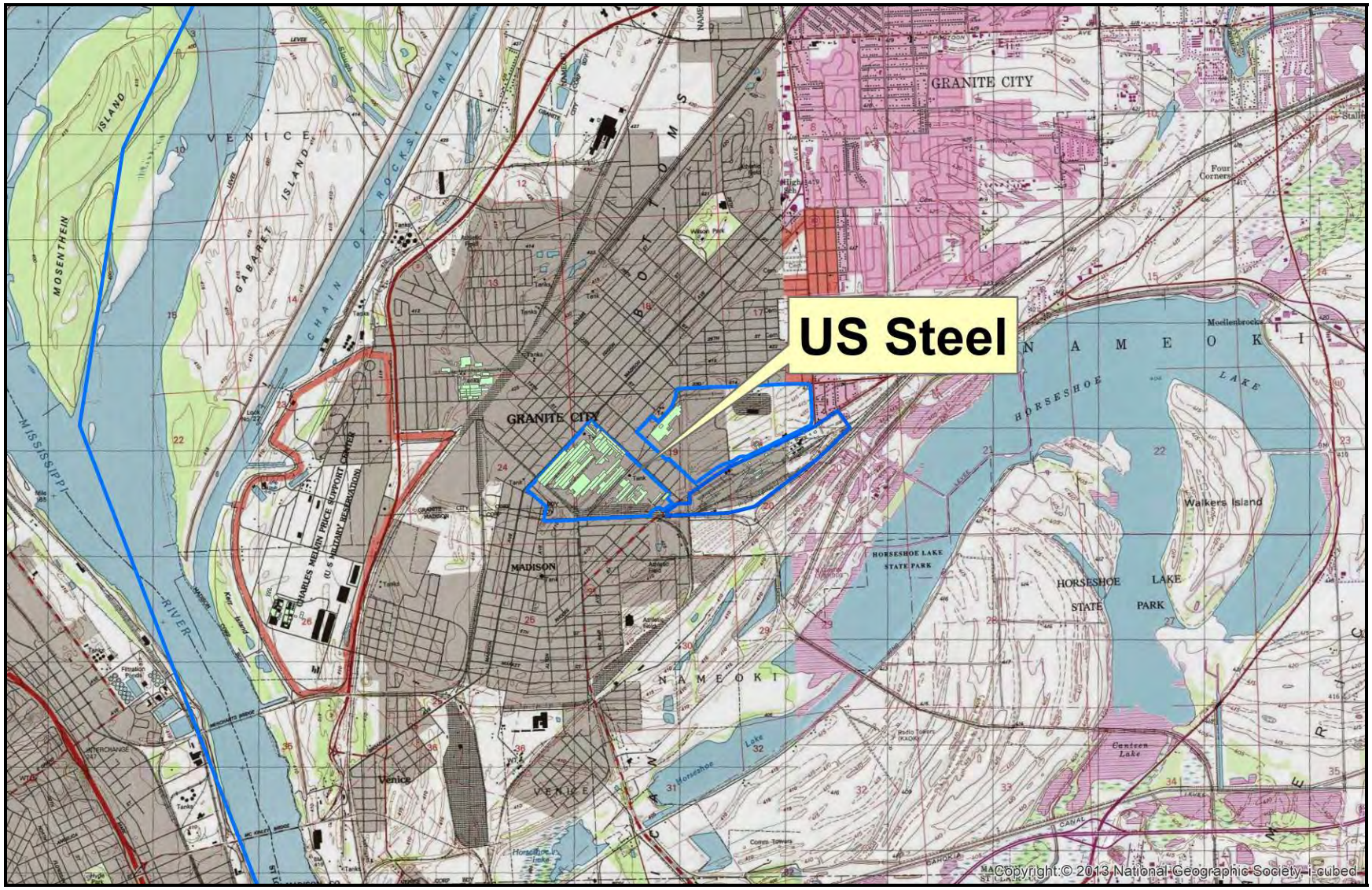


Figure 2. Specific Location of US Steel Granite City Works

4.0 MODEL SELECTION AND MODEL INPUT

4.1 Model Selection

The latest version of the AMS/EPA Regulatory Model (AERMOD, Version 19191) was used to conduct the dispersion modeling analysis. AERMOD is a Gaussian plume dispersion model that is based on planetary boundary layer principals for characterizing atmospheric stability. The model evaluates the non-Gaussian vertical behavior of plumes during convective conditions with the probability density function and the superposition of several Gaussian plumes. AERMOD is a modeling system with three components: AERMAP is the terrain preprocessor program, AERMET is the meteorological data preprocessor and AERMOD includes the dispersion modeling algorithms.

AERMOD is the required default model for calculating ambient concentrations near the US Steel facility based on the model's ability to incorporate multiple sources and source types. The model can also account for convective updrafts and downdrafts and meteorological data throughout the plume depth. The model also provides parameters required for use with up to date planetary boundary layer parameterization. The model also has the ability to incorporate building wake effects and to calculate concentrations within the cavity recirculation zone. All model options were selected as recommended in the USEPA Guideline on Air Quality Models.

Oris Solution's BEEST Graphical User Interface (“GUI”) was used to run AERMOD. The GUI uses an altered version of the AERMOD code to allow for flexibility in the file naming convention. The dispersion algorithms of AERMOD are not altered. Therefore, a model equivalency evaluation pursuant to Section 3.2 of 40 CFR 51, Appendix W was not warranted.

4.2 Model Control Options and Land Use

AERMOD was run in the regulatory default mode for all pollutants with the default rural dispersion coefficients. These coefficients were used by the Illinois Environmental

Protection Agency (“IEPA”) in its evaluation of the facility as part of the 1-hr sulfur dioxide (“SO2”) Data Requirements Rule (“DRR”).

4.3 Source Data

The modeling input data and modeled CO emission rates can be found in Appendix A of this report.

Source Characterization

The majority of modeled source input parameters were obtained from the IEPA’s model conducted for the Data Requirements Rule (“DRR”).

Point Sources

Most emission sources at the site vent to stacks with a well defined opening. These sources were modeled as point sources in AERMOD. Several other types of sources such as fugitive emissions also required evaluation.

Fugitive Emissions

Fugitive emissions are those that are not emitted from a well defined opening. These sources were modeled as volume sources. The initial dispersion coefficients (sigma y and sigma z) were provided by the IEPA and were calculated based upon the dimensions of the area of release and the equations contained in Table 3-1 of the AERMOD User’s Guide.

Flares

The facility uses blast furnace gas flares to combust excess process gas. Emissions that occur only during periods of malfunction are not required to be modeled per 40 CFR Part 51 Appendix W. Non-malfunction emissions were modeled using the procedures outlined in the AERSCREEN Manual[3]. The effective stack height (H, in meters) was computed by the IEPA as a function of heat release rate according to the following equation, where Q is the heat release rate of the flare stack in caloriesper second:

$$H_{equivalent} = H_{actual} + 4.56x10^{-3} \times Q^{0.478}$$

The effective flare stack diameter (d, in meters) was computed as a function of heat release rate according to the following equation, where Q is the heat release rate of the flare in calories per second:

$$d_{equivalent} = 9.88x10^{-4} \times (Q \times 0.45)^{0.5}$$

An exit temperature of 1273K and velocity of 20 m/sec is assumed.

All source locations were based upon a NAD83, UTM Zone 15 projection.

Good Engineering Practice Stack Height Analysis

A Good Engineering Practice ("GEP") stack height evaluation was conducted to determine appropriate building dimensions to include in the model and to calculate the GEP formula stack height used to justify stack height credit for any stacks n excess of 65m. Procedures used are in accordance with those described in the USEPA Guidelines for Determination of Good Engineering Practice Stack Height (Technical Support Document for the Stack Height Regulations-Revised)[4]. GEP formula stack height, as defined in 40 CFR 51, is expressed as GEP = H_b + 1.5L, where H_b is the building height and L is the lesser of the building height or maximum projected width. Building/structure locations were determined from a facility plot plan. The structure locations and heights were obtained from the IEPA and were input to the USEPA's Building Profile Input Program (BPIP-PRIME) computer program to calculate the direction-specific building dimensions needed for AERMOD. The structures included in the GEP analysis are shown as the green blocks in Figure 3. All stacks and structures that are located near a stack were included in the BPIP runs.

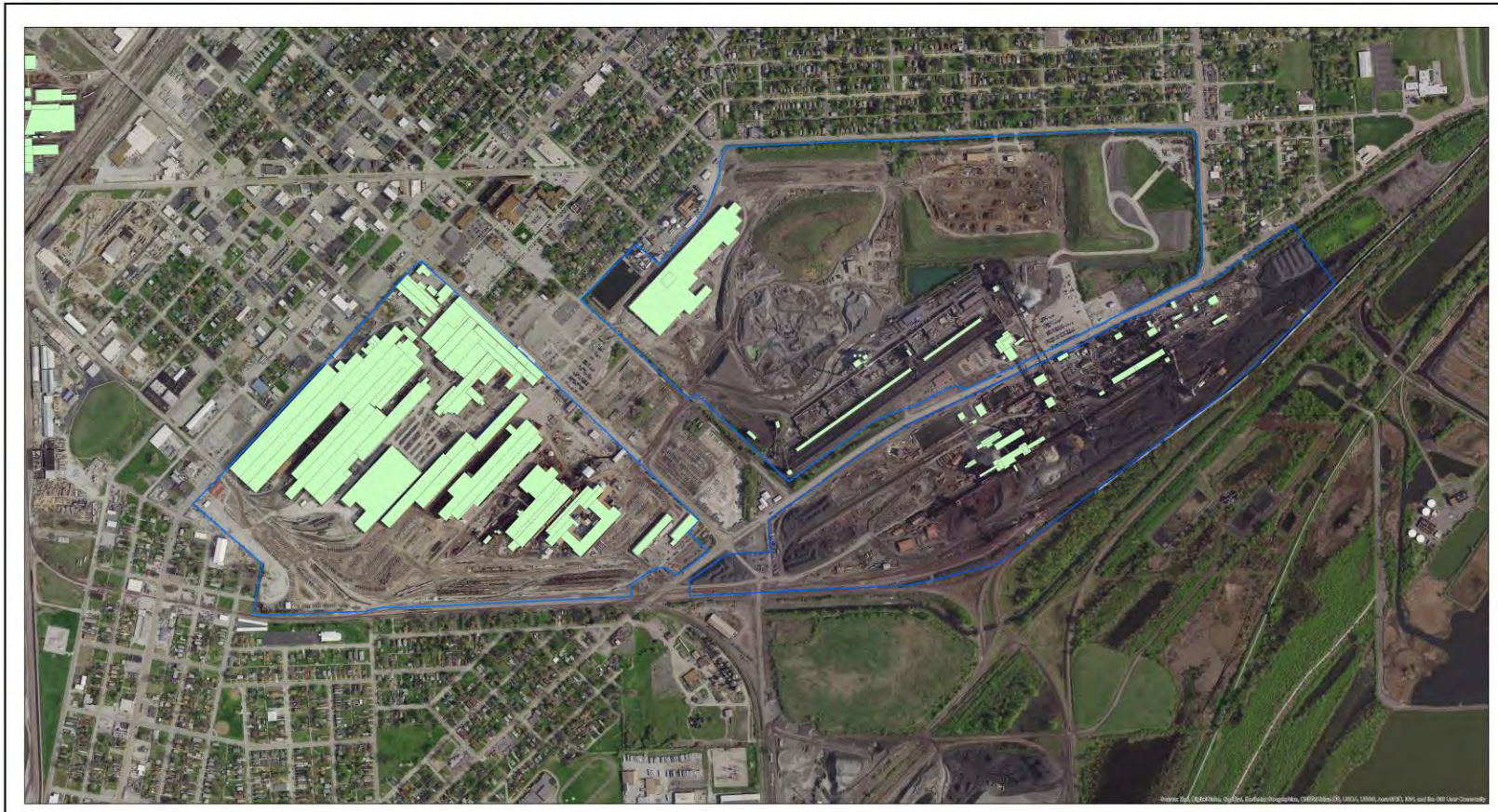


Figure 3. Structures Included in the US Steel GEP Analysis

4.4 Monitored Background Data

Ambient, background pollutant concentrations are needed to establish a representative background concentration to complete the NAAQS portion of the *Source Impact Analysis* of 40 CFR § 52.21(k). The background concentrations are added to the modeled concentrations to assess NAAQS compliance. Ambient pollutant concentrations are also needed to fulfill the *Air Quality Analysis* requirement of 40 CFR § 52.21(m), as discussed in Section 5.0herein.

Pursuant to 40 CFR § 52.21(i)(5), requirements for ambient monitoring data may be waived by the permitting authority if projected increases in ambient concentrations due to the project are less than the Significant Monitoring Concentrations. However, in light of the decision of the D.C. Circuit Court of Appeals *Sierra Club v. EPA*,[5] US Steel has elected not to request such a waiver at this time.

The USEPA Monitoring Guidelines[6], other USEPA interpretive guidance, and USEPA administrative decisions clarify that representative, existing air quality monitoring data may be used to fulfill the PSD pre-construction monitoring requirements and establish background concentrations needed for assessing NAAQS compliance, in lieu of monitoring data. USEPA's Monitoring Guidelines suggest specific criteria to determine representativeness of off-site data: *quality of the data, currentness of the data, and monitor location*.

There are many existing ambient CO monitors within 100 miles in the facility (Figure 4). Existing monitoring data have been evaluated in relation to the criteria provided in USEPA's Ambient Monitoring Guidelines as being representative of the US Steel site.

We have used the most recent available, quality assured data (2016-2018) from the AQS monitor in East St. Louis, IL (AQS Site # 17-163-0010). This monitor best represents background concentrations near the facility as it is the closest monitor with

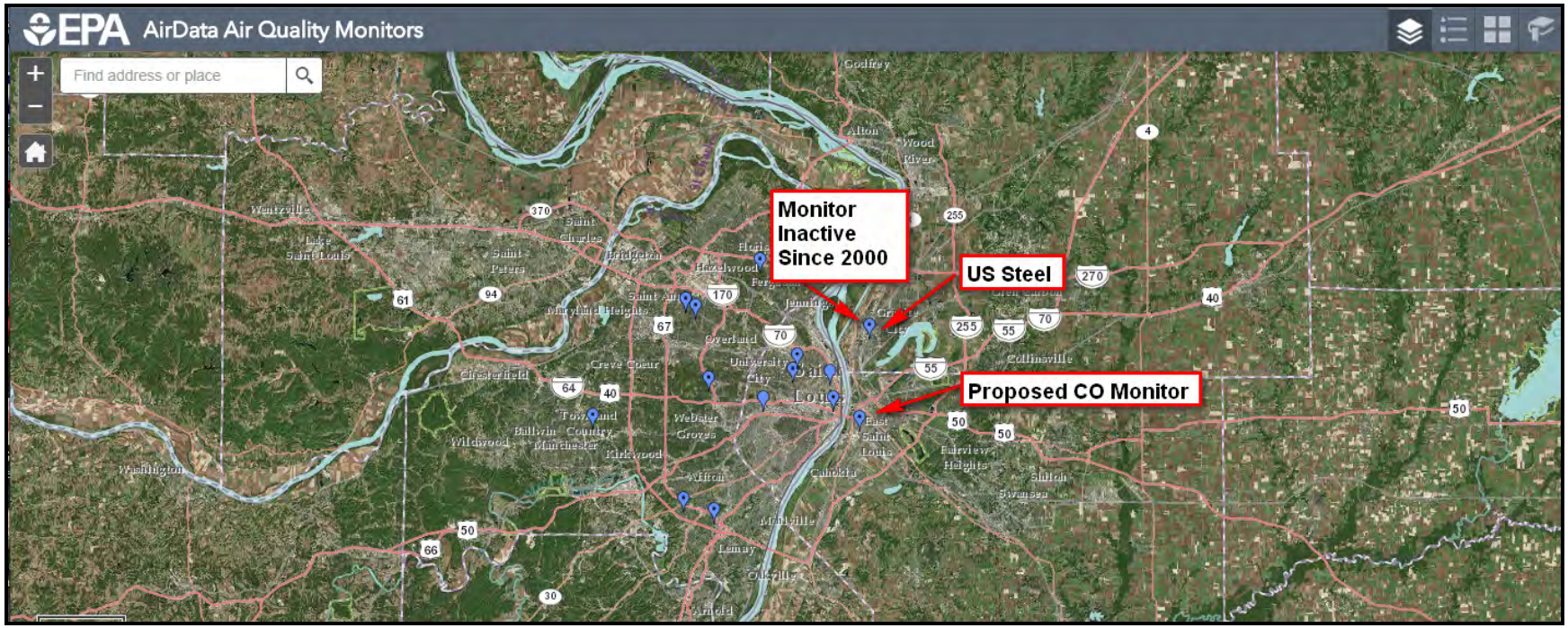


Figure 4. Ambient Air Quality Monitors in the Vicinity of the US Steel Facility

current CO data and is in the vicinity of the site and therefore representative of conditions as the site. The background data are presented in Table 1.

Table 1. Proposed Background Concentrations 2016-2018

Pollutant	Averaging Time	Design Value (ppb)[µg/m^3]	Basis	AQS Site No.
CO	1-hour	(2,000) [2,286]	Highest Second Highest	17-163-0010 East St. Louis
	8-hour	(1,180) [1,349]		

The existing monitoring data satisfy the criteria provided in USEPA's Ambient Monitoring Guidelines[7] as being representative of the site.

Monitor Location

Of the monitors available, the East St. Louis monitor represents background concentrations as it is the closest monitor with data for the pollutants of concern that is not also significantly influenced by the localized source impacts.

Data Quality

The monitor data were collected and quality assured by the IEPA.

Currentness of Data

The data were collected during 2016-2018, which represents the most recent quality assured data available for use in assessing compliance.

4.5 Receptor Data

Modeled receptors were placed in all areas considered as "ambient air" pursuant to 40 CFR 50.1(e). Ambient air is defined as that portion of the atmosphere, external to buildings, to which the general public has access. Approximately 14,100 receptors were used in the AERMOD significant impacts analysis. The receptor grid consisted of three cartesian grids and receptors located at 50m intervals along the facility fence line. The first cartesian grid extended to approximately 3.0km from the facility in all directions. Receptors in this region were spaced at 100m intervals. The second grid

extended to 7.5km. Receptor spacing in this region were 250m. A third grid extended to 15km with a spacing of 500m. The receptor grid was designed such that maximum facility impacts fall within the 100m spacing of receptors. The receptor grid spacing is presented in Table 2.

Table 2. Proposed Receptor Grid Spacing

Receptor Spacing (m)	Distance from Facility (m)
100	3,000
250	5,000
500	15,000

The US Steel facility is located in southern Illinois. Terrain within 10km of the site is generally flat. Receptor elevations and hill height scale factors were calculated with AERMAP (18081). The elevation data were obtained from the USGS one arc second National Elevation Data (NED) obtained from the USGS. Locations were based upon a NAD83, UTM Zone 15 projection. The near-field receptor grid is presented in Figure 5.

4.6 Meteorological Data

The 2014-2018, 5-year sequential hourly surface meteorological data from the National Weather Service (NWS) at St. Louis Lambert Field (WBAN No. 13994) and upper air data from the NWS station in Lincoln, IL (WBAN No. 04833) were used in the analysis. These data were processed into a “model-ready” format using the latest version of AERMET (version 19191).

The AERMET meteorological processor requires estimates of the following surface characteristics: surface roughness length, albedo, and Bowen ratio. The surface roughness length is related to the height of obstacles to the wind flow. It is the height above the surface where the average wind speed is zero. The smoother the surface, the lower the roughness length. The surface roughness length influences the surface shear stress and is an important factor in calculating mechanical turbulence and stability. The albedo is the fraction of the total incident solar radiation reflected by the surface back to space without absorption.

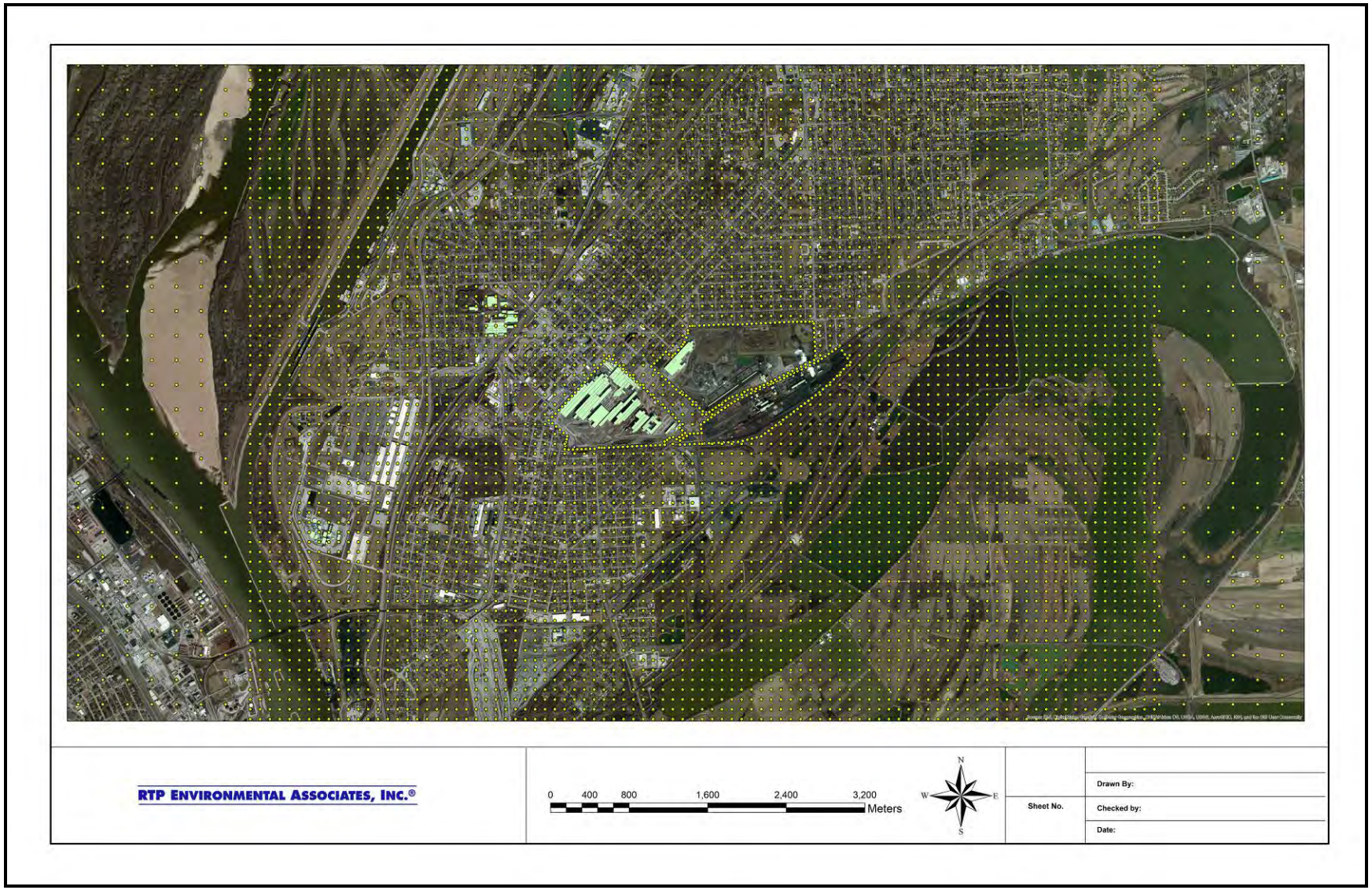


Figure 5. US Steel Facility Near-field Receptor Grid

The Bowen ratio is an indicator of surface moisture and is the ratio of the sensible heat flux to the latent heat flux. The albedo and Bowen ratio are used for determining the planetary boundary layer parameters for convective conditions due to the surface sensible heat flux. Estimates of the surface characteristics were made by the IEPA using USEPA's AERSURFACE program (Version 13016) and provided to RTP Environmental. A 1km search radius was employed at the location of the meteorological tower. Twelve sectors of 30 degrees each and seasonal resolution were used in the AERSURFACE analysis. RTP employed the "ADJ_U*" option to allow for adjustments to the friction velocity under low wind speeds was employed.

The use of NWS meteorological data for dispersion modeling can often lead to a high incidence of calms and variable wind conditions if the data are collected by Automated Surface Observing Stations (ASOS), as are in use at most NWS stations since the mid-1990's. A calm wind is defined as a wind speed less than 3 knots and is assigned a value of 0 knots. In addition, variable wind observations may include wind speeds up to 6 knots, but the wind direction is reported as missing, if the wind direction varies more than 60 degrees during the 2-minute averaging period for the observation. The AERMOD model currently cannot simulate dispersion under calm or missing wind conditions. To reduce the number of calms and missing winds in the surface data, archived 1-minute winds for the ASOS stations were used to calculate hourly average wind speed and directions, which were used to supplement the standard archive of hourly observed winds processed in AERMET. The USEPA AERMINUTE program (Version 15272) was used for these calculations. A wind rose of the 5-year meteorological dataset is provided in Figure 6.

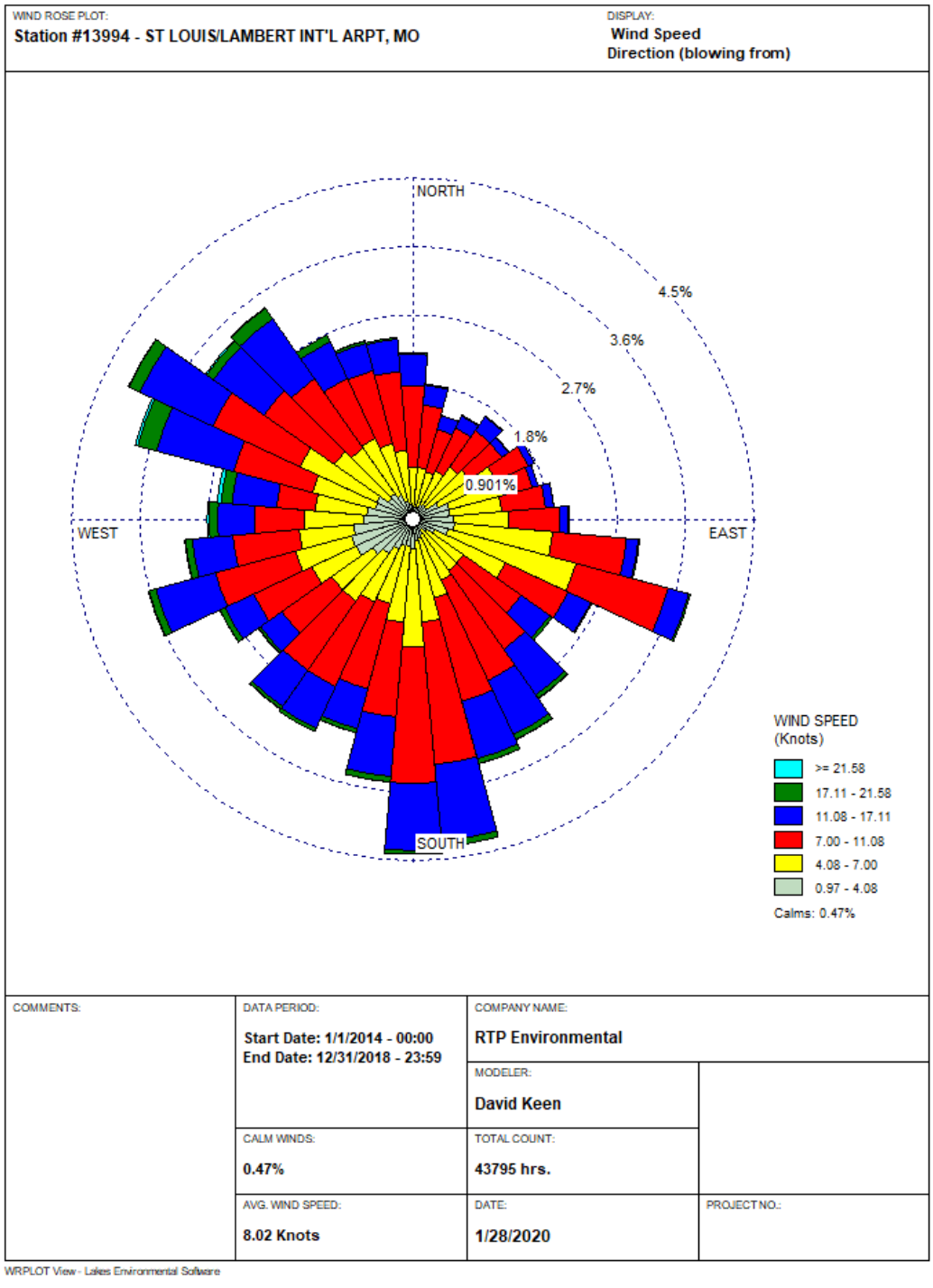


Figure 6. Lambert Field Windrose 2014-2018.

5.0 MODELING METHODOLOGY

5.1 Pollutants Subject to Review

USS Steel is proposing changes to the CO emission limitations in the 1996 Construction Permit that were established per the PSD requirements. Therefore, as requested by Illinois EPA, dispersion modeling of CO emissions have been evaluated and compared to the NAAQS.

5.2 Significant Impact Analysis

The air quality analysis was conducted in two phases: an initial or significant impact analysis, and a refined phase NAAQS analysis. In the significant impact analysis, the calculated maximum impacts due to the project were determined for CO.[b] These impacts determined the net change in air quality resulting from the proposed revision to modification permitted under the 1996 Construction Permit. Five years of meteorological data were used in the significant impact analysis. Maximum modeled CO concentrations were compared to the significance levels. The PSD Class II Significant Impact Levels for CO are listed in Table 3.

Table 3. PSD Class II Significant Impact Levels

Pollutant	Averaging Time	PSD Class II Significant Impact Levels (µg/m^3)
CO	1-hour	2,000
	8-hour	500

[b] For some of the affected emissions units, in place of project related emissions increases, we conservatively used the potential to emit of CO.

5.3 NAAQS Analysis

Following the determination of significant impacts, a refined air quality analysis to determine compliance with the CO NAAQS was conducted. In the NAAQS analysis, impacts from the US Steel facility were added to concentrations calculated from other nearby sources, plus a regional background concentration. The resultant total concentrations were compared to the NAAQS to assess compliance. The receptors modeled in the NAAQS analyses were limited to those showing a significant CO impact. Five years of meteorological data were again used in this analysis.

Nearby Source Inventory

Off-site sources were included in the NAAQS analysis. A 50km radius was used to define the screening area. A list of sources that are located within the screening area has been obtained from the IEPA as well as the Missouri Department of Natural Resources ("MDNR"). Section 8.3.3.b of Appendix W to 40 CFR Part 51 states that the number of nearby sources to be explicitly modeled is expected to be few, except in unusual situations. Appendix W further states that the sources to be included will usually be located within the first 10 to 20km from the source under consideration. In addition, it states that identification of nearby sources calls for the exercise of professional judgment by the appropriate reviewing authority. Further, USEPA's Guidance for PM2.5 Permit Modeling reiterates the Appendix W emphasis on a 10km screening radius for determining which nearby sources to include in the cumulative modeling analysis.

We conservatively included all sources provided by the IEPA and MDNR that are located within 50km of the US Steel facility. Total facility, potential emissions (i.e., all sources at a facility) were used in the NAAQS evaluation.

NAAQS Compliance Assessment

Ambient background concentrations (as discussed in more detail in Section 4.4) were then added to assess NAAQS compliance. The modeled and monitored values shown in Table 4 were used for this assessment.

Table 4. Monitored and Modeled Values Used to Assess NAAQS Compliance

Pollutant	Averaging Time	Monitored Value	Modeled Value
CO	1-hour & 8-hour	Highest, second high over 3 years	Highest, second high over 5 years

The NAAQS are shown in Table 5.

Table 5. National Ambient Air Quality Standards

Pollutant	Averaging Time	National Ambient Air Quality Standards ($\mu g/m^3$)	
		Primary	Secondary
CO	1-hour	40,000	--
	8-hour	10,000	--

6.0 RESULTS

Attachment B to this report provides the model summary output. AERMOD input and output files, including the BPIP-PRIME files, are included on the enclosed CD.

6.1 Significant Impact Analysis Results

The project results in CO impacts in excess of the 8-hour Significant Impact Level shown in Table 3. The significant impact analysis results are presented in Table 6. Based upon the results of the significant impacts analysis, a cumulative, NAAQS analysis was conducted.

6.2 NAAQS Analysis Results

Following the determination of significant impacts, an analysis was conducted to assess compliance with the CO NAAQS. Even though the project resulted in insignificant 1-hr CO impacts, the 1-hr average was included in the NAAQS assessment. All sources located within 50km of the US Steel facility were modeled in conjunction with the US Steel facility in assessing compliance. Background concentrations were added to the model results to assess compliance. Evaluation of compliance with the CO short term standards was based upon the maximum of the highest-second-highest values from the five-year meteorological dataset.

The results of the NAAQS analysis are presented in Table 7. As can be seen, the model demonstrates compliance.

Table 6. Significant Impact Analysis Results

Pollutant	Averaging Period	Maximum Modeled Impact (µg/m³)	PSD Significant Class II Impact Level (µg/m³)	Significant Monitoring Concentration (µg/m³)	Maximum Distance to a Significant Impact (km)
CO	1-hr	1,087	2,000	N/A	NA
	8-hr	669	500	575	1.5

N/A – Not applicable, impacts calculated to be insignificant.

Table 7. NAAQS Analysis Results

Pollutant	Averaging Period	Modeled Concentration (µg/m³)	Background Concentration (µg/m³)	Total Concentration (µg/m³)	Standard (µg/m³)	Comment
CO	1-hour	3,414	2,286	5,700	40,000	Compliant
	8-hour	1,941	1,349	3,290	10,000	Compliant

REFERENCES

1. Guidelines on Air Quality Models, (Revised). Appendix W of 40 CFR Part 51, 82 FR 5182, January 17, 2017.

2 . Prevention of Significant Deterioration, The Art and Science of PSD Air Quality Analysis, The Modeling Perspective, Illinois Environmental Protection Agency, Modeling Unit, February 27, 2014..

3. AERSCREEN User's Guide. EPA-454/B-15-005, July 2015.

4. Guideline for Determination of Good Engineering Practice Stack Height (Technical Support Document for Stack Height Regulations (Revised). EPA-450/4-80-023R, U.S. Environmental Protection Agency, June 1985.

5. *Sierra Club v. EPA*, No. 10-1413, 2013 WL 216018 (Jan. 22, 2013).

6. Ambient Monitor Guidelines for Prevention of Significant Deterioration, EPA-450/4-87-007, USEPA, May 1987.

7. Ambient Monitor Guidelines for Prevention of Significant Deterioration, EPA-450/4-87-007, USEPA, May 1987.

ATTACHMENT A

MODELING INPUT DATA

.

US Steel Granite City Point Source Model Input (NAD83, Zone 15)
Last Update (1-29-20)

Source ID		Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	CO Potential Emissions (lb/hr)	CO Emissions Increase (lb/hr)
132833	DEFAULT	Blast Furnace A Stoves	749816.02	4286809.08	416.83	217.0	500.0	49.66	7.0	1604.52	1604.52
132838	DEFAULT	Blast Furnace B Stoves	749665.50	4286719.93	417.16	225.0	500.0	51.05	9.8	1837.76	1837.76
132837	DEFAULT	Blast Furnace Gas Flare #1	749777.33	4286841.02	418.21	221.8	1831.7	65.62	15.4	3140.49	3140.49
240479	DEFAULT	Blast Furnace Gas Flare #2	749865.93	4286920.23	416.24	221.8	1831.7	65.62	15.4	3140.49	0.00
132836	DEFAULT	Casthouse Baghouse	749616.61	4286732.18	417.75	63.0	150.0	63.88	11.0	71.82	24.42
132927	DEFAULT	Blast Furnace A and B Iron Spout Baghouse	749831.35	4286818.73	415.98	43.0	123.0	43.04	7.8	7.18	2.44
238459	DEFAULT	Cogeneration Boiler BFG-fired some NG-firing	749776.38	4287073.85	415.19	137.0	400.1	62.11	6.0	203.08	0.00
132867	DEFAULT	Boiler 11	749865.15	4286883.84	416.24	149.9	335.0	29.82	8.0	90.48	90.48
132872	DEFAULT	Boiler 12	749881.40	4286887.85	416.50	150.0	335.0	26.74	8.0	90.48	90.48
BOF	DEFAULT	BOF ESP	748415.00	4286681.00	416.57	125.0	400.0	50.00	15.0	4121.79	1274.01
132842	DEFAULT	Slab Reheat Furnace #1	747729.70	4286762.02	417.52	56.8	650.1	44.88	8.0	26.52	0.00
172532	DEFAULT	Slab Reheat Furnace #2	747715.25	4286747.05	416.47	56.8	650.1	44.88	8.0	26.52	0.00
172512	DEFAULT	Slab Reheat Furnace #3	747700.79	4286730.53	415.88	56.8	650.1	44.88	8.0	26.52	0.00
172514	DEFAULT	Slab Reheat Furnace #4	747700.27	4286714.00	416.08	146.0	736.1	26.94	13.7	40.76	0.00
132849	DEFAULT	Galvanizing line #8 - fume scrubber	748883.00	4287195.00	416.57	80.0	80.0	41.66	3.0	0.00	0.00
229337	DEFAULT	Galvanizing line #8 - space heaters	748398.00	4287038.00	418.90	39.0	284.1	23.16	2.0	0.00	0.00
229338	DEFAULT	Galvanizing line #8 - drying oven and storage area heaters	748398.00	4287038.00	418.90	39.0	284.1	23.16	2.0	0.00	0.00
229339	DEFAULT	Galvanizing line #8 - miscellaneous heaters	748398.00	4287038.00	418.90	39.0	284.1	23.16	2.0	0.00	0.00
229601	DEFAULT	Emergency Generator (3500 HP)	749641.00	4286863.00	416.17	37.0	442.0	32.80	1.9	0.00	0.00
GECC0021	DEFAULT	Waste Heat Main Stack (Gateway Energy)	749278.10	4286983.70	415.78	200.0	261.1	52.94	13.0	0.00	0.00
GECC0006	DEFAULT	Waste Heat Stack #1 (Gateway Energy)	749198.08	4286808.68	418.57	85.0	1706.1	57.83	9.0	0.00	0.00
GECC0011	DEFAULT	Waste Heat Stack #2 (Gateway Energy)	749273.31	4286862.01	418.31	85.0	1706.1	57.835	9.0	0.00	0.00
GECC0012	DEFAULT	Waste Heat Stack #3 (Gateway Energy)	749352.45	4286918.44	418.70	85.0	1706.1	57.83	9.0	0.00	0.00
GECC0013	DEFAULT	Waste Heat Stack #4 (Gateway Energy)	749428.12	4286971.81	418.96	85.0	1706.1	57.83	9.0	0.00	0.00
GECC0014	DEFAULT	Waste Heat Stack #5 (Gateway Energy)	749544.63	4287055.23	418.27	85.0	1706.1	57.83	9.0	0.00	0.00
GECC0015	DEFAULT	Waste Heat Stack #6 (Gateway Energy)	749619.43	4287108.64	418.34	85.0	1706.1	57.83	9.0	0.00	0.00
GECC0007	DEFAULT	Coke Pushing - A (Gateway Energy)	749619.87	4287112.56	418.11	20.0	371.1	71.29	4.0	0.00	0.00
GECC0016	DEFAULT	Coke Pushing - B (Gateway Energy)	749545.02	4287058.93	418.27	20.0	371.1	71.29	4.0	0.00	0.00
GECC0017	DEFAULT	Coke Pushing - C (Gateway Energy)	749428.24	4286976.24	418.96	20.0	371.1	71.286	4.0	0.00	0.00
GECC0018	DEFAULT	Coke Pushing - D (Gateway Energy)	749352.23	4286921.92	418.60	20.0	371.1	71.286	4.0	0.00	0.00
GECC0019	DEFAULT	Coke Pushing - E (Gateway Energy)	749273.14	4286865.98	418.21	20.0	371.1	71.286	4.0	0.00	0.00
GECC0020	DEFAULT	Coke Pushing - F (Gateway Energy)	749197.51	4286811.96	418.70	20.0	371.1	71.286	4.0	0.00	0.00
GECC0004	DEFAULT	Coal Charging - A (Gateway Energy)	749623.34	4287107.16	418.54	26.0	135.1	50.679	4.5	0.00	0.00
GECC0022	DEFAULT	Coal Charging - B (Gateway Energy)	749548.49	4287053.91	418.18	26.0	135.1	50.679	4.5	0.00	0.00
GECC0023	DEFAULT	Coal Charging - C (Gateway Energy)	749432.74	4286971.35	418.90	26.0	135.1	50.679	4.5	0.00	0.00
GECC0024	DEFAULT	Coal Charging - D (Gateway Energy)	749355.86	4286916.95	418.67	26.0	135.1	50.679	4.5	0.00	0.00
GECC0025	DEFAULT	Coal Charging - E (Gateway Energy)	749277.43	4286860.70	418.44	26.0	135.1	50.679	4.5	0.00	0.00
GECC0026	DEFAULT	Coal Charging - F (Gateway Energy)	749201.81	4286807.07	418.57	26.0	135.1	50.679	4.5	0.00	0.00

US Steel Granite City Volume Source Inputs

Source ID	Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Release Height (ft)	Sigma Y (ft)	Sigma Z (ft)	CO Potential Emissions (lb/hr)	CO Emissions Increase (lb/hr)
26070	Ladle Preheaters/Dryers (formerly BOF 4, NG & COG) - Roof Monitor	748457.20	4286596.40	413.88	169.0	21.6	78.6	1.373	1.373
26080	Ladle Preheaters/Dryers (formerly BOF 4, NG & COG) - Roof Monitor	748466.60	4286606.00	413.98	169.0	21.6	78.6	1.373	1.373
26090	Ladle Preheaters/Dryers (formerly BOF 4, NG & COG) - Roof Monitor	748475.40	4286616.10	413.88	169.0	21.6	78.6	1.373	1.373
26100	Ladle Preheaters / Dryers (formerly BOF 5, NG & COG) - Roof Monitor	748483.60	4286624.10	413.85	169.0	21.6	78.6	1.029	1.029
26110	Ladle Preheaters / Dryers (formerly BOF 5, NG & COG) - Roof Monitor	748495.20	4286635.90	414.01	169.0	21.6	78.6	1.029	0.000
26120	Ladle Preheaters / Dryers (formerly BOF 5, NG & COG) - Roof Monitor	748504.10	4286646.00	414.37	169.0	21.6	78.6	1.029	0.000
26130	Ladle Preheaters / Dryers (formerly BOF 5, NG & COG) - Roof Monitor	748513.90	4286656.70	414.63	169.0	21.6	78.6	1.029	0.000
26570	Galv Line 8	748368.26	4287046.91	420.41	101.7	12.3	48.5	0.254	0.000
26580	Galv Line 8	748374.01	4287041.49	420.11	101.7	12.3	48.5	0.254	0.000
26590	Galv Line 8	748379.56	4287036.28	419.82	101.7	12.3	48.5	0.254	0.000
26600	Galv Line 8	748420.52	4286997.79	419.55	38.0	15.1	38.0	0.254	0.000
26610	Galv Line 8	748428.00	4286990.81	419.95	38.0	15.1	38.0	0.254	0.000
26620	Galv Line 8	748436.60	4286982.91	419.85	38.0	15.1	38.0	0.254	0.000
26630	Galv Line 8	748444.54	4286975.49	419.62	38.0	15.1	38.0	0.254	0.000
26640	Galv Line 8	748451.78	4286968.87	418.50	38.0	15.1	38.0	0.254	0.000
26650	Galv Line 8	748324.79	4287118.60	421.65	38.0	15.6	17.7	0.254	0.000
26660	Galv Line 8	748331.95	4287112.00	421.52	38.0	15.6	17.7	0.254	0.000
26670	Galv Line 8	748340.34	4287104.30	421.39	38.0	15.6	17.7	0.254	0.000
26680	Galv Line 8	748347.69	4287097.51	421.29	38.0	15.6	17.7	0.254	0.000
26690	Galv Line 8	748354.48	4287091.31	421.16	38.0	15.6	17.7	0.254	0.000
26700	Galv Line 8	748362.29	4287084.18	420.87	38.0	15.6	17.7	0.254	0.000
26710	Galv Line 8	748370.46	4287076.71	420.51	38.0	15.6	17.7	0.254	0.000
26720	Galv Line 8	748378.04	4287069.70	420.14	38.0	15.6	17.7	0.254	0.000
26730	Galv Line 8	748385.51	4287062.91	419.52	38.0	15.6	17.7	0.254	0.000
0126A_1	Slag Pit Volume 1	749691.91	4286762.44	418.70	53.0	29.0	17.7	0.000	0.000
0126A_2	Slag Pit Volume 2	749708.01	4286772.50	421.33	53.0	29.0	17.7	0.000	0.000
0126A_3	Slag Pit Volume 3	749724.24	4286782.31	420.44	53.0	29.0	17.7	0.000	0.000
0126A_4	Slag Pit Volume 4	749740.84	4286791.62	419.00	53.0	29.0	17.7	0.000	0.000
0126A_5	Slag Pit Volume 5	749757.20	4286801.31	418.86	53.0	29.0	17.7	0.000	0.000

Off-Site Point Source Model Input (NAD83, Zone 15)

									Potential Emissions (lb/hr)		
Source ID	Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	CO	SOx	SO2 (1-hour)
IL_131772	Star Memorial Pet Crematory - Crematory	749244.00	4324486.00	641.44	16.0	800.0	27.585	1.0	2.70E+00	0.00E+00	0.00E+00
IL_131841	Alton Steel Inc. - Electric arc furnaces	747753.00	4307832.00	433.07	100.0	250.1	31.029	24.2	2.25E+02	7.07E+01	7.07E+01
IL_131845	Alton Steel Inc. - 14 inch rolling mill reheat furnace	747645.00	4307692.00	432.64	106.0	200.0	2.394	16.0	2.40E+01	0.00E+00	0.00E+00
IL_131945	Alton Memorial Hospital - 3 Boilers	746364.00	4309470.00	521.36	89.0	389.9	24.108	3.0	0.00E+00	1.28E+01	1.28E+01
IL_132052	Olin Winchester, LLC - Package Boiler (B-4)	750887.00	4308614.00	435.63	35.0	400.0	84.854	2.0	0.00E+00	4.57E+00	4.57E+00
IL_132062	Olin Winchester, LLC - Package Boiler (B-3)	750891.00	4308619.00	435.89	35.0	400.0	84.854	2.0	0.00E+00	4.60E+00	4.60E+00
IL_132063	Olin Winchester, LLC - Package Boiler (B-2)	750892.00	4308613.00	435.53	35.0	400.0	84.854	2.0	0.00E+00	4.57E+00	4.57E+00
IL_132064	Olin Winchester, LLC - Package Boiler (B-1)	750888.00	4308609.00	435.30	35.0	400.0	84.854	2.0	0.00E+00	4.60E+00	4.60E+00
IL_132065	Olin Winchester, LLC - Package Boiler (B-5)	750883.00	4308610.00	435.27	35.0	400.0	84.854	2.0	0.00E+00	4.60E+00	4.60E+00
IL_132148	Amsted Rail Co., Inc. - Electric Arc Furnace #1 (EF-1)	747122.00	4287625.00	425.26	55.0	250.1	54.087	6.2	3.84E+01	4.07E+00	4.07E+00
IL_132149	Amsted Rail Co., Inc. - Electric Arc Furnace #2 (EF-2)	747147.00	4287625.00	425.20	44.0	250.1	42.443	7.0	3.84E+01	4.07E+00	4.07E+00
IL_132193	Velocity Services, LLC. - North American Boiler	748928.00	4286192.00	416.21	27.0	450.1	24.305	2.3	2.36E+00	0.00E+00	0.00E+00
IL_132194	Velocity Services, LLC. - Cleaver Brooks boiler	748928.00	4286192.00	416.21	29.0	440.0	39.590	2.0	2.36E+00	0.00E+00	0.00E+00
IL_132225	Gateway Regional Medical Center - Boiler #3	748587.00	4287448.00	426.05	48.0	600.0	41.131	4.5	1.53E+00	1.28E+01	1.28E+01
IL_132226	Gateway Regional Medical Center - Boilers #1 and 2	748592.00	4287452.00	425.95	48.0	600.0	38.966	4.5	3.07E+00	2.57E+01	2.57E+01
IL_132247	Prairie Farms Dairy, Inc. - Boiler #1	747505.00	4287550.00	424.64	75.0	375.0	30.078	2.5	1.30E-01	0.00E+00	0.00E+00
IL_132248	Prairie Farms Dairy, Inc. - Boiler #2	747505.00	4287550.00	424.64	25.0	375.0	65.010	2.5	2.40E-01	1.19E+00	1.19E+00
IL_132324	Precoat Metals - Afterburner AB1 and AB2	749469.00	4292538.00	424.97	34.0	1000.0	64.518	4.0	3.23E+00	0.00E+00	0.00E+00
IL_132424	Highland Electric Light Plant - Engine IC-5	788126.93	4293320.17	534.65	28.0	612.1	84.854	2.0	2.07E+01	0.00E+00	0.00E+00
IL_132425	Highland Electric Light Plant - Engine IC-7	788126.93	4293320.17	534.65	57.0	734.1	6.265	11.4	2.51E+01	0.00E+00	0.00E+00
IL_132496	ConocoPhillips Co. - Catalytic reformer #1 (STK12-4)	754869.00	4302625.00	442.55	349.9	600.0	56.810	15.0	6.28E+01	9.53E+01	9.53E+01
IL_132510	ConocoPhillips Co. - Distilling unit: HTR-DU1-F301 (STK5-2)	754327.00	4303077.00	444.69	185.0	319.0	21.878	8.0	1.21E+01	0.00E+00	0.00E+00
IL_132511	ConocoPhillips Co. - Distilling unit: HTR-DU1-F302 (STK5-1)	754326.00	4303100.00	444.49	150.0	150.0	11.677	8.5	1.57E+01	5.29E+00	5.29E+00
IL_132512	ConocoPhillips Co. - Steam methane reformer: SMR Heater (HTR-SMR - STK12-8)	754873.00	4302750.00	443.04	199.9	749.9	36.638	12.0	4.75E+01	6.82E+01	6.82E+01
IL_132516	ConocoPhillips Co. - Rectified absorption unit: Reboiler heater (HTR-RAU-DEBUT - STK5-5)	754470.00	4302943.00	444.98	75.0	850.0	34.440	5.0	7.14E+00	0.00E+00	0.00E+00
IL_132517	ConocoPhillips Co. - Rectified absorption system to RFG	754240.00	4303144.00	443.47	150.0	710.0	26.338	6.0	0.00E+00	1.20E+02	1.20E+02
IL_132519	ConocoPhillips Co. - Cracked absorption unit (HTR-CAU-ROSTILL - STK5-4)	754468.00	4302963.00	445.41	85.0	800.0	22.173	7.2	6.72E+00	0.00E+00	0.00E+00
IL_132526	ConocoPhillips Co. - CCU-1 Startup heater B-1	754240.00	4303144.00	443.47	212.0	500.1	86.953	4.5	0.00E+00	3.55E+01	3.55E+01
IL_132535	ConocoPhillips Co. - Catalytic cracking unit #2 (STK6-3)	754848.00	4302895.00	443.27	199.9	175.0	49.954	11.0	4.72E+01	2.17E+03	2.17E+03
IL_132551	ConocoPhillips Co. - Alkylation unit: HTR-ALKY-HM2 (STK6-6)	754930.00	4303043.00	442.59	150.9	475.1	12.398	5.7	4.32E+00	0.00E+00	0.00E+00
IL_132556	ConocoPhillips Co. - Utility boiler #15 (STK12-15)	754859.00	4302776.00	443.44	132.0	425.0	43.165	7.0	2.65E+01	1.62E+01	1.62E+01
IL_132557	ConocoPhillips Co. - Utility boiler #16 (STK12-16)	754875.00	4302778.00	443.21	132.0	425.0	43.165	7.0	2.78E+01	1.41E+01	1.41E+01
IL_132558	ConocoPhillips Co. - Utility boiler 17 (STK12-17)	754902.00	4302784.00	442.91	150.0	317.0	52.218	10.0	3.60E+01	1.82E+01	1.82E+01
IL_132559	ConocoPhillips Co. - Utility boiler 18 (STK6-9)	754919.00	4302809.00	442.52	100.0	325.0	14.465	6.2	3.00E+01	6.61E+00	6.61E+00
IL_132561	ConocoPhillips Co. - Hydrodesulfurization unit #1: Charge heater (HTR-HDU-1 - STK13-1)	755217.00	4302588.00	442.16	150.0	790.1	32.144	5.0	5.60E+00	0.00E+00	0.00E+00
IL_132564	ConocoPhillips Co. - Hydrodesulfurization unit #2: Charge heater (HTR-HDU-2 - STK12-14)	755022.00	4302530.00	442.95	150.0	900.1	31.422	5.8	4.90E+00	0.00E+00	0.00E+00
IL_132565	ConocoPhillips Co. - Cat reformer #3: Stabilizer reboiler (HTR-CR3-H2 - STK12-9)	755014.00	4302580.00	442.62	150.0	950.1	7.019	7.8	4.79E+00	0.00E+00	0.00E+00
IL_132567	ConocoPhillips Co. - Catalytic reformer unit #3: Charge heater (HTR-CR3 -H4)	755019.00	4302571.00	442.65	150.0	800.0	28.766	7.8	1.75E+01	8.04E+00	8.04E+00
IL_132568	ConocoPhillips Co. - Catalytic reformer unit #3: First interreactor heater (HTR-CR3-H5)	755019.00	4302548.00	442.78	150.0	749.9	26.929	7.8	2.11E+01	6.93E+00	6.93E+00
IL_132569	ConocoPhillips Co. - Cat reformer #3: Second interreactor heater (HTR-CR3-H6 - STK12-12)	755019.00	4302559.00	442.72	150.0	749.9	14.006	7.8	5.55E+00	0.00E+00	0.00E+00
IL_132594	ConocoPhillips Co. - Sulfuric acid tank	755114.00	4302829.00	441.93	40.0	186.0	26.273	2.0	1.78E+00	2.35E+00	2.35E+00
IL_132598	ConocoPhillips Co. - CCU-2 Startup heater B-1	754240.00	4303144.00	443.47	16.0	509.1	32.964	3.2	4.40E-01	0.00E+00	0.00E+00
IL_132599	Airgas USA, LLC - Liquified carbon dioxide plant	756314.00	4302509.00	435.93	30.0	70.1	79.573	0.2	4.10E-01	0.00E+00	0.00E+00
IL_132701	Kinder Morgan Liquids Terminals, LLC - New Truck loading rack	752998.00	4303578.00	435.63	20.0	70.1	0.262	2.2	4.87E+00	0.00E+00	0.00E+00
IL_132739	National Maintenance and Repair - Cleaver Brooks boiler (Stack 1 of 2)	750915.00	4300904.00	402.46	34.0	450.1	23.321	2.0	1.90E+00	5.00E+00	5.00E+00
IL_132777	Elias Kallal & Schaaf Funeral Home & Crematory - Crematorium	742098.00	4312210.00	627.20	30.0	1400.1	18.368	1.7	3.00E+00	0.00E+00	0.00E+00
IL_132781	Christ Bros Products, LLC - Baghouse	754160.00	4283243.00	419.46	32.0	240.0	83.706	3.9	5.56E+01	2.48E+01	2.48E+01
IL_132928	Enable Mississippi River Transmission, LLC - Engine SN-02	782556.00	4285336.00	492.29	30.0	1000.0	9.414	2.6	1.36E+01	0.00E+00	0.00E+00
IL_133625	Waterloo City Light Plant - Engine #1	748326.00	4246769.00	640.45	29.0	749.9	13.579	2.3	4.00E+01	1.35E+00	1.35E+00
IL_133627	Waterloo City Light Plant - Engine #9	748326.00	4246769.00	640.45	17.0	936.1	84.854	1.0	1.50E+01	3.60E+00	3.60E+00
IL_133628	Waterloo City Light Plant - Engine #10	748326.00	4246769.00	640.45	17.0	936.1	84.854	1.0	1.50E+01	3.60E+00	3.60E+00
IL_135983	Lakeview Memorial Gardens - Crematory	762896.00	4273894.00	579.89	16.0	895.0	26.666	2.6	8.40E+00	0.00E+00	0.00E+00
IL_136012	Breckenridge of IL - Natural gas combustion	756461.00	4277782.00	423.82	38.0	341.0	25.781	2.7	3.94E+00	0.00E+00	0.00E+00
IL_136014	Touchette Regional Hospital - 2 Boilers	751890.00	4273014.00	415.94	39.0	800.0	6.560	3.7	2.26E+00	0.00E+00	0.00E+00
IL_136018	Upchurch Ready Mix Concrete Company - Boiler	749859.00	4276616.00	418.44	30.0	376.1	29.684	3.7	0.00E+00	3.00E-01	3.00E-01
IL_136098	Safety Kleen Systems, Inc. - Pipe still (heat exchanger)	749786.00	4276425.00	420.28	15.0	170.0	0.295	1.0	0.00E+00	1.38E+00	1.38E+00

Off-Site Point Source Model Input (NAD83, Zone 15)

Source ID	Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	Potential Emissions (lb/hr)		
									CO	SOx	SO2 (1-hour)
IL_136125	Milam Recycling and Disposal Facility - Open flare	750434.00	4282812.00	420.54	42.0	1800.1	10.070	1.0	1.83E+01	6.00E+00	6.00E+00
IL_136129	Village of Freeburg - Engine #6	769352.00	4257578.00	509.42	24.0	749.9	24.239	1.8	3.93E+00	0.00E+00	0.00E+00
IL_136130	Village of Freeburg - Engine #4	769352.00	4257578.00	509.42	25.0	550.0	87.871	1.3	9.60E+00	0.00E+00	0.00E+00
IL_136131	Village of Freeburg - Engine #7	769352.00	4257578.00	509.42	22.0	900.1	18.926	2.7	4.50E+01	4.43E+00	4.43E+00
IL_136169	Darling Ingredients, Inc. - Continuous rendering process	747472.00	4281438.00	414.93	44.0	74.9	84.854	4.0	6.67E+00	1.43E+00	1.43E+00
IL_136187	Asphalt Sales & Products Inc. - Drum mix asphalt plant	772959.00	4275690.00	514.30	33.0	325.0	47.134	4.5	6.49E+01	2.90E+01	2.90E+01
IL_136486	Cerro Flow Products, LLC. - Piercing Mill Furnace #2	746228.00	4275272.00	407.32	25.0	299.9	38.901	2.0	8.65E-01	0.00E+00	0.00E+00
IL_136547	Christ Bros Products, LLC - Drum mix asphalt plant	747162.00	4269805.00	448.72	36.0	315.1	86.592	3.5	1.34E+01	5.91E+00	5.91E+00
IL_142809	Magnesium Elektron North America - Combustion units	746452.00	4285724.00	415.49	60.0	450.1	30.537	2.0	1.02E+01	4.44E+00	4.44E+00
IL_143317	Waterloo City Light Plant - Engine #11	748326.00	4246769.00	640.45	17.0	936.1	84.854	1.0	1.50E+01	3.60E+00	3.60E+00
IL_143319	Waterloo City Light Plant - Engine #7	748326.00	4246769.00	640.45	33.0	749.9	84.854	2.0	3.41E+01	0.00E+00	0.00E+00
IL_143320	Waterloo City Light Plant - Engine #8	748326.00	4246769.00	640.45	27.0	680.1	84.230	2.3	1.87E+01	1.36E+00	1.36E+00
IL_145809	ConocoPhillips Co. - Crude heaters (STK5-3)	754415.00	4303016.00	445.93	311.9	530.0	87.970	14.0	7.81E+01	1.98E+01	1.98E+01
IL_145820	ConocoPhillips Co. - Sulfur recovery unit #1 (STK3-1)	752928.00	4303077.00	428.41	125.0	965.9	17.712	7.2	0.00E+00	4.05E+01	4.05E+01
IL_145826	ConocoPhillips Co. - Supplemental air compressor engine CCU-1	754240.00	4303144.00	443.47	15.0	117.1	20.369	1.5	7.10E-01	1.74E+00	1.74E+00
IL_145838	ConocoPhillips Co. - Sulfur recovery unit #2 (STK3-2)	752929.00	4303071.00	428.38	125.0	965.9	17.712	7.2	0.00E+00	4.05E+01	4.05E+01
IL_145850	ConocoPhillips Co. - Flare for major effluent treatment project	754240.00	4303144.00	443.47	30.0	78.0	14.006	9.2	4.51E+00	0.00E+00	0.00E+00
IL_147845	Mayco Mfg, LLC - Britt kettles combustion stack	747189.00	4286970.00	421.78	34.0	250.1	2.362	1.1	2.00E-01	0.00E+00	0.00E+00
IL_147846	Mayco Mfg, LLC - Mixed metals A-II dross baghouse discharge stack	747189.00	4286970.00	421.78	30.0	95.1	52.611	5.0	5.77E-01	0.00E+00	0.00E+00
IL_148354	ConocoPhillips Co. - Catalytic cracking unit #1 (STK6-2)	754864.00	4302895.00	442.88	199.9	175.0	49.954	11.0	2.32E+01	3.84E+01	3.84E+01
IL_149873	City of Alton - Incinerator	749456.00	4310990.00	446.33	25.0	1400.1	53.038	1.0	1.40E+00	0.00E+00	0.00E+00
IL_149908	Charles E. Mahoney - Drum mix asphalt plant	749517.00	4309892.00	443.14	25.0	295.1	66.289	4.0	5.74E+01	2.56E+01	2.56E+01
IL_154190	Milam Recycling and Disposal Facility - Engine #1	750544.00	4282853.00	411.88	26.0	820.0	86.231	0.8	6.93E+00	1.78E+00	1.78E+00
IL_154191	Milam Recycling and Disposal Facility - Engine #2	750538.00	4282852.00	412.01	26.0	820.0	86.231	0.8	6.93E+00	1.78E+00	1.78E+00
IL_154192	Milam Recycling and Disposal Facility - Engine #3	750548.00	4282855.00	411.81	26.0	820.0	86.231	0.8	7.14E+00	1.84E+00	1.84E+00
IL_155302	Alton Steel Inc. - Ladle Furnace	747753.00	4307832.00	433.07	74.0	275.1	87.215	3.0	2.24E+01	1.12E+01	1.12E+01
IL_155304	Precoat Metals - Boiler B1	749469.00	4292538.00	424.97	24.0	700.1	20.730	1.6	8.80E-01	0.00E+00	0.00E+00
IL_155305	Granite City Pickling & Warehousing - Boiler	746973.00	4286890.00	422.41	50.0	331.1	15.449	2.7	7.06E-01	0.00E+00	0.00E+00
IL_155307	Kraft Heinz Co. - Boiler B	748105.00	4289580.00	423.56	40.0	380.0	68.946	2.0	1.44E+00	0.00E+00	0.00E+00
IL_155437	Southwestern Illinois Correctional Center - 2 Boilers	753202.00	4278290.00	421.46	32.0	450.1	15.285	1.5	7.06E-01	0.00E+00	0.00E+00
IL_155441	Asphalt Sales & Products Inc. - Asphalt heaters and boilers	772959.00	4275690.00	514.30	33.0	341.0	18.368	3.2	0.00E+00	2.80E+00	2.80E+00
IL_156624	US Air Force/Scott Air Force Base - Boilers and Heaters	774337.00	4270862.00	440.32	30.0	331.1	23.288	2.2	4.81E+00	0.00E+00	0.00E+00
IL_156970	Olin Winchester, LLC - Package Boiler (B-6)	750906.00	4308625.00	436.06	35.0	400.0	84.854	2.0	0.00E+00	4.60E+00	4.60E+00
IL_159940	Afton Chemical Corp. - 258 Sulfonation Stack	746513.00	4276305.00	407.05	158.0	70.1	41.820	1.0	0.00E+00	5.59E+00	5.59E+00
IL_159942	Afton Chemical Corp. - Unit 266: Flare 36-0011/36-0610	746653.00	4276356.00	410.10	100.0	700.1	59.368	0.7	8.55E+00	4.90E+01	4.90E+01
IL_159965	Afton Chemical Corp. - Flare 36-0219	746513.00	4276305.00	407.05	146.0	1000.0	42.837	0.4	3.84E+00	2.74E+01	2.74E+01
IL_160741	Brady McCasland, Inc. - Compaction plant	748518.00	4276987.00	413.75	17.0	1521.1	65.469	1.8	5.20E-01	0.00E+00	0.00E+00
IL_160742	Darling Ingredients, Inc. - Kewanee boiler	747472.00	4281438.00	414.93	35.0	450.1	54.448	2.6	1.96E+00	1.51E+01	1.51E+01
IL_160799	ConocoPhillips Co. - Supplemental air compressor engine CCU-2	754240.00	4303144.00	443.47	48.0	117.1	20.369	1.5	0.00E+00	1.74E+00	1.74E+00
IL_160898	Afton Chemical Corp. - Boiler 500-15-0110	746653.00	4276489.00	405.22	45.0	350.0	17.318	7.0	4.89E+00	0.00E+00	0.00E+00
IL_165120	BFI Waste Systems of North America, Inc. - Flare	758882.00	4264336.00	574.97	35.0	1600.1	23.485	0.8	6.80E+00	0.00E+00	0.00E+00
IL_166479	Union Electric Co. - Turbine CT02A	745573.00	4283620.00	420.60	30.0	850.0	18.860	11.4	7.73E+01	2.73E+01	2.73E+01
IL_166491	Enable Mississippi River Transmission, LLC - Turbine SN-03	782556.00	4285336.00	492.29	30.0	749.9	86.854	2.5	9.56E+00	0.00E+00	0.00E+00
IL_167781	Amsted Rail Co., Inc. - Pouring and casting (PR/CST-1)	747025.00	4287611.00	424.80	101.0	251.0	34.768	9.7	0.00E+00	6.70E-01	6.70E-01
IL_167787	Amsted Rail Co., Inc. - Ladle Preheater (LDP-1)	747039.00	4287611.00	424.93	82.0	505.0	31.488	6.1	6.50E+00	2.20E-01	2.20E-01
IL_167858	ConocoPhillips Co. - Scot unit	754240.00	4303144.00	443.47	16.0	115.1	15.580	9.0	0.00E+00	1.72E+02	1.72E+02
IL_169226	Messer, LLC - 2 Boilers	752309.00	4301220.00	434.42	15.0	800.0	0.525	1.4	2.52E+00	0.00E+00	0.00E+00
IL_172707	St. Anthony's Hospital - Boiler #4	745097.00	4310364.00	584.58	64.0	400.0	58.614	2.3	0.00E+00	6.02E+00	6.02E+00
IL_179611	Highland Electric Light Plant - Engine IC-1	788126.93	4293320.17	534.65	12.0	656.0	86.920	1.2	1.44E+01	0.00E+00	0.00E+00
IL_179671	Village of Freeburg - Engine #1	769352.00	4257578.00	509.42	30.0	500.1	40.311	1.0	8.55E+00	8.25E-01	8.25E-01
IL_179672	Village of Freeburg - Engine #2	769352.00	4257578.00	509.42	30.0	500.1	40.311	1.0	8.55E+00	8.25E-01	8.25E-01
IL_179673	Village of Freeburg - Engine #3a	769352.00	4257578.00	509.42	25.0	500.1	55.170	1.0	5.92E+00	0.00E+00	0.00E+00
IL_181173	ConocoPhillips Co. - Loading rack	752292.00	4299987.00	429.92	40.0	1800.1	87.510	2.0	1.53E+00	0.00E+00	0.00E+00
IL_183733	Veolia ES Technical Solutions, LLC - Hazardous waste incinerator #4 (rotary kiln)	745532.00	4275942.00	414.76	57.0	650.9	32.570	2.8	3.17E+00	1.16E+01	1.16E+01
IL_189069	US Air Force/Scott Air Force Base - Diesel generators	774337.00	4270862.00	440.32	37.0	402.0	29.389	1.3	5.83E+01	0.00E+00	0.00E+00
IL_190090	Contract Services, LLC - 3 Boilers	746767.00	4275755.00	417.81	40.0	310.0	50.381	4.2	8.53E+00	5.14E+00	5.14E+00

Off-Site Point Source Model Input (NAD83, Zone 15)

Source ID	Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	Potential Emissions (lb/hr)		
									CO	SOx	SO2 (1-hour)
IL_192953	Midwest Metal Coatings, LLC - Chemical coater/infrared oven (CC/ IRO)	748281.00	4290395.00	423.88	34.0	110.0	18.926	3.0	2.90E-01	0.00E+00	0.00E+00
IL_192964	Midwest Metal Coatings, LLC - Afterburner	748281.00	4290395.00	423.88	34.0	900.1	23.780	5.0	3.28E-01	0.00E+00	0.00E+00
IL_192967	Midwest Metal Coatings, LLC - Boiler (B1)	748281.00	4290395.00	423.88	34.0	400.0	67.338	1.5	2.12E+00	0.00E+00	0.00E+00
IL_198552	Christ Bros Products, LLC - Drum mix asphalt plant	778702.00	4276345.00	439.34	35.0	297.1	62.254	3.8	2.95E+01	1.32E+01	1.32E+01
IL_201652	Empire Comfort Systems - Stack	763529.00	4266192.00	477.26	25.0	800.0	14.334	1.0	2.69E+00	0.00E+00	0.00E+00
IL_204833	Milam Recycling and Disposal Facility - 3 Passive solar flares	750550.00	4282537.00	594.06	20.0	1800.1	57.138	0.7	4.23E+00	4.38E+00	4.38E+00
IL_207740	Chemtrade Solutions, LLC - Scrubber C007	753339.00	4281367.00	422.21	30.0	70.1	0.394	0.3	0.00E+00	2.00E-01	2.00E-01
IL_208343	Center Point Terminal Co. - Asphalt and polymer modified blend tank (T-9)	746361.00	4289240.00	416.44	33.0	185.1	0.951	1.5	1.00E-01	0.00E+00	0.00E+00
IL_209238	Concrete Supply, LLC - Natural gas combustion	757768.00	4302270.00	444.69	20.0	341.0	25.781	2.7	9.69E-01	0.00E+00	0.00E+00
IL_209433	Alton Water Treatment Facility - Stack	742583.00	4309460.00	488.98	22.0	400.0	85.083	0.7	0.00E+00	5.50E-01	5.50E-01
IL_211274	Kienstra-Illinois, LLC - Natural gas combustion	764550.00	4296982.00	575.95	20.0	341.0	25.781	2.7	7.68E-01	0.00E+00	0.00E+00
IL_211772	Center Point Terminal Co. - Incinerator/waste heat boiler	746361.00	4289240.00	416.44	18.0	650.0	7.970	2.0	1.83E-01	1.05E+00	1.05E+00
IL_212692	Chain of Rocks Recycling & Disposal - Open flare	746945.00	4293274.00	431.59	20.0	1400.1	47.265	0.7	6.92E+00	1.06E+00	1.06E+00
IL_212881	Koch Fertilizer, LLC - Ammonia heater	750008.00	4305316.00	428.15	25.0	250.1	42.443	1.0	2.43E+00	5.30E-01	5.30E-01
IL_213573	Illinois Department of Transportation - R and K model 367-1 incinerator	732106.00	4332182.00	623.79	15.0	736.1	30.865	2.8	2.88E+00	0.00E+00	0.00E+00
IL_213834	Darling Ingredients, Inc. - Johnson boiler	747472.00	4281438.00	414.93	33.0	450.1	46.937	2.8	1.96E+00	1.51E+01	1.51E+01
IL_213854	Solvay Fluorides, LLC - Boiler	750245.00	4276115.00	419.72	30.0	361.0	7.314	2.8	1.44E+00	0.00E+00	0.00E+00
IL_215315	Madison County Sand, LLC - Drum mix asphalt plant	758921.00	4289026.00	422.01	32.0	245.0	64.452	4.1	1.63E+01	5.00E-01	5.00E-01
IL_217756	Phillips 66 Pipeline, LLC - Truck loading racks	744935.00	4274152.00	407.25	20.0	70.1	10.594	2.0	1.10E+01	0.00E+00	0.00E+00
IL_218530	ConocoPhillips Co. - North property ground flare (FLR1-2)	754486.00	4303322.00	445.08	195.0	1800.1	2.394	3.0	1.41E+01	0.00E+00	0.00E+00
IL_218537	Custom Steel Processing - Scrubber	746335.00	4286043.00	416.99	55.0	70.1	49.036	4.2	0.00E+00	1.00E-01	1.00E-01
IL_218539	Custom Steel Processing - Sulfuric acid storage tank	746335.00	4286043.00	416.99	35.0	127.0	0.000	2.4	0.00E+00	1.00E-01	1.00E-01
IL_218569	Contract Services, LLC - Boiler #4	746767.00	4275755.00	417.81	40.0	310.0	49.036	3.7	1.30E+01	1.64E+00	1.64E+00
IL_218687	ConocoPhillips Co. - Gas plant sour water stripper	754240.00	4303144.00	443.47	15.0	128.9	11.382	2.9	1.06E+00	0.00E+00	0.00E+00
IL_218995	Asphalt Sales & Products Inc. - Asphalt silos and truck loadout	772959.00	4275690.00	514.30	32.0	86.1	84.854	1.5	1.26E+00	0.00E+00	0.00E+00
IL_219420	Crown Textile Services - Boiler	744287.00	4259382.00	466.40	24.0	450.1	35.227	1.7	1.03E+00	0.00E+00	0.00E+00
IL_220266	American Colloid Co. - Sand drying	746862.00	4287239.00	419.91	72.0	491.1	28.766	3.3	1.29E+00	0.00E+00	0.00E+00
IL_220267	American Colloid Co. - Space Heaters	746862.00	4287239.00	419.91	35.0	198.1	21.484	1.4	2.30E-01	0.00E+00	0.00E+00
IL_220618	Asphalt Sales & Products Inc. - Drum mix asphalt plant	757560.00	4299901.00	441.63	32.0	280.0	68.322	4.3	7.61E+01	3.40E+01	3.40E+01
IL_220849	ConocoPhillips Co. - Alkylation unit flare (FLR6-1)	755035.00	4303081.00	442.55	199.9	1800.1	2.034	2.5	1.85E+01	0.00E+00	0.00E+00
IL_222033	Waterloo City Light Plant - Dual fuel-fired Turbine GT1	748326.00	4246769.00	640.45	39.0	612.1	41.590	4.8	1.77E+01	0.00E+00	0.00E+00
IL_222134	Asphalt Sales & Products Inc. - Asphalt silo loading	757560.00	4299901.00	441.63	26.0	123.0	4.986	1.7	7.00E-01	0.00E+00	0.00E+00
IL_222135	Asphalt Sales & Products Inc. - Asphalt heaters and boilers	757560.00	4299901.00	441.63	35.0	361.0	26.896	3.7	0.00E+00	2.80E+00	2.80E+00
IL_222988	Apex Oil Co., Inc. - Thermal oxidizers	752471.00	4302667.00	431.07	18.0	820.0	43.985	2.3	2.98E+00	0.00E+00	0.00E+00
IL_223796	Union Electric Co. - Turbine CT03	745735.00	4282930.00	420.96	38.0	603.1	74.948	3.4	4.90E+01	1.30E+00	1.30E+00
IL_223797	Union Electric Co. - Turbine CT04	745776.00	4282947.00	421.16	38.0	603.1	74.948	3.4	4.90E+01	1.30E+00	1.30E+00
IL_223798	Union Electric Co. - Turbine CT05	745538.00	4283620.00	420.90	38.0	603.1	74.948	3.4	6.90E+01	9.00E-01	9.00E-01
IL_224167	Interurban ILAWC - Emergency generator	757265.00	4276109.00	482.38	29.0	880.1	51.463	1.3	1.10E+01	4.60E+00	0.00E+00
IL_224416	Belleville Landfill, Inc. - Flare	760402.00	4264040.00	571.88	35.0	1600.1	8.659	0.8	1.22E+01	0.00E+00	0.00E+00
IL_224592	Christ Bros Products, LLC - Drum mix asphalt plant	755685.00	4299823.00	431.10	32.0	251.0	53.628	4.1	3.09E+01	1.38E+01	1.38E+01
IL_224594	Christ Bros Products, LLC - Asphalt tank heaters and boilers	755701.00	4299841.00	427.46	10.0	416.0	42.443	1.0	1.18E+00	2.80E+00	2.80E+00
IL_224838	Enable Mississippi River Transmission, LLC - Compressor engine SN-01	750039.00	4285426.00	410.47	22.0	1125.1	66.453	1.1	5.67E+00	0.00E+00	0.00E+00
IL_224839	Enable Mississippi River Transmission, LLC - Compressor engine SN-02	750044.00	4285416.00	410.24	22.0	1125.1	66.453	1.1	5.67E+00	0.00E+00	0.00E+00
IL_224840	Enable Mississippi River Transmission, LLC - Compressor engine SN-03	750049.00	4285406.00	410.37	22.0	1125.1	66.453	1.1	5.67E+00	0.00E+00	0.00E+00
IL_224841	Enable Mississippi River Transmission, LLC - Compressor engine SN-04	750054.00	4285397.00	410.30	22.0	1125.1	66.453	1.1	5.67E+00	0.00E+00	0.00E+00
IL_224901	Premcor Refining Group, Inc. - Thermal oxidizer	752775.00	4302414.00	429.95	20.0	342.1	49.462	0.8	7.40E-01	0.00E+00	0.00E+00
IL_225166	Metro Crematory - Crematory	754120.00	4290785.00	417.29	18.0	736.1	84.854	1.0	1.50E+00	0.00E+00	0.00E+00
IL_225832	ConocoPhillips Co. - Startup/malfunction/breakdown	754240.00	4303144.00	443.47	103.0	623.9	21.681	4.6	2.86E+01	1.91E+02	1.91E+02
IL_225843	City of O'Fallon - 400 kW (591 HP) Diesel generator	774612.00	4277280.00	434.42	13.0	500.1	86.592	0.7	3.37E+00	0.00E+00	0.00E+00
IL_225844	City of O'Fallon - 900 kW (1 322 HP) Diesel generator	774612.00	4277280.00	434.42	17.0	500.1	86.592	0.7	7.55E+00	0.00E+00	0.00E+00
IL_225960	Waterloo City Light Plant - Engine #4	748326.00	4246769.00	640.45	37.0	680.1	87.904	2.5	3.32E+01	0.00E+00	0.00E+00
IL_226013	Milam Recycling and Disposal Facility - 325 HP Tub grinder	750550.00	4282537.00	594.06	7.0	627.0	74.030	0.3	2.20E+00	8.00E-01	8.00E-01
IL_226014	Milam Recycling and Disposal Facility - Enclosed flare	750476.00	4282825.00	419.62	55.0	1400.1	0.656	12.0	2.40E+01	6.08E+00	6.08E+00
IL_226015	Milam Recycling and Disposal Facility - 760 HP Tub grinder	750550.00	4282537.00	594.06	8.0	627.0	70.881	0.7	5.10E+00	1.90E+00	1.90E+00
IL_226184	GBC Metals, LLC (d/b/a Olin Brass) - 1F Mix muller (MM-3) Low profile turbine (LF-1) and Induction form s	750075.00	4306259.00	432.32	41.0	209.9	36.080	2.1	2.00E+00	0.00E+00	0.00E+00
IL_226204	GBC Metals, LLC (d/b/a Olin Brass) - Strip anneal #4 (SA-4)	750150.00	4308388.00	431.10	90.0	350.0	41.426	1.6	9.33E+01	0.00E+00	0.00E+00

Off-Site Point Source Model Input (NAD83, Zone 15)

Source ID	Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	Potential Emissions (lb/hr)		
									CO	SOx	SO2 (1-hour)
IL_226256	GBC Metals, LLC (d/b/a Olin Brass) - Strip Anneal #3 (SA-3)	750439.00	4308328.00	433.83	100.0	350.0	62.746	1.3	9.83E+01	0.00E+00	0.00E+00
IL_226257	GBC Metals, LLC (d/b/a Olin Brass) - #7 Strip Anneal (SA-7)	750222.00	4308335.00	433.20	89.0	850.0	38.671	1.5	1.18E+02	0.00E+00	0.00E+00
IL_226352	Olin Winchester, LLC - Hammermill 1 2 and 3 (HM-1 HM-2 and HM-3)	750495.00	4308287.00	434.42	21.0	160.1	19.647	1.8	8.03E+00	0.00E+00	0.00E+00
IL_226612	Solutia Inc. - Santoflex process: Thermal oxidizer 2770934	746325.00	4275822.00	405.12	112.0	865.0	16.794	12.6	1.50E+01	0.00E+00	0.00E+00
IL_226783	Schildknecht Funeral Home, Inc. - Crematory	769033.00	4275796.00	549.57	17.0	1241.0	13.612	1.7	1.20E+00	0.00E+00	0.00E+00
IL_227030	ConocoPhillips Co. - #4 Crude unit heater H-24 (STK9-5)	753051.00	4302413.00	428.81	179.9	550.0	26.207	8.5	2.27E+01	0.00E+00	0.00E+00
IL_227032	ConocoPhillips Co. - Hydrogen plant #1 flare (FLR12-2)	755194.00	4302793.00	443.67	130.0	1800.1	7.970	1.7	1.62E+01	0.00E+00	0.00E+00
IL_227034	ConocoPhillips Co. - Sulfur operation	754240.00	4303144.00	443.47	158.0	590.1	37.753	3.4	0.00E+00	3.00E+01	3.00E+01
IL_227035	ConocoPhillips Co. - Process heater HP-1 (STK12-6)	755194.00	4302793.00	443.67	127.0	360.1	27.093	7.5	6.97E+00	0.00E+00	0.00E+00
IL_227038	ConocoPhillips Co. - SZU Charge heater H-3	755219.00	4302667.00	442.29	150.0	567.1	25.518	5.0	5.75E+00	0.00E+00	0.00E+00
IL_227333	Waterloo City Light Plant - Engine SG5	750635.00	4249410.00	628.97	8.0	924.0	61.172	0.7	1.40E+00	0.00E+00	0.00E+00
IL_227400	Collinsville Wastewater Treatment Plant - Emergency diesel generator (2922 HP/2180 kW)	758289.00	4283982.00	419.36	36.0	692.0	67.371	2.0	1.72E+01	1.20E+00	0.00E+00
IL_227432	Totall Metal Recycling, Inc. - Safety certification unit	748030.00	4289120.00	422.74	6.0	587.0	8.069	1.2	1.00E-01	0.00E+00	0.00E+00
IL_227590	Illinois Electric Works - 3 Burn off ovens	747872.00	4288124.00	423.20	46.0	250.1	41.230	2.4	1.17E+00	6.90E-02	6.90E-02
IL_227679	Union Electric Co. - Diesel generator	745516.00	4283326.00	430.38	26.0	490.0	60.811	1.4	1.30E+00	1.60E-01	1.60E-01
IL_228119	St. Clair Crematory - Human crematory	773291.00	4275644.00	507.28	17.0	1241.0	13.612	1.7	1.20E+00	0.00E+00	0.00E+00
IL_228260	Center Ethanol Co. - West boiler	745888.00	4275662.00	412.66	75.0	428.1	43.460	3.0	3.23E+00	0.00E+00	0.00E+00
IL_228262	Center Ethanol Co. - East boiler	745888.00	4275662.00	412.66	75.0	428.1	45.428	3.0	3.23E+00	0.00E+00	0.00E+00
IL_228263	Center Ethanol Co. - RTO	745888.00	4275662.00	412.66	50.0	310.0	70.684	5.5	6.85E+00	0.00E+00	0.00E+00
IL_228294	ConocoPhillips Co. - Distilling west refinery flare (FLR10-1)	753647.00	4302546.00	430.31	197.0	1800.1	6.626	3.0	2.51E+01	0.00E+00	0.00E+00
IL_228295	ConocoPhillips Co. - SZU Regenerator vent	755209.00	4302720.00	442.32	44.0	135.1	32.341	2.0	1.78E+00	2.35E+00	2.35E+00
IL_229921	Christ Bros Products, LLC - 8 Heaters and boilers	754160.00	4283243.00	419.46	37.0	400.0	20.664	1.8	1.18E+00	2.80E+00	2.80E+00
IL_229922	Christ Bros Products, LLC - Silo filling	754160.00	4283243.00	419.46	25.0	74.0	0.262	0.4	5.10E-01	0.00E+00	0.00E+00
IL_229923	Christ Bros Products, LLC - Truck loading	754160.00	4283243.00	419.46	29.0	135.1	48.052	2.0	5.80E-01	0.00E+00	0.00E+00
IL_230300	Afton Chemical Corp. - Flare 36-0090	746478.00	4276293.00	407.28	45.0	1600.1	0.656	8.0	2.20E+00	0.00E+00	0.00E+00
IL_230350	Village of Freeburg - Engine #10	769352.00	4257578.00	509.42	28.0	929.9	87.674	1.5	1.28E+01	3.20E+00	3.20E+00
IL_230355	Asphalt Sales & Products Inc. - Truck loadout	757560.00	4299901.00	441.63	28.0	135.1	43.198	1.9	7.90E-01	0.00E+00	0.00E+00
IL_231259	Village of Freeburg - Engine #11	769352.00	4257578.00	509.42	28.0	929.9	87.674	1.5	1.28E+01	3.20E+00	3.20E+00
IL_231260	Village of Freeburg - Engine #12	769352.00	4257578.00	509.42	28.0	929.9	87.674	1.5	1.28E+01	3.20E+00	3.20E+00
IL_231291	Kurrus Funeral Home - 2 Crematories	759066.00	4271234.00	547.11	18.0	787.0	13.186	1.1	2.70E+00	0.00E+00	0.00E+00
IL_232739	ConocoPhillips Co. - Benzene extraction unit #3 (STK6-4)	754923.00	4302930.00	442.59	185.0	470.0	16.138	9.7	1.22E+01	0.00E+00	0.00E+00
IL_232785	Roxana Landfill, Inc. - Enclosed flare	759153.00	4301368.00	619.62	35.0	1600.1	20.008	12.0	2.31E+01	1.76E+00	1.76E+00
IL_233294	Gateway Terminals, LLC. - Marine vapor combustion unit (MVCU)	744607.00	4275093.00	422.70	74.0	514.0	25.158	3.3	1.69E+01	0.00E+00	0.00E+00
IL_233295	Gateway Terminals, LLC. - Truck/Rail vapor destruction unit (TRCU)	744607.00	4275093.00	422.70	74.0	514.0	25.158	3.3	8.39E+00	0.00E+00	0.00E+00
IL_235261	Gulfstream Aerospace Services Corp. - Make-up air unit 19-3	747629.00	4273560.00	410.10	42.0	577.0	29.356	2.5	1.63E+00	0.00E+00	0.00E+00
IL_235939	GBC Metals, LLC (d/b/a Olin Brass) - Strip anneal #5 (SA-5)	750151.00	4308373.00	430.91	90.0	450.1	54.087	1.4	1.07E+02	0.00E+00	0.00E+00
IL_235940	GBC Metals, LLC (d/b/a Olin Brass) - Strip anneal #6 (SA-6)	750207.00	4308390.00	431.82	110.0	580.0	62.779	1.3	1.07E+02	0.00E+00	0.00E+00
IL_236260	Bunge-SF Grain, LLC. - Grain Dryer	746158.00	4281045.00	417.55	96.0	105.0	87.904	8.2	5.06E+00	1.71E+01	1.71E+01
IL_236359	City of Belleville - 2 Emergency generators (1500 kW each)	763544.00	4265595.00	474.70	28.0	627.0	73.767	1.2	2.57E+01	1.84E+00	0.00E+00
IL_236927	Kraft Heinz Co. - Boiler C	748105.00	4289580.00	423.56	40.0	380.0	68.946	2.0	1.44E+00	0.00E+00	0.00E+00
IL_236928	Kraft Heinz Co. - Boiler D	748105.00	4289580.00	423.56	40.0	380.0	68.946	2.0	1.44E+00	0.00E+00	0.00E+00
IL_236929	Kraft Heinz Co. - Boiler E	748105.00	4289580.00	423.56	40.0	380.0	68.946	2.0	1.44E+00	0.00E+00	0.00E+00
IL_236930	National Maintenance and Repair - Cleaver Brooks boiler (Stack 2 of 2)	750920.00	4300904.00	402.46	34.0	450.1	23.321	2.0	1.90E+00	5.00E+00	5.00E+00
IL_237099	Union Electric Co. - Turbine CT02B	745573.00	4283613.00	419.69	30.0	850.0	18.860	11.4	7.74E+01	2.73E+01	2.73E+01
IL_237182	Highland Electric Light Plant - Engine IC-6	788126.93	4293320.17	534.65	28.0	612.1	84.854	2.0	1.32E+01	0.00E+00	0.00E+00
IL_237183	Highland Electric Light Plant - Engine IC-8	788126.93	4293320.17	534.65	57.0	734.1	61.762	11.4	2.57E+01	0.00E+00	0.00E+00
IL_237340	Charles E. Mahoney - Asphalt silo filling	749517.00	4309892.00	443.14	25.0	74.0	0.262	0.4	5.30E-01	0.00E+00	0.00E+00
IL_237341	Charles E. Mahoney - Truck loadout	749517.00	4309892.00	443.14	27.0	136.0	42.050	1.9	6.00E-01	0.00E+00	0.00E+00
IL_237362	Charles E. Mahoney - Asphalt heaters and boilers	749517.00	4309892.00	443.14	10.0	350.0	69.995	1.0	1.18E+00	2.80E+00	2.80E+00
IL_237659	Green Plains Madison, LLC - Boiler #1	745256.00	4285477.00	414.14	71.0	284.1	22.960	3.3	1.29E+00	5.00E-01	5.00E-01
IL_237660	Green Plains Madison, LLC - Fire Pump back-up Engine (460 HP)	745191.00	4285409.00	413.85	13.0	627.0	86.231	0.8	4.80E-01	9.40E-01	0.00E+00
IL_237661	Green Plains Madison, LLC - Electrical system backup Engine (1495 HP)	745144.00	4285537.00	415.88	28.0	627.0	73.767	1.2	3.54E+00	1.21E+01	0.00E+00
IL_237679	Green Plains Madison, LLC - Indirect dryer #1	745191.00	4285468.00	415.12	71.0	387.1	12.136	4.6	7.97E+00	4.10E-01	4.10E-01
IL_237866	Amsted Rail Co., Inc. - Curing oven	746913.00	4287625.00	419.23	39.0	258.0	27.978	1.9	2.52E-01	0.00E+00	0.00E+00
IL_237899	Center Ethanol Co. - Emergency generator	745888.00	4275662.00	412.66	28.0	627.0	73.767	1.2	3.30E+00	0.00E+00	0.00E+00
IL_237903	Center Ethanol Co. - Ethanol loadout Rack	745888.00	4275662.00	412.66	19.0	99.1	7.806	0.7	8.86E-01	0.00E+00	0.00E+00

Off-Site Point Source Model Input (NAD83, Zone 15)

Source ID	Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	Potential Emissions (lb/hr)		
									CO	SOx	SO2 (1-hour)
IL_238199	Solutia Inc. - An in-situ soil vapor extraction system	746325.00	4275822.00	405.12	15.0	70.1	73.406	0.2	4.00E-01	0.00E+00	0.00E+00
IL_238839	Waterloo City Light Plant - Turbine Generator (GT2)	748326.00	4246769.00	640.45	39.0	965.9	87.937	4.8	1.78E+01	0.00E+00	0.00E+00
IL_238942	ConocoPhillips Co. - Rental Boiler #3	754240.00	4303144.00	443.47	20.0	550.0	46.412	4.0	1.65E+00	0.00E+00	0.00E+00
IL_239395	Amsted Rail Co., Inc. - Sand dryer	746975.00	4287537.00	422.05	39.0	284.1	23.157	2.0	1.24E+00	0.00E+00	0.00E+00
IL_239396	Amsted Rail Co., Inc. - Thermal sand reclaimer	746975.00	4287537.00	422.05	39.0	284.1	23.157	2.0	3.70E-01	0.00E+00	0.00E+00
IL_239899	Shell Oil Products US - RTO	753758.00	4303650.00	442.59	19.0	200.0	33.948	2.5	0.00E+00	8.47E-01	8.47E-01
IL_240053	Westwood Lands, Inc. - Process heater DFH-1	748864.00	4285684.00	412.99	39.0	284.1	23.157	2.0	8.30E-01	0.00E+00	0.00E+00
IL_240359	Afton Chemical Corp. - Boiler 500-15-0210	746660.00	4276488.00	405.74	45.0	350.0	17.318	7.0	4.89E+00	0.00E+00	0.00E+00
IL_240360	Afton Chemical Corp. - Boiler 500-15-0310	746674.00	4276485.00	407.25	45.0	350.0	17.318	7.0	4.91E+00	0.00E+00	0.00E+00
IL_241300	ConocoPhillips Co. - VOC Flare (West - FLR4-1)	753428.00	4303073.00	428.81	30.0	1800.1	26.174	0.7	1.43E+00	0.00E+00	0.00E+00
IL_241301	ConocoPhillips Co. - VOC Flare (East - FLR4-2)	753441.00	4303073.00	428.77	30.0	1800.1	26.174	0.7	1.43E+00	0.00E+00	0.00E+00
IL_241302	ConocoPhillips Co. - Coker north flare (FLR1-3)	754947.00	4303684.00	444.23	139.0	911.0	26.535	5.4	0.00E+00	3.08E+01	3.08E+01
IL_241303	ConocoPhillips Co. - VF-5 Heater (H350H4 - STK1-1)	754937.00	4303459.00	444.98	150.0	650.0	26.765	12.0	0.00E+00	1.35E+01	1.35E+01
IL_241304	ConocoPhillips Co. - Coker north heater (H351H2 - STK1-2)	754953.00	4303305.00	444.85	150.0	500.1	22.304	10.0	0.00E+00	7.37E+00	7.37E+00
IL_241305	ConocoPhillips Co. - Coker north heater (H351H1 - STK1-3)	754986.00	4303306.00	444.82	150.0	500.1	22.304	10.0	0.00E+00	7.38E+00	7.38E+00
IL_241312	ConocoPhillips Co. - Heater HP-2 (STK7-1)	755263.00	4302920.00	443.86	118.0	400.0	45.002	10.8	0.00E+00	2.87E+01	2.87E+01
IL_241405	Procter & Gamble Distributing - Emergency diesel generator #1	756504.00	4295421.00	425.00	26.0	490.0	60.811	1.4	1.68E+01	0.00E+00	0.00E+00
IL_241449	Procter & Gamble Distributing - Emergency diesel generator #2	756494.00	4295735.00	424.74	26.0	490.0	60.811	1.4	1.68E+01	0.00E+00	0.00E+00
IL_242126	Center Point Terminals Co. - Tank Heater	746359.00	4289027.00	411.84	49.0	331.1	32.144	2.5	1.03E+00	0.00E+00	0.00E+00
IL_245579	Procter & Gamble Distributing - Emergency diesel generator #3	756198.00	4295409.00	424.97	26.0	490.0	60.811	1.4	1.68E+01	0.00E+00	0.00E+00
IL_245580	Procter & Gamble Distributing - Emergency diesel generator #4	756182.00	4295721.00	424.77	26.0	490.0	60.811	1.4	1.68E+01	0.00E+00	0.00E+00
IL_245839	Milam Recycling and Disposal Facility - Landfill gas conversion plant	750666.00	4282895.00	413.09	55.0	70.1	0.000	4.5	3.80E+00	9.00E-01	9.00E-01
IL_246759	Stookey Township WWTP - 2000 kW Emergency generator	756253.00	4269975.00	518.86	28.0	627.0	73.767	1.2	1.54E+01	0.00E+00	0.00E+00
IL_246761	Omega Partners Hartford, LLC - Truck Rail Marine racks loadout and VCUs	752232.00	4300866.00	430.74	33.0	69.5	0.328	0.3	6.60E+00	0.00E+00	0.00E+00
IL_246762	Omega Partners Hartford, LLC - Boiler 1 and 2	752273.00	4300698.00	430.18	58.0	436.0	27.650	3.4	3.83E+00	0.00E+00	0.00E+00
IL_248060	Kraft Heinz Co. - Boiler F	748105.00	4289580.00	423.56	26.0	380.0	34.407	2.0	1.44E+00	0.00E+00	0.00E+00
IL_248262	Olin Winchester, LLC - New Rotary retort process (RDR-2)	750495.00	4308287.00	434.42	16.0	119.9	26.634	1.7	9.62E+00	0.00E+00	0.00E+00
IL_248799	Gateway Terminals, LLC. - 600 HP Boiler	744607.00	4275093.00	422.70	26.0	440.0	39.557	2.2	2.11E+00	0.00E+00	0.00E+00
IL_249480	Highland Electric Light Plant - Engine IC-2	788126.93	4293320.17	534.65	57.0	734.1	61.762	11.4	1.44E+01	0.00E+00	0.00E+00
IL_249481	Highland Electric Light Plant - Engine IC-3	788126.93	4293320.17	534.65	57.0	734.1	61.762	11.4	1.25E+01	0.00E+00	0.00E+00
IL_249482	Highland Electric Light Plant - Engine IC-9	788126.93	4293320.17	534.65	57.0	734.1	61.762	11.4	1.50E+01	0.00E+00	0.00E+00
IL_249483	Highland Electric Light Plant - Engine IC-10	788126.93	4293320.17	534.65	57.0	734.1	61.762	11.4	1.50E+01	0.00E+00	0.00E+00
IL_249499	Roxana Landfill, Inc. - Zink ultra-Low emissions (Zule) Flare	759153.00	4301368.00	619.62	60.0	1800.1	46.838	13.0	1.25E+01	1.55E+01	1.55E+01
IL_250343	Mayco Mfg, LLC - Natural gas combustion	747189.00	4286970.00	421.78	39.0	284.1	23.157	2.0	1.74E+00	0.00E+00	0.00E+00
IL_250892	ConocoPhillips Co. - Lift station pump (21028)	754240.00	4303144.00	443.47	26.0	490.0	60.811	1.4	1.40E+00	4.90E-01	4.90E-01
IL_250893	ConocoPhillips Co. - Lift station pump (21029)	754240.00	4303144.00	443.47	26.0	490.0	60.811	1.4	1.30E+00	4.60E-01	4.60E-01
IL_250894	ConocoPhillips Co. - Non-emergency air compressor #1	754240.00	4303144.00	443.47	26.0	490.0	60.811	1.4	6.01E+00	2.12E+00	2.12E+00
IL_250895	ConocoPhillips Co. - Non-emergency air compressor #2	754240.00	4303144.00	443.47	26.0	490.0	60.811	1.4	6.01E+00	2.12E+00	2.12E+00
IL_250896	ConocoPhillips Co. - Non-emergency air compressor #3	754240.00	4303144.00	443.47	26.0	490.0	60.811	1.4	5.98E+00	2.10E+00	2.10E+00
IL_250897	ConocoPhillips Co. - Non-emergency air compressor #4	754240.00	4303144.00	443.47	26.0	490.0	60.811	1.4	6.01E+00	2.12E+00	2.12E+00
IL_250898	ConocoPhillips Co. - Non-emergency air compressor #5	754240.00	4303144.00	443.47	26.0	490.0	60.811	1.4	6.01E+00	2.12E+00	2.12E+00
IL_250899	ConocoPhillips Co. - Non-emergency air compressor #6	754240.00	4303144.00	443.47	26.0	490.0	60.811	1.4	5.98E+00	2.10E+00	2.10E+00
IL_251099	Amsted Rail Co., Inc. - Annealing Furnace 18	747071.00	4287670.00	426.02	39.0	284.1	23.157	2.0	1.12E+00	1.00E-01	1.00E-01
IL_251286	Premcor Refining Group, Inc. - Vapor Combustion Unit	752775.00	4302414.00	429.95	53.0	289.0	24.830	2.9	1.00E+01	0.00E+00	0.00E+00
IL_251735	ConocoPhillips Co. - Diesel engine (605 HP)	754240.00	4303144.00	443.47	15.0	69.5	0.328	0.3	3.50E+00	0.00E+00	0.00E+00
IL_251754	Chain of Rocks Recycling & Disposal - Passive flare #1	746944.00	4293274.00	431.79	10.0	841.0	4.756	0.5	4.95E-01	0.00E+00	0.00E+00
IL_253107	Allnex USA, Inc. - Natural gas combustion	749698.00	4276478.00	418.37	58.0	436.0	27.650	3.4	3.26E+00	0.00E+00	0.00E+00
IL_253166	Cerro Flow Products, LLC. - Generators	746228.00	4275272.00	407.32	26.0	490.0	60.811	1.4	9.23E-01	2.82E-01	2.82E-01
IL_253167	City of Belleville - Emergency diesel generator (1500 kW)	762469.00	4266351.00	468.70	26.0	490.0	60.811	1.4	1.16E+01	0.00E+00	0.00E+00
IL_253300	Phillips 66 Pipeline, LLC - Engines (insignificant activities)	744935.00	4274152.00	407.25	26.0	490.0	60.811	1.4	9.23E-01	0.00E+00	0.00E+00
IL_253361	Amsted Rail Co., Inc. - Sand regeneration process (combustion)	746975.00	4287537.00	422.05	39.0	284.1	23.157	2.0	2.80E-01	2.80E-01	2.80E-01
IL_253367	Green Plains Madison, LLC - Boiler #2	745258.00	4285486.00	414.27	71.0	284.1	22.960	3.3	1.29E+00	5.00E-01	5.00E-01
IL_253368	Green Plains Madison, LLC - Boiler #3	745260.00	4285491.00	414.24	71.0	284.1	22.960	3.3	1.29E+00	5.00E-01	5.00E-01
IL_253369	Green Plains Madison, LLC - Boiler #4	745262.00	4285500.00	414.21	71.0	284.1	22.960	3.3	1.29E+00	5.00E-01	5.00E-01
IL_253370	Green Plains Madison, LLC - Indirect dryer #2	745164.00	4285430.00	414.60	81.0	387.1	8.430	5.5	7.97E+00	4.10E-01	4.10E-01
IL_253386	GBC Metals, LLC (d/b/a Olin Brass) - Engines (insignificant activities)	750423.00	4308352.00	434.28	26.0	490.0	60.811	1.4	9.23E-01	0.00E+00	0.00E+00

Off-Site Point Source Model Input (NAD83, Zone 15)

Source ID	Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	Potential Emissions (lb/hr)		
									CO	SOx	SO2 (1-hour)
IL_253738	Milam Recycling and Disposal Facility - 2000 scfm Utility Flare	750550.00	4282537.00	594.06	36.0	852.0	18.565	4.6	1.83E+01	7.32E+00	7.32E+00
IL_253769	Veolia ES Technical Solutions, LLC - 2 Emergency generators	745532.00	4275942.00	414.76	26.0	490.0	60.811	1.4	7.41E-01	0.00E+00	0.00E+00
IL_254175	Chain of Rocks Recycling & Disposal - Passive flare #2	746944.00	4293274.00	431.79	10.0	841.0	4.756	0.5	4.95E-01	0.00E+00	0.00E+00
IL_254176	Chain of Rocks Recycling & Disposal - Passive flare #3	746944.00	4293274.00	431.79	10.0	841.0	4.756	0.5	4.95E-01	0.00E+00	0.00E+00
IL_254177	Chain of Rocks Recycling & Disposal - Passive flare #4	746944.00	4293274.00	431.79	10.0	841.0	4.756	0.5	4.95E-01	0.00E+00	0.00E+00
IL_254178	Chain of Rocks Recycling & Disposal - Passive flare #5	746944.00	4293274.00	431.79	10.0	841.0	4.756	0.5	4.95E-01	0.00E+00	0.00E+00
IL_254179	Chain of Rocks Recycling & Disposal - Passive flare #6	746944.00	4293274.00	431.79	10.0	841.0	4.756	0.5	4.95E-01	0.00E+00	0.00E+00
IL_254699	HSHS St. Elizabeth's Hospital - 2 Emergency generators	767237.00	4275111.00	541.01	28.0	627.0	73.767	1.2	1.93E+01	0.00E+00	0.00E+00
IL_255341	Roxana Landfill, Inc. - New open flare	759153.00	4301368.00	619.62	45.0	1800.1	61.434	1.3	3.77E+01	8.17E+00	8.17E+00
IL_255527	Magnesium Elektron North America - Natural gas combustion	746452.00	4285724.00	415.49	39.0	284.1	23.157	2.0	4.20E-01	0.00E+00	0.00E+00
IL_255741	ConocoPhillips Co. - Utility Boiler #19 (BLR-19)	754755.00	4302798.00	442.16	132.0	304.1	46.281	7.0	0.00E+00	1.54E+01	1.54E+01
IL_255816	Mayco Mfg, LLC - Expansion: Natural gas combustion	747189.00	4286970.00	421.78	39.0	284.1	23.157	2.0	1.94E+00	0.00E+00	0.00E+00
IL_255953	Moore Recycling Concrete & Asphalt, LLC. - Drum mix asphalt plant	762178.00	4246660.00	463.19	35.0	251.0	56.908	4.0	1.32E+01	0.00E+00	0.00E+00
IL_256624	PBT Acquisition, LLC - ASR Dryer	748704.00	4280830.00	418.77	32.0	305.0	19.483	1.5	2.53E+00	0.00E+00	0.00E+00
IL_257535	Marathon Ashland Pipe Line, LLC - Marine vapor combustion unit	751239.00	4302663.00	402.85	51.0	810.1	27.749	7.4	2.71E+01	0.00E+00	0.00E+00
SJEFF1	RIVER CEMENT CO. DBA BUZZI UNICEM USA SELMA PLANT	733431.84	4229131.13	406.36	410.0	370.0	54.081	19.0		1.44E+02	1.44E+02
SJEFF2	RIVER CEMENT CO. DBA BUZZI UNICEM USA SELMA PLANT	733431.84	4229131.13	406.36	125.0	210.0	59.173	6.6		2.04E-02	2.04E-02
SJEFF3	RIVER CEMENT CO. DBA BUZZI UNICEM USA SELMA PLANT	733431.84	4229131.13	406.36	10.0	1100.0	23.333	0.5		1.32E-01	0.00E+00
SJEFF15	SPECIALTY ELECTRONIC MATERIALS US INC THE RIVERSIDE PLANT	728353.47	4240500.97	465.09	52.0	260.0	10.666	2.0		5.09E-03	5.09E-03
SJEFF16	SPECIALTY ELECTRONIC MATERIALS US INC THE RIVERSIDE PLANT	728353.47	4240500.97	465.09	10.0	1100.0	23.333	0.5		2.29E-01	2.29E-01
SJEFF17	SPECIALTY ELECTRONIC MATERIALS US INC THE RIVERSIDE PLANT	728353.47	4240500.97	465.09	10.0	1100.0	23.333	0.5		2.40E-03	2.40E-03
SJEFF18	SPECIALTY ELECTRONIC MATERIALS US INC THE RIVERSIDE PLANT	728353.47	4240500.97	465.09	10.0	1100.0	23.333	0.5		2.29E-01	0.00E+00
SJEFF19	SPECIALTY ELECTRONIC MATERIALS US INC THE RIVERSIDE PLANT	728353.47	4240500.97	465.09	10.0	1100.0	23.333	0.5		1.80E-03	1.80E-03
SJEFF20	SPECIALTY ELECTRONIC MATERIALS US INC THE RIVERSIDE PLANT	728353.47	4240500.97	465.09	10.0	1100.0	23.333	0.5		1.20E-03	1.20E-03
SJEFF21	SPECIALTY ELECTRONIC MATERIALS US INC THE RIVERSIDE PLANT	728353.47	4240500.97	465.09	10.0	1100.0	23.333	0.5		5.40E-04	5.40E-04
SJEFF22	SPECIALTY ELECTRONIC MATERIALS US INC THE RIVERSIDE PLANT	728353.47	4240500.97	465.09	10.0	1100.0	23.333	0.5		4.80E-04	4.80E-04
SJEFF23	SPECIALTY ELECTRONIC MATERIALS US INC THE RIVERSIDE PLANT	728353.47	4240500.97	465.09	10.0	1100.0	23.333	0.5		4.20E-04	4.20E-04
SJEFF24	SPECIALTY ELECTRONIC MATERIALS US INC THE RIVERSIDE PLANT	728353.47	4240500.97	465.09	10.0	1100.0	23.333	0.5		3.00E-04	3.00E-04
SJEFF25	SPECIALTY ELECTRONIC MATERIALS US INC THE RIVERSIDE PLANT	728353.47	4240500.97	465.09	15.0	1049.0	149.734	0.2		4.80E-04	0.00E+00
SJEFF26	AMEREN MISSOURI RUSH ISLAND ENERGY CENTER	739491.07	4224078.19	407.87	700.0	270.0	82.001	20.7		1.73E+03	1.73E+03
SJEFF27	AMEREN MISSOURI RUSH ISLAND ENERGY CENTER	739491.07	4224078.19	407.87	700.0	270.0	82.001	29.0		2.50E+03	2.50E+03
SJEFF28	AMEREN MISSOURI RUSH ISLAND ENERGY CENTER	739491.07	4224078.19	407.87	30.0	985.0	105.633	1.3		8.52E-06	0.00E+00
SJEFF29	AMEREN MISSOURI RUSH ISLAND ENERGY CENTER	739491.07	4224078.19	407.87	240.0	600.0	32.999	7.0		3.54E-03	3.54E-03
SJEFF59	MERCY HOSPITAL JEFFERSON	728195.03	4230846.83	425.75	14.0	392.0	0.003	1.7	3.03E-01	2.17E-03	2.17E-03
SJEFF60	MERCY HOSPITAL JEFFERSON	728195.03	4230846.83	425.75	14.0	392.0	0.003	1.7	3.03E-01	2.17E-03	2.17E-03
SJEFF61	MERCY HOSPITAL JEFFERSON	728195.03	4230846.83	425.75	14.0	392.0	0.003	1.7	4.20E-02	3.00E-04	3.00E-04
SJEFF62	MERCY HOSPITAL JEFFERSON	728195.03	4230846.83	425.75	14.0	392.0	0.000	1.7	1.12E-02	7.98E-05	7.98E-05
SJEFF63	MERCY HOSPITAL JEFFERSON	728195.03	4230846.83	425.75	27.0	1800.0	10.046	1.5	2.86E-02	1.63E-01	1.63E-01
SJEFF65	MERCY HOSPITAL JEFFERSON	728195.03	4230846.83	425.75	20.0	0.0	0.000	0.5	1.45E-02	4.34E-04	4.34E-04
SJEFF66	MERCY HOSPITAL JEFFERSON	728195.03	4230846.83	425.75	20.0	0.0	0.000	0.5	1.40E-02	4.20E-04	4.20E-04
SJEFF67	MERCY HOSPITAL JEFFERSON	728195.03	4230846.83	425.75	20.0	-459.7	0.003	2.0	8.35E-02	5.97E-04	5.97E-04
SJEFF68	MERCY HOSPITAL JEFFERSON	728195.03	4230846.83	425.75	20.0	-459.7	0.003	2.0	3.54E-01	2.53E-03	2.53E-03
SJEFF69	MERCY HOSPITAL JEFFERSON	728195.03	4230846.83	425.75	14.0	-459.7	0.003	2.0	2.51E-01	1.79E-03	1.79E-03
SJEFF70	MERCY HOSPITAL JEFFERSON	728195.03	4230846.83	425.75	5.0	-459.7	0.003	0.5	1.11E+00	3.37E-01	0.00E+00
SJEFF71	MERCY HOSPITAL JEFFERSON	728195.03	4230846.83	425.75	5.0	-459.7	0.003	0.5	1.11E+00	3.37E-01	0.00E+00
SJEFF72	MERCY HOSPITAL JEFFERSON	728195.03	4230846.83	425.75	5.0	-459.7	0.003	0.5	3.32E-01	1.02E-01	0.00E+00
SJEFF73	MERCY HOSPITAL JEFFERSON	728195.03	4230846.83	425.75	10.0	-459.7	0.003	1.0	1.92E-05	1.37E-07	1.37E-07
SJEFF74	MERCY HOSPITAL JEFFERSON	728195.03	4230846.83	425.75	10.0	-459.7	0.003	1.0	1.92E-05	1.37E-07	1.37E-07
SJEFF82	ARDAGH GLASS INC. PEVELY	727306.83	4241579.49	466.57	156.0	611.0	39.902	5.8	7.38E-02	3.77E+00	3.77E+00
SJEFF83	ARDAGH GLASS INC. PEVELY	727306.83	4241579.49	466.57	156.0	611.0	39.902	5.8	1.96E-01	6.37E+00	6.37E+00
SJEFF86	ARDAGH GLASS INC. PEVELY	727306.83	4241579.49	466.57	20.0	0.0	0.000	0.5	1.26E-01	9.00E-04	9.00E-04
SJEFF92	ARDAGH GLASS INC. PEVELY	727306.83	4241579.49	466.57	10.0	1100.0	23.333	0.5		2.17E+00	0.00E+00
SJEFF99	CARONDELET CORPORATION PEVELY	727491.85	4241725.78	485.56	2.5	170.0	46.499	2.0	5.60E-01	4.25E-02	4.25E-02
SJEFF100	CARONDELET CORPORATION PEVELY	727491.85	4241725.78	485.56	2.5	170.0	46.499	2.0	1.60E-01	1.14E-03	1.14E-03
SJEFF125	FRED WEBER, INC. ANTONIA	720102.79	4248877.71	670.57	20.0	250.0	49.249	5.0		5.88E-02	5.88E-02
SJEFF128	ANIMAL CARE SERVICE INC FESTUS	724479.42	4236856.27	436.22	28.0	1413.0	18.734	2.0		2.33E-01	2.33E-01

Off-Site Point Source Model Input (NAD83, Zone 15)

Source ID	Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	Potential Emissions (lb/hr)		
									CO	SOx	SO2 (1-hour)
SJEFF129	ANIMAL CARE SERVICE INC FESTUS	724479.42	4236856.27	436.22	18.0	1354.0	25.666	1.0		1.92E-02	1.92E-02
SJEFF130	ANIMAL CARE SERVICE INC FESTUS	724479.42	4236856.27	436.22	30.0	1448.0	22.418	2.0		9.62E-03	9.62E-03
SJEFF131	ANIMAL CARE SERVICE INC FESTUS	724479.42	4236856.27	436.22	28.0	1413.0	18.734	2.0		3.50E-01	3.50E-01
SJEFF132	ANIMAL CARE SERVICE INC FESTUS	724479.42	4236856.27	436.22	28.0	1413.0	18.734	2.0		2.95E-01	2.95E-01
SJEFF133	ANIMAL CARE SERVICE INC FESTUS	724479.42	4236856.27	436.22	18.0	1347.0	16.316	1.0		1.54E-02	1.54E-02
SJEFF134	ANIMAL CARE SERVICE INC FESTUS	724479.42	4236856.27	436.22	30.0	1448.0	22.418	2.0		6.01E-03	6.01E-03
SJEFF135	ANIMAL CARE SERVICE INC FESTUS	724479.42	4236856.27	436.22	18.0	1354.0	25.666	1.0		1.44E-02	1.44E-02
SJEFF136	ANIMAL CARE SERVICE INC FESTUS	724479.42	4236856.27	436.22	28.0	1600.0	18.734	2.0		7.50E-02	7.50E-02
SJEFF137	JEFFERSON COUNTY CREMATION SERVICES LC PEVELY	728536.07	4239554.88	583.23	10.0	1100.0	23.333	0.5		9.39E-02	9.39E-02
SJEFF138	SIMPSON CONSTRUCTION MATERIALS PAULINA HILLS SITE	726459.86	4259186.04	426.64	12.0	885.0	42.441	0.5		1.29E-01	1.29E-01
SJEFF144	N. B. WEST CONTRACTING CO INC HOUSE SPRINGS ASPHALT	712353.42	4251763.19	532.22	32.0	247.0	0.853	3.7	3.03E+00	1.21E+00	1.21E+00
SJEFF145	N. B. WEST CONTRACTING CO INC HOUSE SPRINGS ASPHALT	712353.42	4251763.19	532.22	5.0	400.0	0.003	2.0	5.35E-02	3.07E-01	3.07E-01
SJEFF146	N. B. WEST CONTRACTING CO INC HOUSE SPRINGS ASPHALT	712353.42	4251763.19	532.22	5.0	400.0	0.003	2.0	3.61E-03	9.62E-08	9.62E-08
SSTC1	AMEREN MISSOURI SIOUX ENERGY CENTER	734752.14	4310260.61	445.64	496.5	138.7	46.759	23.6		2.32E+02	2.32E+02
SSTC2	AMEREN MISSOURI SIOUX ENERGY CENTER	734752.14	4310260.61	445.64	496.5	136.6	46.844	23.6		2.89E+02	2.89E+02
SSTC3	AMEREN MISSOURI SIOUX ENERGY CENTER	734752.14	4310260.61	445.64	212.0	325.0	50.000	4.5		8.90E-04	8.90E-04
SSTC4	AMEREN MISSOURI SIOUX ENERGY CENTER	734752.14	4310260.61	445.64	25.0	1100.0	23.333	1.0		1.42E+00	0.00E+00
SSTC9	SSM HEALTH ST JOSEPHS HOSPITAL	718499.57	4295433.59	515.16	50.0	1000.0	0.151	2.3		2.23E-04	2.23E-04
SSTC10	SSM HEALTH ST JOSEPHS HOSPITAL	718499.57	4295433.59	515.16	50.0	1000.0	0.151	2.3		1.70E-03	1.70E-03
SSTC11	SSM HEALTH ST JOSEPHS HOSPITAL	718499.57	4295433.59	515.16	50.0	1000.0	0.151	2.3		2.23E-04	2.23E-04
SSTC12	SSM HEALTH ST JOSEPHS HOSPITAL	718499.57	4295433.59	515.16	50.0	1000.0	0.151	2.3		1.70E-03	1.70E-03
SSTC13	SSM HEALTH ST JOSEPHS HOSPITAL	718499.57	4295433.59	515.16	50.0	1000.0	0.151	2.3		2.23E-04	2.23E-04
SSTC14	SSM HEALTH ST JOSEPHS HOSPITAL	718499.57	4295433.59	515.16	50.0	1000.0	0.151	2.3		1.70E-03	1.70E-03
SSTC15	SSM HEALTH ST JOSEPHS HOSPITAL	718499.57	4295433.59	515.16	14.0	1063.0	40.515	0.4		3.59E-01	0.00E+00
SSTC16	SSM HEALTH ST JOSEPHS HOSPITAL	718499.57	4295433.59	515.16	3.0	1011.0	154.085	0.8		1.08E+00	0.00E+00
SSTC17	SSM HEALTH ST JOSEPHS HOSPITAL	718499.57	4295433.59	515.16	3.0	1011.0	154.085	0.8		1.06E+00	0.00E+00
SSTC18	SSM HEALTH ST JOSEPHS HOSPITAL	718499.57	4295433.59	515.16	14.0	1063.0	56.732	0.4		3.66E-01	2.38E-04
SSTC28	GENERAL MOTORS LLC WENTZVILLE CENTER	689428.03	4299089.70	622.57	250.0	365.0	12.999	10.0		2.16E+01	2.16E+01
SSTC29	GENERAL MOTORS LLC WENTZVILLE CENTER	689428.03	4299089.70	622.57	250.0	365.0	12.999	10.0		7.21E+02	7.21E+02
SSTC30	GENERAL MOTORS LLC WENTZVILLE CENTER	689428.03	4299089.70	622.57	250.0	365.0	12.999	10.0		2.16E+01	2.16E+01
SSTC31	GENERAL MOTORS LLC WENTZVILLE CENTER	689428.03	4299089.70	622.57	53.0	520.0	58.999	1.8		1.33E-01	1.33E-01
SSTC45	SSM HEALTH ST JOSEPH HOSPITAL WEST	693164.96	4297283.00	533.89	66.0	200.0	0.003	3.0		2.31E+00	2.31E+00
SSTC46	SSM HEALTH ST JOSEPH HOSPITAL WEST	693164.96	4297283.00	533.89	66.0	200.0	0.003	3.0		2.66E-02	2.66E-02
SSTC47	SSM HEALTH ST JOSEPH HOSPITAL WEST	693164.96	4297283.00	533.89	10.0	1100.0	23.333	0.5		1.52E+00	0.00E+00
SSTC48	SSM HEALTH ST JOSEPH HOSPITAL WEST	693164.96	4297283.00	533.89	66.0	200.0	0.003	3.0		1.50E-03	1.50E-03
SSTC57	BLASTCO INC	690213.84	4297755.23	543.44	20.0	0.0	0.000	0.5		3.96E-04	3.96E-04
SSTC63	TRUE MANUFACTURING CO O'FALLON	702777.57	4297717.78	496.26	30.0	65.0	16.499	1.5		4.20E-03	4.20E-03
SSTC64	TRUE MANUFACTURING CO O'FALLON	702777.57	4297717.78	496.26	17.0	450.0	27.631	1.3		4.09E-03	4.09E-03
SSTC65	TRUE MANUFACTURING CO O'FALLON	702777.57	4297717.78	496.26	20.0	0.0	0.000	0.5		4.10E-03	4.10E-03
SSTC66	TRUE MANUFACTURING CO O'FALLON	702777.57	4297717.78	496.26	33.0	77.0	33.015	1.5		1.56E-03	1.56E-03
SSTC67	TRUE MANUFACTURING CO O'FALLON	702777.57	4297717.78	496.26	33.0	77.0	33.015	1.5		8.40E-04	8.40E-04
SSTC68	TRUE MANUFACTURING CO O'FALLON	702777.57	4297717.78	496.26	33.0	450.0	39.416	1.5		1.44E-03	1.44E-03
SSTC69	TRUE MANUFACTURING CO O'FALLON	702777.57	4297717.78	496.26	30.0	400.0	29.708	1.0		1.74E-03	1.74E-03
SSTC70	TRUE MANUFACTURING CO O'FALLON	702777.57	4297717.78	496.26	30.0	450.0	24.803	1.2		4.68E-03	4.68E-03
SSTC71	TRUE MANUFACTURING CO O'FALLON	702777.57	4297717.78	496.26	28.0	475.0	1.667	0.5		0.00E+00	0.00E+00
SSTC72	TRUE MANUFACTURING CO O'FALLON	702777.57	4297717.78	496.26	28.0	450.0	27.500	2.3		0.00E+00	0.00E+00
SSTC73	TRUE MANUFACTURING CO O'FALLON	702777.57	4297717.78	496.26	10.0	1100.0	23.333	0.5		3.07E+00	0.00E+00
SSTC87	HANSEN'S TREE SERVICE O'FALLON	697357.18	4298189.47	585.40	20.0	0.0	0.000	0.5	2.10E-02	6.31E-04	6.31E-04
SSTC88	HANSEN'S TREE SERVICE O'FALLON	697357.18	4298189.47	585.40	20.0	0.0	0.000	0.5	3.14E-02	1.73E-04	1.73E-04
SSTC89	HANSEN'S TREE SERVICE O'FALLON	697357.18	4298189.47	585.40	20.0	0.0	0.000	0.5	1.20E+00	3.65E-01	3.65E-01
SSTC98	AMERISTAR ST. CHARLES	718432.28	4294005.30	443.64	1.0	-459.7	0.003	1.0	3.87E-01	2.76E-03	2.76E-03
SSTC99	AMERISTAR ST. CHARLES	718432.28	4294005.30	443.64	1.0	-459.7	0.003	1.0	3.87E-01	2.76E-03	2.76E-03
SSTC100	AMERISTAR ST. CHARLES	718432.28	4294005.30	443.64	1.0	-459.7	0.003	1.0	3.87E-01	2.76E-03	2.76E-03
SSTC101	AMERISTAR ST. CHARLES	718432.28	4294005.30	443.64	1.0	-459.7	0.003	1.0	3.87E-01	2.76E-03	2.76E-03
SSTC102	AMERISTAR ST. CHARLES	718432.28	4294005.30	443.64	1.0	-459.7	0.003	1.0	1.27E-03	9.46E-04	0.00E+00
SSTC103	AMERISTAR ST. CHARLES	718432.28	4294005.30	443.64	1.0	-459.7	0.003	1.0	1.27E-03	9.46E-04	0.00E+00

Off-Site Point Source Model Input (NAD83, Zone 15)

Source ID	Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	Potential Emissions (lb/hr)		
									CO	SOx	SO2 (1-hour)
SSTC104	AMERISTAR ST. CHARLES	718432.28	4294005.30	443.64	1.0	-459.7	0.003	1.0	1.27E-03	9.46E-04	0.00E+00
SSTC105	AMERISTAR ST. CHARLES	718432.28	4294005.30	443.64	1.0	-459.7	0.003	1.0	1.27E-03	9.46E-04	0.00E+00
SSTC106	AMERISTAR ST. CHARLES	718432.28	4294005.30	443.64	1.0	-459.7	0.003	1.0	1.27E-03	9.46E-04	0.00E+00
SSTC107	AMERISTAR ST. CHARLES	718432.28	4294005.30	443.64	1.0	-459.7	0.003	1.0	1.27E-03	9.46E-04	0.00E+00
SSTL1	AMEREN MISSOURI MERAMEC ENERGY CENTER	732736.78	4253752.81	418.24	250.0	326.0	101.627	11.0		2.28E-02	2.28E-02
SSTL2	AMEREN MISSOURI MERAMEC ENERGY CENTER	732736.78	4253752.81	418.24	250.0	326.0	101.627	11.0		2.20E-02	2.20E-02
SSTL3	AMEREN MISSOURI MERAMEC ENERGY CENTER	732736.78	4253752.81	418.24	350.0	345.0	135.400	14.0		2.97E+02	2.97E+02
SSTL4	AMEREN MISSOURI MERAMEC ENERGY CENTER	732736.78	4253752.81	418.24	350.0	374.0	123.284	16.0		4.69E+02	4.69E+02
SSTL5	AMEREN MISSOURI MERAMEC ENERGY CENTER	732736.78	4253752.81	418.24	40.0	642.0	38.100	1.0		5.46E-03	5.46E-03
SSTL6	AMEREN MISSOURI MERAMEC ENERGY CENTER	732736.78	4253752.81	418.24	32.0	1050.0	103.799	12.0		4.55E-01	4.55E-01
SSTL7	AMEREN MISSOURI MERAMEC ENERGY CENTER	732736.78	4253752.81	418.24	32.0	1050.0	103.799	12.0		1.96E+00	1.96E+00
SSTL8	AMEREN MISSOURI MERAMEC ENERGY CENTER	732736.78	4253752.81	418.24	32.0	1050.0	103.799	12.0		4.55E-01	4.55E-01
SSTL9	AMEREN MISSOURI MERAMEC ENERGY CENTER	732736.78	4253752.81	418.24	32.0	1050.0	103.799	12.0		2.01E-02	2.01E-02
SSTL10	AMEREN MISSOURI MERAMEC ENERGY CENTER	732736.78	4253752.81	418.24	32.0	1050.0	103.799	12.0		4.55E-01	4.55E-01
SSTL11	AMEREN MISSOURI MERAMEC ENERGY CENTER	732736.78	4253752.81	418.24	32.0	1050.0	103.799	12.0		1.10E-02	1.10E-02
SSTL14	MISSOURI BAPTIST MEDICAL CENTER NORTH BALLAS	722244.75	4279363.47	652.56	99.0	440.0	9.432	4.5	9.84E-01	1.42E+00	1.42E+00
SSTL15	MISSOURI BAPTIST MEDICAL CENTER NORTH BALLAS	722244.75	4279363.47	652.56	99.0	440.0	9.432	4.5	1.06E-02	7.55E-05	7.55E-05
SSTL16	MISSOURI BAPTIST MEDICAL CENTER NORTH BALLAS	722244.75	4279363.47	652.56	10.0	1100.0	23.333	0.5	5.03E+00	1.53E+00	0.00E+00
SSTL17	MISSOURI BAPTIST MEDICAL CENTER NORTH BALLAS	722244.75	4279363.47	652.56	104.0	450.0	7.172	1.2	2.91E+00	4.19E+00	4.19E+00
SSTL18	MISSOURI BAPTIST MEDICAL CENTER NORTH BALLAS	722244.75	4279363.47	652.56	104.0	450.0	7.172	1.2	9.59E-02	6.85E-04	6.85E-04
SSTL19	MONSANTO WORLD HEADQUARTERS LINDBERGH BLVD	726250.11	4283348.63	691.57	40.0	315.0	30.098	4.0		2.95E-05	2.95E-05
SSTL20	MONSANTO WORLD HEADQUARTERS LINDBERGH BLVD	726250.11	4283348.63	691.57	40.0	315.0	30.098	4.0		2.24E-02	2.24E-02
SSTL21	MONSANTO WORLD HEADQUARTERS LINDBERGH BLVD	726250.11	4283348.63	691.57	10.0	1100.0	23.333	0.5		1.06E+00	0.00E+00
SSTL22	MONSANTO WORLD HEADQUARTERS LINDBERGH BLVD	726250.11	4283348.63	691.57	10.0	1100.0	23.333	0.5		5.74E-04	0.00E+00
SSTL23	U. S. SILICA COMPANY PACIFIC	698244.91	4262010.04	471.16	80.0	150.0	50.000	3.0		2.57E+01	2.57E+01
SSTL24	U. S. SILICA COMPANY PACIFIC	698244.91	4262010.04	471.16	80.0	150.0	50.000	3.0		6.69E-03	6.69E-03
SSTL25	U. S. SILICA COMPANY PACIFIC	698244.91	4262010.04	471.16	80.0	150.0	50.000	3.0		2.66E-02	2.66E-02
SSTL26	U. S. SILICA COMPANY PACIFIC	698244.91	4262010.04	471.16	110.0	70.0	0.003	2.7		1.39E-02	1.39E-02
SSTL27	ST. JOHNS MERCY MEDICAL CNTR/MAINTENANCE NEW BALLAS RD	722224.73	4280414.44	627.82	30.0	400.0	4.951	4.0		1.11E+01	1.11E+01
SSTL28	ST. JOHNS MERCY MEDICAL CNTR/MAINTENANCE NEW BALLAS RD	722224.73	4280414.44	627.82	30.0	400.0	4.951	4.0		1.95E-02	1.95E-02
SSTL29	MONSANTO CHESTERFIELD VILLAGE	712608.90	4282124.50	590.78	159.0	300.0	32.667	4.8		3.08E-05	3.08E-05
SSTL30	MONSANTO CHESTERFIELD VILLAGE	712608.90	4282124.50	590.78	159.0	300.0	32.667	4.8		2.36E-02	2.36E-02
SSTL31	MONSANTO CHESTERFIELD VILLAGE	712608.90	4282124.50	590.78	10.0	1100.0	23.333	0.5		4.34E-01	0.00E+00
SSTL32	MONSANTO CHESTERFIELD VILLAGE	712608.90	4282124.50	590.78	10.0	1100.0	23.333	0.5		4.04E-03	0.00E+00
SSTL33	MONSANTO CHESTERFIELD VILLAGE	712608.90	4282124.50	590.78	10.0	1100.0	23.333	0.5		3.77E+00	0.00E+00
SSTL37	WASHINGTON UNIVERSITY DANFORTH CAMPUS	734425.40	4281363.46	506.46	175.0	350.0	4.849	9.0	0.00E+00	0.00E+00	0.00E+00
SSTL38	WASHINGTON UNIVERSITY DANFORTH CAMPUS	734425.40	4281363.46	506.46	175.0	350.0	4.849	9.0	2.24E+00	1.60E-02	1.60E-02
SSTL39	WASHINGTON UNIVERSITY DANFORTH CAMPUS	734425.40	4281363.46	506.46	21.0	475.0	9.616	1.2	0.00E+00	0.00E+00	0.00E+00
SSTL40	WASHINGTON UNIVERSITY DANFORTH CAMPUS	734425.40	4281363.46	506.46	21.0	475.0	9.616	1.2	6.04E-01	4.31E-03	4.31E-03
SSTL41	WASHINGTON UNIVERSITY DANFORTH CAMPUS	734425.40	4281363.46	506.46	10.0	1100.0	23.333	0.5	1.39E+01	2.34E-03	0.00E+00
SSTL42	WASHINGTON UNIVERSITY DANFORTH CAMPUS	734425.40	4281363.46	506.46	10.0	1100.0	23.333	0.5	2.12E+01	3.78E-02	0.00E+00
SSTL43	WASHINGTON UNIVERSITY DANFORTH CAMPUS	734425.40	4281363.46	506.46	10.0	1100.0	23.333	0.5	1.59E+01	4.87E+00	0.00E+00
SSTL44	WASHINGTON UNIVERSITY DANFORTH CAMPUS	734425.40	4281363.46	506.46	55.0	316.0	84.150	0.7	9.13E-02	2.37E+01	2.37E+01
SSTL45	WASHINGTON UNIVERSITY DANFORTH CAMPUS	734425.40	4281363.46	506.46	55.0	316.0	84.150	0.7	9.02E-02	4.11E+01	4.11E+01
SSTL46	WASHINGTON UNIVERSITY DANFORTH CAMPUS	734425.40	4281363.46	506.46	55.0	316.0	84.150	0.7	1.05E-01	1.48E+01	1.48E+01
SSTL47	WASHINGTON UNIVERSITY DANFORTH CAMPUS	734425.40	4281363.46	506.46	55.0	316.0	84.150	0.7	2.86E-01	2.62E+01	2.62E+01
SSTL48	WASHINGTON UNIVERSITY DANFORTH CAMPUS	734425.40	4281363.46	506.46	55.0	316.0	84.150	0.7		2.04E-03	2.04E-03
SSTL66	MISSOURI ASPHALT PRODUCTS, LLC WEST LAKE QUARRY MATERIAL CO	721914.39	4294042.31	462.50	20.0	230.5	31.309	5.1		3.27E-01	3.27E-01
SSTL70	FRED WEBER, INC. ANTIRE	711291.07	4264547.49	448.49	30.0	250.0	58.950	4.0		1.27E+00	1.27E+00
SSTL76	THE BOEING COMPANY ST. LOUIS	728742.77	4293777.11	545.54	45.0	400.0	44.167	2.5	5.58E+00	8.24E+00	8.24E+00
SSTL77	THE BOEING COMPANY ST. LOUIS	728742.77	4293777.11	545.54	45.0	400.0	44.167	2.5	1.38E+00	9.87E-03	9.87E-03
SSTL78	THE BOEING COMPANY ST. LOUIS	728742.77	4293777.11	545.54	38.0	400.0	25.968	2.0	3.02E+00	4.47E+00	4.47E+00
SSTL79	THE BOEING COMPANY ST. LOUIS	728742.77	4293777.11	545.54	38.0	400.0	25.968	2.0	1.06E+00	7.57E-03	7.57E-03
SSTL80	THE BOEING COMPANY ST. LOUIS	728742.77	4293777.11	545.54	50.0	461.0	14.616	3.0	2.95E+00	4.36E+00	4.36E+00
SSTL81	THE BOEING COMPANY ST. LOUIS	728742.77	4293777.11	545.54	50.0	461.0	14.616	3.0	7.02E-01	5.01E-03	5.01E-03
SSTL82	THE BOEING COMPANY ST. LOUIS	728742.77	4293777.11	545.54	1.0	100.0	12.733	0.1	1.66E+00	1.19E-02	1.19E-02

Off-Site Point Source Model Input (NAD83, Zone 15)

Source ID	Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	Potential Emissions (lb/hr)		
									CO	SOx	SO2 (1-hour)
SSTL83	THE BOEING COMPANY ST. LOUIS	728742.77	4293777.11	545.54	15.0	955.0	19.800	0.7	2.52E+01	4.49E-02	0.00E+00
SSTL84	THE BOEING COMPANY ST. LOUIS	728742.77	4293777.11	545.54	7.0	960.0	113.182	0.8	2.50E+01	7.63E+00	0.00E+00
SSTL85	THE BOEING COMPANY ST. LOUIS	728742.77	4293777.11	545.54	30.0	965.0	31.234	5.0	2.03E-01	1.04E-02	1.04E-02
SSTL86	THE BOEING COMPANY ST. LOUIS	728742.77	4293777.11	545.54	17.0	72.0	29.882	2.8		5.58E-03	5.58E-03
SSTL88	CHAMP LANDFILL COMPANY LLC	720845.43	4291144.98	571.46	28.0	1400.0	25.466	1.0		1.01E+00	1.01E+00
SSTL89	CHAMP LANDFILL COMPANY LLC	720845.43	4291144.98	571.46	38.3	1400.0	21.568	12.0		7.77E-01	7.77E-01
SSTL90	CHAMP LANDFILL COMPANY LLC	720845.43	4291144.98	571.46	38.0	1400.0	21.568	12.0		6.35E-01	6.35E-01
SSTL92	BRIDGETON LANDFILL, LLC	722107.35	4294454.70	459.06	40.0	1200.0	61.381	1.1		1.86E-02	1.86E-02
SSTL93	BRIDGETON LANDFILL, LLC	722107.35	4294454.70	459.06	40.0	1200.0	61.381	1.1		6.98E-02	6.98E-02
SSTL94	BRIDGETON LANDFILL, LLC	722107.35	4294454.70	459.06	45.0	1200.0	50.226	1.3		1.70E+01	1.70E+01
SSTL95	BRIDGETON LANDFILL, LLC	722107.35	4294454.70	459.06	45.0	1200.0	50.226	1.3		5.43E+01	5.43E+01
SSTL96	BRIDGETON LANDFILL, LLC	722107.35	4294454.70	459.06	35.0	1200.0	53.051	1.0		1.22E-01	1.22E-01
SSTL97	BRIDGETON LANDFILL, LLC	722107.35	4294454.70	459.06	584.0	1450.0	21.923	4.7		1.08E-03	1.08E-03
SSTL98	BRIDGETON LANDFILL, LLC	722107.35	4294454.70	459.06	584.0	1450.0	21.923	4.7		1.07E-03	1.07E-03
SSTL100	SSM HEALTH ST MARYS HOSPITAL	734075.92	4279544.88	601.67	17.2	500.0	25.000	3.0		9.06E+00	9.06E+00
SSTL101	SSM HEALTH ST MARYS HOSPITAL	734075.92	4279544.88	601.67	17.2	500.0	25.000	3.0		7.14E-03	7.14E-03
SSTL102	SSM HEALTH ST MARYS HOSPITAL	734075.92	4279544.88	601.67	130.0	1009.0	53.156	1.0		2.56E+00	0.00E+00
SSTL106	SSM HEALTH DEPAUL HOSPITAL - ST. LOUIS BRIDGETON	723046.72	4292134.06	542.16	45.0	450.0	21.932	3.0		6.63E-02	6.63E-02
SSTL107	SSM HEALTH DEPAUL HOSPITAL - ST. LOUIS BRIDGETON	723046.72	4292134.06	542.16	45.0	450.0	21.932	3.0		1.15E-02	1.15E-02
SSTL108	SSM HEALTH DEPAUL HOSPITAL - ST. LOUIS BRIDGETON	723046.72	4292134.06	542.16	12.0	900.0	38.100	1.2		8.33E+00	0.00E+00
SSTL109	SSM HEALTH DEPAUL HOSPITAL - ST. LOUIS BRIDGETON	723046.72	4292134.06	542.16	45.0	450.0	21.932	3.0		1.37E-03	1.37E-03
SSTL111	VETERANS ADMIN MEDICAL CENTER JEFFERSON BARRACKS DRIVE	736944.98	4264089.51	508.83	45.0	425.0	1.667	2.0	3.02E+00	4.35E+00	4.35E+00
SSTL112	VETERANS ADMIN MEDICAL CENTER JEFFERSON BARRACKS DRIVE	736944.98	4264089.51	508.83	45.0	425.0	1.667	2.0	4.17E-01	2.98E-03	2.98E-03
SSTL113	VETERANS ADMIN MEDICAL CENTER JEFFERSON BARRACKS DRIVE	736944.98	4264089.51	508.83	45.0	425.0	1.667	2.0	4.40E-03	6.49E-03	6.49E-03
SSTL114	VETERANS ADMIN MEDICAL CENTER JEFFERSON BARRACKS DRIVE	736944.98	4264089.51	508.83	45.0	425.0	1.667	2.0	6.81E-01	4.86E-03	4.86E-03
SSTL115	VETERANS ADMIN MEDICAL CENTER JEFFERSON BARRACKS DRIVE	736944.98	4264089.51	508.83	10.0	1100.0	23.333	0.5	1.02E+02	3.11E+01	0.00E+00
SSTL116	CHRISTIAN HOSPITAL NORTHEAST DUNN ROAD	739738.60	4295554.78	565.65	35.0	270.0	10.000	4.0	1.45E-01	6.26E-03	6.26E-03
SSTL117	CHRISTIAN HOSPITAL NORTHEAST DUNN ROAD	739738.60	4295554.78	565.65	35.0	270.0	10.000	4.0	9.17E-01	6.55E-03	6.55E-03
SSTL118	CHRISTIAN HOSPITAL NORTHEAST DUNN ROAD	739738.60	4295554.78	565.65	15.0	-459.7	0.003	1.0	3.28E+01	3.00E-01	0.00E+00
SSTL120	BODINE ALUMINUM INC WALTON ROAD	730791.15	4286068.83	618.60	15.0	65.0	7.165	2.2		3.20E-03	3.20E-03
SSTL121	BODINE ALUMINUM INC WALTON ROAD	730791.15	4286068.83	618.60	16.0	75.0	26.949	1.1		8.96E-03	8.96E-03
SSTL122	BODINE ALUMINUM INC WALTON ROAD	730791.15	4286068.83	618.60	29.0	600.0	14.167	2.5		4.83E-01	4.83E-01
SSTL123	BODINE ALUMINUM INC WALTON ROAD	730791.15	4286068.83	618.60	30.0	365.0	12.001	1.2		4.48E-01	4.48E-01
SSTL124	BODINE ALUMINUM INC WALTON ROAD	730791.15	4286068.83	618.60	29.0	360.0	25.499	0.7		1.63E-01	1.63E-01
SSTL126	BODINE ALUMINUM INC WALTON ROAD	730791.15	4286068.83	618.60	20.0	0.0	0.000	0.5		1.23E-02	1.23E-02
SSTL127	REICHHOLD LLC 2 VALLEY PARK	718899.54	4269850.38	422.90	30.0	650.0	11.998	1.3		3.60E-03	3.60E-03
SSTL128	REICHHOLD LLC 2 VALLEY PARK	718899.54	4269850.38	422.90	30.0	650.0	11.998	1.3		1.79E+01	1.79E+01
SSTL129	REICHHOLD LLC 2 VALLEY PARK	718899.54	4269850.38	422.90	26.0	650.0	13.264	2.0		2.26E-03	2.26E-03
SSTL130	REICHHOLD LLC 2 VALLEY PARK	718899.54	4269850.38	422.90	26.0	650.0	13.264	2.0		1.44E+01	1.44E+01
SSTL131	REICHHOLD LLC 2 VALLEY PARK	718899.54	4269850.38	422.90	54.0	1800.0	17.218	2.3		1.21E-03	1.21E-03
SSTL132	REICHHOLD LLC 2 VALLEY PARK	718899.54	4269850.38	422.90	10.0	1100.0	23.333	0.5		9.83E-01	9.83E-01
SSTL133	REICHHOLD LLC 2 VALLEY PARK	718899.54	4269850.38	422.90	10.0	1100.0	23.333	0.5		9.83E-01	9.83E-01
SSTL141	ST. ANTHONY'S MEDICAL CENTER KENNERLY ROAD	728489.70	4265428.04	633.14	25.0	495.0	4.068	2.5		3.40E+00	3.40E+00
SSTL142	ST. ANTHONY'S MEDICAL CENTER KENNERLY ROAD	728489.70	4265428.04	633.14	25.0	495.0	4.068	2.5		8.76E-04	8.76E-04
SSTL143	ST. ANTHONY'S MEDICAL CENTER KENNERLY ROAD	728489.70	4265428.04	633.14	30.0	450.0	0.003	1.5		5.59E-04	5.59E-04
SSTL144	ST. ANTHONY'S MEDICAL CENTER KENNERLY ROAD	728489.70	4265428.04	633.14	10.0	1100.0	23.333	0.5		4.66E-02	0.00E+00
SSTL147	MSD, MISSOURI RIVER WWTP MO RIVER WASTERWATER TREATMENT PLANT	718333.79	4290583.38	444.32	25.0	550.0	1.181	0.7	9.18E-01	8.00E-01	8.00E-01
SSTL148	MSD, MISSOURI RIVER WWTP MO RIVER WASTERWATER TREATMENT PLANT	718333.79	4290583.38	444.32	25.0	550.0	1.181	0.7	1.58E+00	5.47E-03	5.47E-03
SSTL149	MSD, MISSOURI RIVER WWTP MO RIVER WASTERWATER TREATMENT PLANT	718333.79	4290583.38	444.32	15.2	446.0	19.393	1.7	4.42E-01	2.28E-01	2.28E-01
SSTL150	MSD, MISSOURI RIVER WWTP MO RIVER WASTERWATER TREATMENT PLANT	718333.79	4290583.38	444.32	15.2	446.0	19.393	1.7	9.14E-02	4.81E-03	4.81E-03
SSTL151	MSD, MISSOURI RIVER WWTP MO RIVER WASTERWATER TREATMENT PLANT	718333.79	4290583.38	444.32	16.0	77.0	4.774	2.0	2.46E+00	4.74E-01	4.74E-01
SSTL152	SIMPSON CONSTRUCTION MATERIALS LLC VALLEY PARK	715996.20	4268469.87	430.05	42.0	300.0	38.494	4.2	2.49E+01	5.49E+00	5.49E+00
SSTL153	SIMPSON CONSTRUCTION MATERIALS LLC VALLEY PARK	715996.20	4268469.87	430.05	26.7	400.0	26.785	0.8	3.84E-03	1.20E-04	1.20E-04
SSTL154	SIMPSON CONSTRUCTION MATERIALS LLC VALLEY PARK	715996.20	4268469.87	430.05	26.7	400.0	26.785	0.8	4.60E-02	1.44E-03	1.44E-03
SSTL162	MACLAN INDUSTRIES	742056.49	4291436.76	495.44	14.0	190.0	0.003	0.2		2.29E-01	2.29E-01
SSTL165	MISSOURI AMERICAN WATER-CENTRAL PLANT CHESTERFIELD	715427.34	4284896.78	451.44	22.0	871.0	24.016	0.8		1.02E-01	1.02E-01

Off-Site Point Source Model Input (NAD83, Zone 15)

Source ID	Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	Potential Emissions (lb/hr)		
									CO	SOx	SO2 (1-hour)
SSTL166	MISSOURI AMERICAN WATER-CENTRAL PLANT CHESTERFIELD	715427.34	4284896.78	451.44	10.0	871.0	24.016	0.8		2.38E-01	2.38E-01
SSTL169	SPIRE MISSOURI, EAST INC.	736637.09	4302290.45	525.66	20.0	0.0	0.000	0.5	1.79E-01	1.28E-03	1.28E-03
SSTL170	SPIRE MISSOURI, EAST INC.	736637.09	4302290.45	525.66	25.0	-459.7	0.003	0.8	2.33E+01	3.69E-03	3.69E-03
SSTL171	SPIRE MISSOURI, EAST INC.	736637.09	4302290.45	525.66	18.0	-459.7	0.003	4.0	1.61E+00	6.69E-02	6.69E-02
SSTL172	SPIRE MISSOURI, EAST INC.	736637.09	4302290.45	525.66	15.0	-459.7	0.003	2.0	1.20E-02	8.60E-05	8.60E-05
SSTL173	SPIRE MISSOURI, EAST INC.	736637.09	4302290.45	525.66	16.0	-459.7	0.003	0.5	9.34E-01	2.85E-01	2.85E-01
SSTL174	SPIRE MISSOURI, EAST INC.	736637.09	4302290.45	525.66	20.0	0.0	0.000	0.5	4.62E-03	3.30E-05	3.30E-05
SSTL175	SPIRE MISSOURI, EAST INC.	736637.09	4302290.45	525.66	20.0	0.0	0.000	0.5	4.62E-03	3.30E-05	3.30E-05
SSTL196	FRED WEBER, INC. FT. BELLE	739499.97	4302900.13	443.27	7.7	25.0	11.788	0.9	3.02E+00	1.28E-01	1.28E-01
SSTL199	A.G. RECYCLING	734844.18	4284158.21	525.43	10.0	1100.0	23.333	0.5		1.59E-01	1.59E-01
SSTL200	A.G. RECYCLING	734844.18	4284158.21	525.43	10.0	1100.0	23.333	0.5		7.25E-01	7.25E-01
SSTL209	MISSOURI-AMERICAN WATER CO FLORISSANT	728394.88	4300010.04	461.78	15.0	896.0	0.000	14.0		9.51E+00	9.51E+00
SSTL214	THE HARPER COMPANY	731184.93	4292013.86	588.35	10.0	1100.0	23.333	0.5		2.75E-01	0.00E+00
SCITY1	ANHEUSER-BUSCH INC ST. LOUIS	743002.81	4275906.67	469.19	225.0	330.0	21.217	10.0		2.38E-02	2.38E-02
SCITY2	ANHEUSER-BUSCH INC ST. LOUIS	743002.81	4275906.67	469.19	100.0	350.0	47.149	3.0		5.80E-02	5.80E-02
SCITY3	ANHEUSER-BUSCH INC ST. LOUIS	743002.81	4275906.67	469.19	225.0	350.0	18.468	10.0		1.67E+01	1.67E+01
SCITY4	ANHEUSER-BUSCH INC ST. LOUIS	743002.81	4275906.67	469.19	225.0	350.0	18.468	10.0		1.78E-02	1.78E-02
SCITY5	ANHEUSER-BUSCH INC ST. LOUIS	743002.81	4275906.67	469.19	225.0	350.0	18.468	10.0		2.53E+01	2.53E+01
SCITY6	ANHEUSER-BUSCH INC ST. LOUIS	743002.81	4275906.67	469.19	225.0	350.0	18.468	10.0		2.15E-02	2.15E-02
SCITY7	ANHEUSER-BUSCH INC ST. LOUIS	743002.81	4275906.67	469.19	135.0	950.0	19.367	1.5		1.75E+01	1.75E+01
SCITY8	ANHEUSER-BUSCH INC ST. LOUIS	743002.81	4275906.67	469.19	20.0	50.0	70.000	1.0		1.69E+00	1.69E+00
SCITY9	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	70.0	200.0	0.003	5.5	1.33E+00	9.51E-03	9.51E-03
SCITY10	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	70.0	200.0	0.003	5.5	2.13E+00	1.52E-02	1.52E-02
SCITY11	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	100.0	145.0	62.500	4.5	2.53E+00	1.81E-02	1.81E-02
SCITY12	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	100.0	145.0	62.500	4.5	3.20E-01	2.29E-03	2.29E-03
SCITY13	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	12.0	200.0	0.335	1.0	3.77E+00	1.15E+00	0.00E+00
SCITY14	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	45.0	150.0	50.400	2.0	3.55E-02	1.07E-03	1.07E-03
SCITY15	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	45.0	150.0	50.400	2.0	3.07E-02	9.22E-04	9.22E-04
SCITY16	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	45.0	150.0	69.751	1.7	3.07E-02	9.22E-04	9.22E-04
SCITY17	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	16.0	77.0	24.600	0.2		1.41E-03	1.41E-03
SCITY18	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	3.0	800.0	0.335	0.5	1.63E-01	4.98E-02	0.00E+00
SCITY22	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	20.0	0.0	0.000	0.5	5.72E-03	1.72E-04	1.72E-04
SCITY23	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	10.0	1100.0	23.333	0.5	6.00E-02	1.83E-02	0.00E+00
SCITY24	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	10.0	785.0	42.283	0.3	2.11E+00	6.44E-01	0.00E+00
SCITY25	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	10.0	785.0	42.283	0.3	8.12E-03	4.79E-03	0.00E+00
SCITY26	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	10.0	1100.0	23.333	0.5	1.73E-02	5.29E-03	0.00E+00
SCITY27	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	42.0	77.0	3.734	0.2	4.35E-02	1.33E-02	0.00E+00
SCITY28	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	20.0	200.0	0.335	1.0	1.98E-01	6.04E-02	0.00E+00
SCITY29	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	8.0	800.0	0.335	0.5	1.07E-01	3.27E-02	0.00E+00
SCITY30	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	8.0	800.0	0.335	0.5	1.09E-04	3.32E-05	0.00E+00
SCITY31	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	22.0	212.0	1.296	1.0	5.28E-01	1.61E-01	0.00E+00
SCITY32	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	90.0	77.0	33.215	2.2	1.09E-04	3.32E-05	0.00E+00
SCITY33	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	10.0	1100.0	23.333	0.5	3.65E-02	1.12E-02	0.00E+00
SCITY34	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	8.0	800.0	0.335	0.5	1.98E-01	6.04E-02	0.00E+00
SCITY48	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	111.0	300.0	72.900	4.0		2.58E-01	2.58E-01
SCITY49	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	111.0	300.0	72.900	4.0		2.42E-02	2.42E-02
SCITY50	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	111.0	300.0	72.900	4.0		1.20E+00	1.20E+00
SCITY51	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	111.0	300.0	72.900	4.0		1.51E-01	1.51E-01
SCITY52	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	115.0	280.0	41.099	5.0		1.17E+00	1.17E+00
SCITY53	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	115.0	280.0	41.099	5.0		6.91E-03	6.91E-03
SCITY54	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	115.0	280.0	41.099	5.0		1.17E+00	1.17E+00
SCITY55	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	115.0	280.0	41.099	5.0		7.87E-03	7.87E-03
SCITY56	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	30.0	975.0	237.684	0.8		3.10E-02	0.00E+00
SCITY57	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	161.0	250.0	34.101	4.0		2.59E+01	2.59E+01
SCITY58	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	161.0	250.0	34.101	4.0		5.09E+00	5.09E+00
SCITY59	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	161.0	250.0	34.101	4.0		3.48E-02	3.48E-02

Off-Site Point Source Model Input (NAD83, Zone 15)

Source ID	Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	Potential Emissions (lb/hr)		
									CO	SOx	SO2 (1-hour)
SCITY60	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	225.0	280.0	35.784	7.3	3.97E-01	3.97E-01	3.97E-01
SCITY61	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	225.0	280.0	35.784	7.3	3.97E-01	5.32E-02	5.32E-02
SCITY62	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	225.0	280.0	35.784	7.3	3.00E+00	4.43E+00	4.43E+00
SCITY63	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	225.0	280.0	35.784	7.3	3.30E+00	2.36E-02	2.36E-02
SCITY64	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	225.0	280.0	35.784	7.3	3.00E+00	4.43E+00	4.43E+00
SCITY65	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	225.0	280.0	35.784	7.3	3.20E+00	2.29E-02	2.29E-02
SCITY66	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	20.0	0.0	0.000	0.5	4.42E+01	1.33E+00	1.33E+00
SCITY67	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	69.0	318.0	63.035	3.0	4.19E+00	4.64E+00	4.64E+00
SCITY68	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	69.0	318.0	63.035	3.0	6.11E-01	5.15E-03	5.15E-03
SCITY69	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	225.0	280.0	35.784	7.3	3.04E+00	4.48E+00	4.48E+00
SCITY70	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	225.0	280.0	35.784	7.3	1.14E+00	8.17E-03	8.17E-03
SCITY71	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	10.0	1100.0	23.333	0.5	2.98E-03	4.70E-07	0.00E+00
SCITY72	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	10.0	1100.0	23.333	0.5	7.05E+00	2.15E+00	0.00E+00
SCITY83	VETERANS ADMIN MEDICAL CENTER JOHN COCHRAN DIV	741047.52	4280704.99	545.64	50.0	430.0	35.000	2.0		1.14E-04	1.14E-04
SCITY84	VETERANS ADMIN MEDICAL CENTER JOHN COCHRAN DIV	741047.52	4280704.99	545.64	50.0	430.0	35.000	2.0		4.07E-03	4.07E-03
SCITY85	VETERANS ADMIN MEDICAL CENTER JOHN COCHRAN DIV	741047.52	4280704.99	545.64	50.0	430.0	35.000	2.0		8.40E-03	8.40E-03
SCITY86	VETERANS ADMIN MEDICAL CENTER JOHN COCHRAN DIV	741047.52	4280704.99	545.64	50.0	280.0	35.000	2.0		1.14E+00	1.14E+00
SCITY87	VETERANS ADMIN MEDICAL CENTER JOHN COCHRAN DIV	741047.52	4280704.99	545.64	50.0	280.0	35.000	2.0		4.07E-03	4.07E-03
SCITY88	VETERANS ADMIN MEDICAL CENTER JOHN COCHRAN DIV	741047.52	4280704.99	545.64	50.0	280.0	35.000	2.0		1.14E+00	1.14E+00
SCITY89	VETERANS ADMIN MEDICAL CENTER JOHN COCHRAN DIV	741047.52	4280704.99	545.64	50.0	280.0	35.000	2.0		4.07E-03	4.07E-03
SCITY90	VETERANS ADMIN MEDICAL CENTER JOHN COCHRAN DIV	741047.52	4280704.99	545.64	10.0	1100.0	23.333	0.5		2.47E+00	0.00E+00
SCITY110	ICL SPECIALTY PRODUCTS INC CARONDELET PLANT	737985.63	4270043.36	414.11	32.0	120.0	15.453	2.0		2.08E-02	2.08E-02
SCITY111	ICL SPECIALTY PRODUCTS INC CARONDELET PLANT	737985.63	4270043.36	414.11	481.0	200.0	9.432	3.0		5.70E-03	5.70E-03
SCITY112	ICL SPECIALTY PRODUCTS INC CARONDELET PLANT	737985.63	4270043.36	414.11	56.0	400.0	15.922	4.0		6.81E+01	6.81E+01
SCITY113	ICL SPECIALTY PRODUCTS INC CARONDELET PLANT	737985.63	4270043.36	414.11	56.0	400.0	15.922	4.0		3.75E-02	3.75E-02
SCITY114	ICL SPECIALTY PRODUCTS INC CARONDELET PLANT	737985.63	4270043.36	414.11	45.0	122.0	151.818	2.0		1.14E-02	1.14E-02
SCITY115	ICL SPECIALTY PRODUCTS INC CARONDELET PLANT	737985.63	4270043.36	414.11	80.0	171.0	69.682	2.0		5.14E-03	5.14E-03
SCITY116	ICL SPECIALTY PRODUCTS INC CARONDELET PLANT	737985.63	4270043.36	414.11	78.0	176.0	88.484	1.2		1.43E-03	1.43E-03
SCITY117	ICL SPECIALTY PRODUCTS INC CARONDELET PLANT	737985.63	4270043.36	414.11	10.0	1100.0	23.333	0.5		1.91E-03	1.91E-03
SCITY121	ICL SPECIALTY PRODUCTS INC CARONDELET PLANT	737985.63	4270043.36	414.11	42.0	340.0	37.776	4.0		9.43E+01	9.43E+01
SCITY122	ICL SPECIALTY PRODUCTS INC CARONDELET PLANT	737985.63	4270043.36	414.11	42.0	340.0	37.776	4.0		5.31E-02	5.31E-02
SCITY123	ELANTAS PDG, INC. SECOND ST	743167.86	4284941.73	426.35	55.0	700.0	14.738	1.2		6.41E+00	6.41E+00
SCITY124	ELANTAS PDG, INC. SECOND ST	743167.86	4284941.73	426.35	55.0	700.0	14.738	1.2		7.35E-03	7.35E-03
SCITY125	ELANTAS PDG, INC. SECOND ST	743167.86	4284941.73	426.35	55.0	700.0	14.738	1.2		1.86E-02	1.86E-02
SCITY126	ELANTAS PDG, INC. SECOND ST	743167.86	4284941.73	426.35	55.0	700.0	14.738	1.2		5.89E-04	5.89E-04
SCITY127	ELANTAS PDG, INC. SECOND ST	743167.86	4284941.73	426.35	30.0	140.0	0.125	2.0		1.44E-03	1.44E-03
SCITY128	ELANTAS PDG, INC. SECOND ST	743167.86	4284941.73	426.35	15.4	752.2	32.451	1.0		7.85E-03	0.00E+00
SCITY129	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	34.0	1700.0	4.665	2.0		3.72E-03	3.72E-03
SCITY132	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	34.0	1700.0	6.916	3.3		1.72E-02	1.72E-02
SCITY133	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	34.0	1700.0	36.601	2.0		3.72E-03	3.72E-03
SCITY136	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	34.0	1800.0	8.301	3.7		8.58E-03	8.58E-03
SCITY137	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	42.0	1700.0	4.665	2.0		3.72E-03	3.72E-03
SCITY140	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	44.0	200.0	47.149	3.0		5.82E-03	5.82E-03
SCITY141	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	44.0	200.0	47.149	3.0		5.82E-03	5.82E-03
SCITY142	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	34.0	200.0	39.649	2.8		5.16E-03	5.16E-03
SCITY143	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	33.0	300.0	20.551	2.2		1.98E-03	1.98E-03
SCITY144	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	33.0	300.0	20.551	2.2		1.98E-03	1.98E-03
SCITY145	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	33.0	300.0	20.551	2.2		1.98E-03	1.98E-03
SCITY146	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	33.0	300.0	20.551	2.2		1.98E-03	1.98E-03
SCITY147	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	25.0	300.0	14.865	2.0		1.14E-02	1.14E-02
SCITY148	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	20.0	0.0	0.000	0.5		3.30E-03	3.30E-03
SCITY149	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	37.0	600.0	38.983	1.2		1.98E-03	1.98E-03
SCITY156	ST. ALEXIUS HOSPITAL JEFFERSON CAMPUS	741441.37	4274961.73	544.65	115.0	210.0	38.885	5.0		1.19E-02	1.19E-02
SCITY157	ST. ALEXIUS HOSPITAL JEFFERSON CAMPUS	741441.37	4274961.73	544.65	115.0	210.0	38.885	5.0		1.20E-02	1.20E-02
SCITY158	ST. ALEXIUS HOSPITAL JEFFERSON CAMPUS	741441.37	4274961.73	544.65	115.0	210.0	38.885	5.0		1.19E-02	1.19E-02
SCITY159	ST. ALEXIUS HOSPITAL JEFFERSON CAMPUS	741441.37	4274961.73	544.65	14.0	490.0	60.200	0.5		7.80E-01	0.00E+00

Off-Site Point Source Model Input (NAD83, Zone 15)

Source ID	Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	Potential Emissions (lb/hr)		
									CO	SOx	SO2 (1-hour)
SCITY160	ST. ALEXIUS HOSPITAL JEFFERSON CAMPUS	741441.37	4274961.73	544.65	12.6	200.0	205.400	0.5		7.80E-01	0.00E+00
SCITY162	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	210.0	260.0	17.733	2.8	2.69E+00	1.16E-01	1.16E-01
SCITY163	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	210.0	260.0	17.733	2.8	6.20E+00	4.43E-02	4.43E-02
SCITY164	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	4.20E+00	9.30E-03	0.00E+00
SCITY165	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	4.18E+00	9.20E-03	0.00E+00
SCITY166	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	3.77E+00	8.30E-03	0.00E+00
SCITY167	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	4.12E+00	9.10E-03	0.00E+00
SCITY168	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	4.01E+00	1.23E+00	0.00E+00
SCITY169	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	8.15E+00	1.80E-02	0.00E+00
SCITY170	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	4.90E+00	1.08E-02	0.00E+00
SCITY171	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	8.52E+00	1.88E-02	0.00E+00
SCITY172	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	184.2	400.0	1.949	5.5	4.71E+00	2.04E-01	2.04E-01
SCITY173	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	184.2	400.0	1.949	5.5	1.09E+01	7.76E-02	7.76E-02
SCITY174	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	184.2	400.0	1.949	5.5	2.50E+00	1.08E-01	1.08E-01
SCITY175	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	184.2	400.0	1.949	5.5	6.01E+00	4.29E-02	4.29E-02
SCITY176	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	6.24E+00	1.38E-02	0.00E+00
SCITY177	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	5.17E+00	1.14E-02	0.00E+00
SCITY178	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	9.14E+00	2.02E-02	0.00E+00
SCITY179	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	2.31E+00	9.84E-01	0.00E+00
SCITY180	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	3.98E+00	8.40E-03	0.00E+00
SCITY181	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	2.29E-01	3.53E-03	3.53E-03
SCITY183	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	2.29E-01	2.41E-03	2.41E-03
SCITY185	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	8.24E-02	5.89E-04	5.89E-04
SCITY187	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	2.36E-01	1.69E-03	1.69E-03
SCITY189	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	1.37E+00	4.86E-01	0.00E+00
SCITY190	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	247.0	190.0	20.417	1.2	5.35E-02	2.31E-03	2.31E-03
SCITY191	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	247.0	190.0	20.417	1.2	5.00E-01	3.57E-03	3.57E-03
SCITY192	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	3.69E+01	6.78E-02	0.00E+00
SCITY193	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	8.48E+00	1.56E-02	0.00E+00
SCITY194	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	2.09E+01	4.41E-02	0.00E+00
SCITY227	INDUSTRIAL CONTAINER SERVICES - MO, LLC MANCHESTER	737686.12	4278652.89	459.06	20.0	250.0	18.068	1.0		2.54E-03	2.54E-03
SCITY228	INDUSTRIAL CONTAINER SERVICES - MO, LLC MANCHESTER	737686.12	4278652.89	459.06	20.0	150.0	22.218	1.0		1.20E+00	1.20E+00
SCITY229	INDUSTRIAL CONTAINER SERVICES - MO, LLC MANCHESTER	737686.12	4278652.89	459.06	25.0	0.0	0.000	1.0		2.19E-04	2.19E-04
SCITY242	PQ CORPORATION -THE	739053.43	4285317.19	495.80	60.0	250.0	71.667	1.7		2.39E-03	2.39E-03
SCITY243	PQ CORPORATION -THE	739053.43	4285317.19	495.80	60.0	400.0	19.833	1.5		4.37E-03	4.37E-03
SCITY244	PQ CORPORATION -THE	739053.43	4285317.19	495.80	20.0	0.0	0.000	0.5		1.37E-04	1.37E-04
SCITY245	PQ CORPORATION -THE	739053.43	4285317.19	495.80	55.0	750.0	11.168	4.2		8.16E-03	8.16E-03
SCITY246	PQ CORPORATION -THE	739053.43	4285317.19	495.80	43.0	500.0	7.467	2.5		7.33E-05	7.33E-05
SCITY247	PQ CORPORATION -THE	739053.43	4285317.19	495.80	20.0	0.0	0.000	0.5		3.46E-04	3.46E-04
SCITY248	PQ CORPORATION -THE	739053.43	4285317.19	495.80	36.0	375.0	1.716	2.0		2.48E-03	2.48E-03
SCITY266	HUMANE SOCIETY OF MISSOURI ST. LOUIS - MACKLIND AVE	737162.32	4278817.40	474.08	24.0	1139.0	15.515	1.7		1.10E-02	1.10E-02
SCITY267	HUMANE SOCIETY OF MISSOURI ST. LOUIS - MACKLIND AVE	737162.32	4278817.40	474.08	28.0	1800.0	15.584	2.0		6.76E-01	6.76E-01
SCITY275	ALSCO, INC ST. LOUIS	743334.17	4275818.28	427.92	10.0	1100.0	23.333	0.5		2.33E+01	2.33E+01
SCITY276	ALSCO, INC ST. LOUIS	743334.17	4275818.28	427.92	10.0	1100.0	23.333	0.5		4.99E-03	4.99E-03
SCITY277	NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY ST LOUIS	743107.71	4275132.40	439.30	23.5	800.0	0.003	0.5	7.11E-01	1.25E-05	0.00E+00
SCITY278	NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY ST LOUIS	743107.71	4275132.40	439.30	20.5	250.0	0.003	1.3	3.05E-01	1.28E-04	1.28E-04
SCITY279	NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY ST LOUIS	743107.71	4275132.40	439.30	20.5	250.0	0.003	1.3	6.87E-01	4.91E-03	4.91E-03
SCITY280	NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY ST LOUIS	743107.71	4275132.40	439.30	20.5	250.0	0.003	1.3	3.05E-02	1.28E-05	1.28E-05
SCITY281	NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY ST LOUIS	743107.71	4275132.40	439.30	20.5	250.0	0.003	1.3	6.89E-01	4.92E-03	4.92E-03
SCITY282	NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY ST LOUIS	743107.71	4275132.40	439.30	22.0	250.0	0.003	1.0	1.22E-01	5.27E-03	5.27E-03
SCITY283	NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY ST LOUIS	743107.71	4275132.40	439.30	22.0	250.0	0.003	1.0	2.73E-01	1.95E-03	1.95E-03
SCITY284	NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY ST LOUIS	743107.71	4275132.40	439.30	22.5	250.0	0.003	2.0	6.10E-01	2.56E-04	2.56E-04
SCITY285	NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY ST LOUIS	743107.71	4275132.40	439.30	22.5	250.0	0.003	2.0	1.38E+00	9.84E-03	9.84E-03
SCITY286	NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY ST LOUIS	743107.71	4275132.40	439.30	20.5	800.0	0.003	1.5	8.65E-01	1.53E-05	0.00E+00
SCITY287	NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY ST LOUIS	743107.71	4275132.40	439.30	20.5	800.0	0.003	1.5	7.84E+00	1.38E-04	0.00E+00
SCITY288	NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY ST LOUIS	743107.71	4275132.40	439.30	20.5	800.0	0.003	1.5	7.84E+00	1.38E-04	0.00E+00

Off-Site Point Source Model Input (NAD83, Zone 15)

									Potential Emissions (lb/hr)		
Source ID	Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	CO	SOx	SO2 (1-hour)
SCITY289	ARTCO ST. LOUIS-AMERICAN RIVER TRANS CO ST. LOUIS	741227.54	4273049.76	423.52	28.0	400.0	50.535	2.0		2.26E-03	2.26E-03
SCITY290	ARTCO ST. LOUIS-AMERICAN RIVER TRANS CO ST. LOUIS	741227.54	4273049.76	423.52	28.0	400.0	50.535	2.0		2.91E+01	2.91E+01
SCITY291	ARTCO ST. LOUIS-AMERICAN RIVER TRANS CO ST. LOUIS	741227.54	4273049.76	423.52	28.0	400.0	50.535	2.0		1.63E-03	1.63E-03
SCITY292	SOUTHERN METAL PROCESSING	739807.53	4271091.77	426.02	31.0	1590.0	19.255	2.5		1.28E+01	1.28E+01
SCITY293	SOUTHERN METAL PROCESSING	739807.53	4271091.77	426.02	31.0	1590.0	19.255	2.5		3.47E+00	3.47E+00
SCITY295	SSM HEALTH ST. LOUIS UNIVERSITY HOSPITAL	740357.18	4278600.20	527.85	220.0	350.0	14.856	5.0	2.14E+00	6.17E+01	6.17E+01
SCITY296	SSM HEALTH ST. LOUIS UNIVERSITY HOSPITAL	740357.18	4278600.20	527.85	220.0	350.0	14.856	5.0	1.81E+00	1.29E-02	1.29E-02
SCITY297	SSM HEALTH ST. LOUIS UNIVERSITY HOSPITAL	740357.18	4278600.20	527.85	220.0	350.0	14.856	5.0	8.93E-01	2.57E+01	2.57E+01
SCITY298	SSM HEALTH ST. LOUIS UNIVERSITY HOSPITAL	740357.18	4278600.20	527.85	220.0	350.0	14.856	5.0	6.62E+00	4.73E-02	4.73E-02
SCITY299	SSM HEALTH ST. LOUIS UNIVERSITY HOSPITAL	740357.18	4278600.20	527.85	220.0	350.0	14.856	5.0	1.89E+00	5.45E+01	5.45E+01
SCITY300	SSM HEALTH ST. LOUIS UNIVERSITY HOSPITAL	740357.18	4278600.20	527.85	220.0	350.0	14.856	5.0	7.92E+00	5.66E-02	5.66E-02
SCITY301	SSM HEALTH ST. LOUIS UNIVERSITY HOSPITAL	740357.18	4278600.20	527.85	220.0	350.0	14.856	5.0	2.14E+00	6.17E+01	6.17E+01
SCITY302	SSM HEALTH ST. LOUIS UNIVERSITY HOSPITAL	740357.18	4278600.20	527.85	220.0	350.0	14.856	5.0	1.04E+00	7.40E-03	7.40E-03
SCITY303	SSM HEALTH ST. LOUIS UNIVERSITY HOSPITAL	740357.18	4278600.20	527.85	10.0	1100.0	23.333	0.5	9.62E+00	5.13E+00	0.00E+00
SCITY304	SSM HEALTH ST. LOUIS UNIVERSITY HOSPITAL	740357.18	4278600.20	527.85	10.0	1100.0	23.333	0.5	5.11E+00	6.08E+00	0.00E+00
SCITY315	J S ALBERICI CONSTRUCTION	736723.60	4285287.44	575.43	10.0	1100.0	23.333	0.5	6.50E+00	1.98E+00	0.00E+00
SCITY316	J S ALBERICI CONSTRUCTION	736723.60	4285287.44	575.43	20.0	0.0	0.000	0.5	7.40E-02	2.22E-03	2.22E-03
SCITY317	J S ALBERICI CONSTRUCTION	736723.60	4285287.44	575.43	20.0	0.0	0.000	0.5	7.40E-02	2.22E-03	2.22E-03
SCITY318	J S ALBERICI CONSTRUCTION	736723.60	4285287.44	575.43	10.0	1100.0	23.333	0.5	9.62E-01	3.00E-01	3.00E-01
SCITY319	J S ALBERICI CONSTRUCTION	736723.60	4285287.44	575.43	20.0	0.0	0.000	0.5	2.00E-02	6.00E-04	6.00E-04
SCITY320	J S ALBERICI CONSTRUCTION	736723.60	4285287.44	575.43	20.0	0.0	0.000	0.5	1.26E-02	3.70E-04	3.70E-04
SCITY321	NESTLE PURINA PETCARE COMPANY ST. LOUIS	743912.49	4278167.30	467.68	80.0	380.0	33.766	2.0	8.99E-01	3.88E-02	3.88E-02
SCITY322	NESTLE PURINA PETCARE COMPANY ST. LOUIS	743912.49	4278167.30	467.68	80.0	380.0	33.766	2.0	4.60E-01	3.28E-03	3.28E-03
SCITY323	NESTLE PURINA PETCARE COMPANY ST. LOUIS	743912.49	4278167.30	467.68	15.0	850.0	73.133	0.7	1.40E-02	3.08E-05	0.00E+00
SCITY324	NESTLE PURINA PETCARE COMPANY ST. LOUIS	743912.49	4278167.30	467.68	15.0	850.0	73.133	0.7	7.00E-04	1.54E-06	0.00E+00
SCITY325	NESTLE PURINA PETCARE COMPANY ST. LOUIS	743912.49	4278167.30	467.68	15.0	850.0	73.133	0.7	5.78E-03	1.22E-05	0.00E+00
SCITY326	NESTLE PURINA PETCARE COMPANY ST. LOUIS	743912.49	4278167.30	467.68	80.0	405.0	33.766	2.0	8.71E-02	3.76E-03	3.76E-03
SCITY327	NESTLE PURINA PETCARE COMPANY ST. LOUIS	743912.49	4278167.30	467.68	80.0	405.0	33.766	2.0	8.30E-01	5.93E-03	5.93E-03
SCITY328	NESTLE PURINA PETCARE COMPANY ST. LOUIS	743912.49	4278167.30	467.68	80.0	405.0	33.766	2.0	7.46E-01	3.22E-02	3.22E-02
SCITY329	NESTLE PURINA PETCARE COMPANY ST. LOUIS	743912.49	4278167.30	467.68	80.0	405.0	33.766	2.0	9.04E-01	6.46E-03	6.46E-03
SCITY330	NESTLE PURINA PETCARE COMPANY ST. LOUIS	743912.49	4278167.30	467.68	15.0	1007.0	51.050	0.7	4.68E-01	1.03E-03	0.00E+00
SCITY331	NESTLE PURINA PETCARE COMPANY ST. LOUIS	743912.49	4278167.30	467.68	10.0	1100.0	23.333	0.5	4.06E+00	1.24E+00	0.00E+00
SCITY332	NESTLE PURINA PETCARE COMPANY ST. LOUIS	743912.49	4278167.30	467.68	10.0	1100.0	23.333	0.5	2.02E-01	1.44E-03	1.44E-03
SCITY333	NESTLE PURINA PETCARE COMPANY ST. LOUIS	743912.49	4278167.30	467.68	6.0	1157.0	35.000	0.3	8.24E+00	2.52E+00	0.00E+00
SCITY334	NESTLE PURINA PETCARE COMPANY ST. LOUIS	743912.49	4278167.30	467.68	6.0	1076.0	151.667	0.3	2.56E+00	7.82E-01	0.00E+00
SCITY335	NESTLE PURINA PETCARE COMPANY ST. LOUIS	743912.49	4278167.30	467.68	8.9	815.0	37.835	0.8	6.13E-01	1.35E-03	0.00E+00
SCITY344	PAULO PRODUCTS COMPANY	736597.70	4278776.67	501.12	32.0	200.0	2.933	1.2		5.04E-03	5.04E-03
SCITY353	CHRISTY REFRACTORIES CO L.L.C	738223.37	4278219.85	483.66	1.0	325.0	0.003	1.0		9.60E-02	9.60E-02
SCITY355	SOUTHWESTERN BELL TELEPHONE COMPANY	744346.61	4279152.95	459.35	290.0	431.0	79.216	2.0		9.54E-01	9.54E-01
SCITY356	SOUTHWESTERN BELL TELEPHONE COMPANY	744346.61	4279152.95	459.35	290.0	455.0	79.216	2.0		9.54E-01	9.54E-01
SCITY357	SOUTHWESTERN BELL TELEPHONE COMPANY	744346.61	4279152.95	459.35	290.0	428.0	79.216	2.0		9.54E-01	9.54E-01
SCITY358	SOUTHWESTERN BELL TELEPHONE COMPANY	744346.61	4279152.95	459.35	565.0	985.0	23.035	0.7		3.05E-01	3.05E-01
SCITY359	SOUTHWESTERN BELL TELEPHONE COMPANY	744346.61	4279152.95	459.35	565.0	985.0	23.035	0.7		3.05E-01	3.05E-01
SCITY360	SOUTHWESTERN BELL TELEPHONE COMPANY	744346.61	4279152.95	459.35	565.0	985.0	23.035	0.7		3.05E-01	3.05E-01
SCITY361	SOUTHWESTERN BELL TELEPHONE COMPANY	744346.61	4279152.95	459.35	660.0	300.0	23.035	1.5		1.09E-03	1.09E-03
SCITY362	SOUTHWESTERN BELL TELEPHONE COMPANY	744346.61	4279152.95	459.35	660.0	300.0	23.035	1.5		4.92E-03	4.92E-03
SCITY363	SOUTHWESTERN BELL TELEPHONE COMPANY	744346.61	4279152.95	459.35	390.0	960.0	23.035	9.5		7.17E-01	7.17E-01
SCITY364	SOUTHWESTERN BELL TELEPHONE COMPANY	744346.61	4279152.95	459.35	390.0	960.0	23.035	9.5		7.17E-01	7.17E-01
SCITY365	SOUTHWESTERN BELL TELEPHONE COMPANY	744346.61	4279152.95	459.35	290.0	722.0	96.401	2.0		1.19E+00	1.19E+00
SCITY366	SOUTHWESTERN BELL TELEPHONE COMPANY	744346.61	4279152.95	459.35	290.0	722.0	96.401	2.0		5.13E+00	5.13E+00
SCITY367	SOUTHWESTERN BELL TELEPHONE COMPANY	744346.61	4279152.95	459.35	290.0	722.0	96.401	2.0		8.24E+00	8.24E+00
SCITY368	SOUTHWESTERN BELL TELEPHONE COMPANY	744346.61	4279152.95	459.35	290.0	722.0	96.401	2.0		8.24E+00	8.24E+00
SCITY380	BKEP MATERIALS, LLC ST. LOUIS TERMINAL CO	739332.17	4270413.67	420.93	25.0	450.0	20.000	2.5		2.46E-03	2.46E-03
SCITY381	BKEP MATERIALS, LLC ST. LOUIS TERMINAL CO	739332.17	4270413.67	420.93	12.0	150.0	8.333	1.0		1.63E-01	1.63E-01
SCITY394	SAINT LOUIS UNIVERSITY FACILITIES SERVICES	740384.08	4280241.69	507.64	10.0	1100.0	23.333	0.5		2.06E+00	0.00E+00
SCITY395	SAINT LOUIS UNIVERSITY FACILITIES SERVICES	740384.08	4280241.69	507.64	20.0	0.0	0.000	0.5		9.53E-03	9.53E-03

Off-Site Point Source Model Input (NAD83, Zone 15)

									Potential Emissions (lb/hr)		
Source ID	Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	CO	SOx	SO2 (1-hour)
SCITY396	SAINT LOUIS UNIVERSITY FACILITIES SERVICES	740384.08	4280241.69	507.64	20.0	0.0	0.000	0.5		1.71E-03	1.71E-03
SCITY401	SSM CARDINAL GLENNON CHILDRENS HOSPITAL	740376.29	4278334.05	544.29	40.0	200.0	21.667	2.5		9.30E-05	9.30E-05
SCITY402	SSM CARDINAL GLENNON CHILDRENS HOSPITAL	740376.29	4278334.05	544.29	40.0	200.0	21.667	2.5		4.97E-03	4.97E-03
SCITY403	SSM CARDINAL GLENNON CHILDRENS HOSPITAL	740376.29	4278334.05	544.29	40.0	200.0	21.667	2.5		5.07E-05	5.07E-05
SCITY404	SSM CARDINAL GLENNON CHILDRENS HOSPITAL	740376.29	4278334.05	544.29	40.0	200.0	21.667	2.5		2.48E-03	2.48E-03
SCITY405	SSM CARDINAL GLENNON CHILDRENS HOSPITAL	740376.29	4278334.05	544.29	10.0	1100.0	23.333	0.5		1.83E-02	0.00E+00
SCITY406	SSM CARDINAL GLENNON CHILDRENS HOSPITAL	740376.29	4278334.05	544.29	23.5	200.0	16.667	2.9		2.55E+00	2.55E+00
SCITY407	SSM CARDINAL GLENNON CHILDRENS HOSPITAL	740376.29	4278334.05	544.29	23.5	200.0	16.667	2.9		2.87E-02	2.87E-02
CJEFF34	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	36.6	77.0	20.600	1.8	2.68E-02		
CJEFF35	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	70.0	350.0	40.000	2.0	2.90E-01		
CJEFF36	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	70.0	850.0	41.667	2.5	2.07E-01		
CJEFF37	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	20.0	0.0	0.000	0.5	9.13E-03		
CJEFF43	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	56.0	370.0	33.333	2.5	1.01E-01		
CJEFF44	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	70.0	850.0	41.667	2.5	8.06E-01		
CJEFF45	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	70.0	850.0	112.999	2.5	9.97E-02		
CJEFF46	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	70.0	850.0	20.600	2.5	2.58E-01		
CSTLC55	ST. LOUIS AIRPORT AUTHORITY LAMBERT INTERNATIONAL BLVD	728947.29	4291571.16	554.63	34.0	375.0	26.555	2.3	1.68E-02		
CSTLC56	ST. LOUIS AIRPORT AUTHORITY LAMBERT INTERNATIONAL BLVD	728947.29	4291571.16	554.63	34.0	375.0	26.555	2.3	1.27E+00		
CSTLC57	ST. LOUIS AIRPORT AUTHORITY LAMBERT INTERNATIONAL BLVD	728947.29	4291571.16	554.63	33.0	428.0	15.669	3.8	1.66E-02		
CSTLC58	ST. LOUIS AIRPORT AUTHORITY LAMBERT INTERNATIONAL BLVD	728947.29	4291571.16	554.63	33.0	428.0	15.669	3.8	3.85E-01		
CSTLC59	ST. LOUIS AIRPORT AUTHORITY LAMBERT INTERNATIONAL BLVD	728947.29	4291571.16	554.63	20.0	250.0	2.083	1.0	7.72E-02		
CSTLC60	ST. LOUIS AIRPORT AUTHORITY LAMBERT INTERNATIONAL BLVD	728947.29	4291571.16	554.63	5.5	1200.0	254.649	0.2	3.28E+00		
CSTLC61	ST. LOUIS AIRPORT AUTHORITY LAMBERT INTERNATIONAL BLVD	728947.29	4291571.16	554.63	5.5	1200.0	254.649	0.2	1.29E-01		
CSTLC62	ST. LOUIS AIRPORT AUTHORITY LAMBERT INTERNATIONAL BLVD	728947.29	4291571.16	554.63	5.5	1200.0	254.649	0.2	9.99E-05		
CSTLC63	ST. LOUIS AIRPORT AUTHORITY LAMBERT INTERNATIONAL BLVD	728947.29	4291571.16	554.63	19.0	425.0	7.047	1.7	6.01E-01		
CSTLC64	ST. LOUIS AIRPORT AUTHORITY LAMBERT INTERNATIONAL BLVD	728947.29	4291571.16	554.63	24.0	270.0	105.951	2.0	3.24E+00		
CSTLC152	SIMPSON CONSTRUCTION MATERIALS LLC VALLEY PARK	715996.20	4268469.87	430.05	43.0	-459.7	3.225	1.0	1.38E-01		
CSTLC155	FRED WEBER INC. - SOUTH ASPHALT BATCH SOUTH ASPHALT	732929.25	4259955.19	424.64	37.0	230.0	51.250	4.2	2.57E+01		
CSTLC156	FRED WEBER INC. - SOUTH ASPHALT BATCH SOUTH ASPHALT	732929.25	4259955.19	424.64	12.0	355.0	0.804	1.3	4.03E-01		
CSTLC157	FRED WEBER INC. - NORTH ASPHALT H and B	720614.10	4290798.15	468.70	31.0	230.0	80.499	4.2	3.93E+01		
CSTLC158	FRED WEBER INC. - NORTH ASPHALT H and B	720614.10	4290798.15	468.70	20.0	300.0	16.667	1.1	2.29E-01		
CSTLC207	MISSOURI-AMERICAN WATER CO FLORISSANT	728394.88	4300010.04	461.78	15.0	896.0	0.000	14.0	1.61E+02		
CCITY65	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	100.0	350.0	29.984	1.3	3.08E-02		
CCITY203	INDUSTRIAL CONTAINER SERVICES - MO, LLC MANCHESTER	737686.12	4278652.89	459.06	20.0	250.0	18.068	1.0	3.56E-01		
CCITY204	INDUSTRIAL CONTAINER SERVICES - MO, LLC MANCHESTER	737686.12	4278652.89	459.06	20.0	150.0	22.218	1.0	1.68E+02		
CCITY344	GP RECYCLING, LLC	743830.86	4284034.28	422.18	20.0	0.0	0.000	0.5	1.72E-02		
CCITY368	GP RECYCLING, LLC	740384.08	4280241.69	507.64	10.0	1100.0	23.333	0.5	6.73E+00		
CCITY369	SAINT LOUIS UNIVERSITY FACILITIES SERVICES	740384.08	4280241.69	507.64	20.0	0.0	0.000	0.5	1.33E+00		
CCITY370	SAINT LOUIS UNIVERSITY FACILITIES SERVICES	740384.08	4280241.69	507.64	20.0	0.0	0.000	0.5	5.69E-02		

Off-Site Volume Source Inputs

Source ID	Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Release Height (ft)	Sigma Y (ft)	Sigma Z (ft)	Potential Emissions (lb/hr)		
								CO	SOx	SO2 (1-hour)
SJEFF64	MERCY HOSPITAL JEFFERSON	728195.03	4230846.83	425.75	16.4	3.8	15.3	1.28E-02	9.13E-05	9.13E-05
SJEFF84	ARDAGH GLASS INC. PEVELY	727306.83	4241579.49	466.57	8.2	2.3	7.6	2.29E-01	4.68E-03	4.68E-03
SJEFF85	ARDAGH GLASS INC. PEVELY	727306.83	4241579.49	466.57	8.2	2.3	7.6	2.29E-01	7.06E-03	7.06E-03
SJEFF87	ARDAGH GLASS INC. PEVELY	727306.83	4241579.49	466.57	16.4	3.8	15.3	2.29E-01	1.44E-03	1.44E-03
SJEFF88	ARDAGH GLASS INC. PEVELY	727306.83	4241579.49	466.57	8.2	2.3	7.6	2.29E-01	3.91E-03	3.91E-03
SJEFF89	ARDAGH GLASS INC. PEVELY	727306.83	4241579.49	466.57	8.2	2.3	7.6		1.47E-03	1.47E-03
SJEFF90	ARDAGH GLASS INC. PEVELY	727306.83	4241579.49	466.57	8.2	2.3	7.6		2.29E-01	2.29E-01
SJEFF91	ARDAGH GLASS INC. PEVELY	727306.83	4241579.49	466.57	8.2	2.3	7.6		6.88E-03	6.88E-03
SJEFF93	ARDAGH GLASS INC. PEVELY	727306.83	4241579.49	466.57	8.2	2.3	7.6		1.38E-03	1.38E-03
SJEFF101	CARONDELET CORPORATION PEVELY	727491.85	4241725.78	485.56	8.2	2.3	7.6	4.81E-01	2.40E-02	2.40E-02
SJEFF102	CARONDELET CORPORATION PEVELY	727491.85	4241725.78	485.56	8.2	2.3	7.6	6.41E-01	1.42E-02	1.42E-02
SJEFF103	CARONDELET CORPORATION PEVELY	727491.85	4241725.78	485.56	8.2	2.3	7.6	5.24E-01	6.09E-03	6.09E-03
SJEFF104	CARONDELET CORPORATION PEVELY	727491.85	4241725.78	485.56	8.2	2.3	7.6	1.51E-01	3.75E-03	3.75E-03
SJEFF105	CARONDELET CORPORATION PEVELY	727491.85	4241725.78	485.56	8.2	2.3	7.6		1.08E-03	1.08E-03
SJEFF106	CARONDELET CORPORATION PEVELY	727491.85	4241725.78	485.56	8.2	2.3	7.6		1.14E-03	1.14E-03
SJEFF107	AERO METAL FINISHING	718099.61	4263747.23	613.55	8.2	2.3	7.6		2.43E-01	2.43E-01
SJEFF126	FRED WEBER, INC. ANTONIA	720102.79	4248877.71	670.57	8.2	2.3	7.6		3.08E+00	3.08E+00
SSTC56	BLASTCO INC	690213.84	4297755.23	543.44	8.2	2.3	7.6		1.47E-01	1.47E-01
SSTL67	MISSOURI ASPHALT PRODUCTS, LLC WEST LAKE QUARRY MATERIAL CO	721914.39	4294042.31	462.50	16.4	3.8	15.3		5.88E-04	5.88E-04
SSTL68	MISSOURI ASPHALT PRODUCTS, LLC WEST LAKE QUARRY MATERIAL CO	721914.39	4294042.31	462.50	16.4	3.8	15.3		1.02E+00	1.02E+00
SSTL125	BODINE ALUMINUM INC WALTON ROAD	730791.15	4286068.83	618.60	8.2	2.3	7.6		7.18E-03	7.18E-03
SSTL197	FRED WEBER, INC. FT. BELLE	739499.97	4302900.13	443.27	8.2	2.3	7.6		1.80E-01	1.80E-01
SCITY19	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	8.2	2.3	7.6	8.24E-02	2.47E-02	2.47E-02
SCITY20	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	8.2	2.3	7.6	4.44E-03	7.73E-01	7.73E-01
SCITY21	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	8.2	2.3	7.6	2.59E+00	7.94E-01	7.94E-01
SCITY44	ADM GRAIN COMPANY ST. LOUIS	744141.30	4284932.90	425.39	15.0	0.2	14.0		6.22E-04	6.22E-04
SCITY45	ADM GRAIN COMPANY ST. LOUIS	744141.30	4284932.90	425.39	15.0	0.2	14.0		2.76E-02	2.76E-02
SCITY118	ICL SPECIALTY PRODUCTS INC CARONDELET PLANT	737985.63	4270043.36	414.11	8.2	2.3	7.6		7.50E-05	7.50E-05
SCITY119	ICL SPECIALTY PRODUCTS INC CARONDELET PLANT	737985.63	4270043.36	414.11	8.2	2.3	7.6		4.00E-01	4.00E-01
SCITY120	ICL SPECIALTY PRODUCTS INC CARONDELET PLANT	737985.63	4270043.36	414.11	8.2	2.3	7.6		2.61E-01	2.61E-01
SCITY130	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	8.2	2.3	7.6		3.00E-04	3.00E-04
SCITY131	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	8.2	2.3	7.6		7.40E-02	7.40E-02
SCITY134	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	8.2	2.3	7.6		7.40E-02	7.40E-02
SCITY135	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	8.2	2.3	7.6		3.00E-04	3.00E-04
SCITY138	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	8.2	2.3	7.6		7.40E-02	7.40E-02
SCITY139	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	8.2	2.3	7.6		3.00E-04	3.00E-04
SCITY182	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	16.4	3.8	15.3	3.36E-02	2.40E-04	2.40E-04
SCITY184	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	16.4	3.8	15.3	6.59E-02	4.71E-04	4.71E-04
SCITY186	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	16.4	3.8	15.3	3.36E-02	2.40E-04	2.40E-04
SCITY188	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	16.4	3.8	15.3	4.95E-02	3.53E-04	3.53E-04
SCITY195	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	8.2	2.3	7.6	8.40E-02	6.00E-04	6.00E-04
SCITY241	PQ CORPORATION -THE	739053.43	4285317.19	495.80	8.2	2.3	7.6		2.66E-02	2.66E-02
SCITY340	PAULO PRODUCTS COMPANY	736597.70	4278776.67	501.12	8.2	2.3	7.6		3.60E-04	3.60E-04
SCITY341	PAULO PRODUCTS COMPANY	736597.70	4278776.67	501.12	8.2	2.3	7.6		1.13E-03	1.13E-03
SCITY342	PAULO PRODUCTS COMPANY	736597.70	4278776.67	501.12	8.2	2.3	7.6		1.20E-03	1.20E-03
SCITY343	PAULO PRODUCTS COMPANY	736597.70	4278776.67	501.12	8.2	2.3	7.6		1.20E-02	1.20E-02
CJEFF33	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	1.49E-01		
CJEFF38	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	4.71E-03		
CJEFF39	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	3.22E-03		
CJEFF40	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	2.01E-01		

Off-Site Volume Source Inputs

Source ID	Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Release Height (ft)	Sigma Y (ft)	Sigma Z (ft)	Potential Emissions (lb/hr)		
								CO	SOx	SO2 (1-hour)
CJEFF41	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	1.10E-03		
CJEFF42	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	8.18E-04		
CJEFF47	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	6.55E-02		
CJEFF48	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	6.56E-06		
CJEFF49	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	4.09E-04		
CJEFF50	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	8.48E-04		
CJEFF51	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	5.28E-02		
CJEFF52	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	2.46E-03		
CJEFF53	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	1.53E-01		
CJEFF54	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	1.56E-02		
CJEFF55	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	1.16E-01		
CJEFF56	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	8.45E-03		
CJEFF57	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	3.42E-01		
CJEFF58	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	4.74E-03		
CJEFF59	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	1.92E-01		
CJEFF60	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	1.36E-02		
CSTLC92	THE BOEING COMPANY ST. LOUIS	728742.77	4293777.11	545.54	8.2	2.3	7.6	2.25E-01		
CSTLC151	SIMPSON CONSTRUCTION MATERIALS LLC VALLEY PARK	715996.20	4268469.87	430.05	13.5	1.4	0.7	1.58E-01		
CSTLC195	FRED WEBER, INC. FT. BELLE	739499.97	4302900.13	443.27	13.5	1.4	0.7	5.97E-01		
CCITY343	GP RECYCLING, LLC	743830.86	4284034.28	422.18	8.2	2.3	7.6	5.57E-02		

ATTACHMENT B

MODEL SUMMARY OUTPUT

1-28-20 US Steel CO Significant Impacts Analysis Results

Model	File	Pollutant	Average	Group	Rank	Conc/Dep	East (X)	North (Y)	Elev	Hill	Flag		Time	Met File	Sources	Groups	Receptors
AERMOD 19191	Granite City SIL_2015_CO.SUM	CO	1-HR	ALL	1ST	1086.962	748434.9	4287033	127.16	127.16		0	15081904	STL_LCN15	12	1	14098
AERMOD 19191	Granite City SIL_2016_CO.SUM	CO	1-HR	ALL	1ST	1002.586	748434.9	4287033	127.16	127.16		0	16071420	STL_LCN16	12	1	14098
AERMOD 19191	Granite City SIL_2017_CO.SUM	CO	1-HR	ALL	1ST	982.0781	748434.9	4287033	127.16	127.16		0	17051502	STL_LCN17	12	1	14098
AERMOD 19191	Granite City SIL_2014_CO.SUM	CO	1-HR	ALL	1ST	973.8513	748434.9	4287033	127.16	127.16		0	14061604	STL_LCN14	12	1	14098
AERMOD 19191	Granite City SIL_2018_CO.SUM	CO	1-HR	ALL	1ST	969.1688	748400	4287100	128.28	128.28		0	18050802	STL_LCN18	12	1	14098
AERMOD 19191	Granite City SIL_2018_CO.SUM	CO	8-HR	ALL	1ST	669.1028	748481.6	4286378	126.67	126.67		0	18111224	STL_LCN18	12	1	14098
AERMOD 19191	Granite City SIL_2016_CO.SUM	CO	8-HR	ALL	1ST	645.9929	748434.9	4287033	127.16	127.16		0	16110108	STL_LCN16	12	1	14098
AERMOD 19191	Granite City SIL_2014_CO.SUM	CO	8-HR	ALL	1ST	620.7987	748756.2	4286732	125.76	125.76		0	14112416	STL_LCN14	12	1	14098
AERMOD 19191	Granite City SIL_2017_CO.SUM	CO	8-HR	ALL	1ST	612.1259	748434.9	4287033	127.16	127.16		0	17112624	STL_LCN17	12	1	14098
AERMOD 19191	Granite City SIL_2015_CO.SUM	CO	8-HR	ALL	1ST	607.0288	748434.9	4287033	127.16	127.16		0	15020308	STL_LCN15	12	1	14098

1-28-20 US Steel CO Significant Impacts Analysis Results

Pollutant	Average	Group	Rank	Model Conc. (ug/m3)	Background Conc. (ug/m3)	Total Conc. (ug/m3)	Standard (ug/m3)	% Standard
CO	1-HR	ALL	1ST	1087.0	NA	1087.0	2000	54%
CO	8-HR	ALL	1ST	669.1	NA	669.1	500	134%

1-29-20 US Steel CO NAAQS Analysis Results

Model	File	Pollutant	Average	Group	Rank	Conc/Dep	East (X)	North (Y)	Elev	Hill	Flag		Time	Met File	Sources	Groups	Receptors
AERMOD 19191	Granite City NAAQS_2015_CO.SUM	CO	1-HR	ALL	2ND	3413.958	748434.9	4287033	127.16	127.16		0	15072724	STL_LCN15	564	1	47
AERMOD 19191	Granite City NAAQS_2016_CO.SUM	CO	1-HR	ALL	2ND	3309.501	748434.9	4287033	127.16	127.16		0	16050105	STL_LCN16	564	1	47
AERMOD 19191	Granite City NAAQS_2014_CO.SUM	CO	1-HR	ALL	2ND	3233.448	748434.9	4287033	127.16	127.16		0	14030707	STL_LCN14	564	1	47
AERMOD 19191	Granite City NAAQS_2018_CO.SUM	CO	1-HR	ALL	2ND	3178.54	748434.9	4287033	127.16	127.16		0	18070124	STL_LCN18	564	1	47
AERMOD 19191	Granite City NAAQS_2017_CO.SUM	CO	1-HR	ALL	2ND	3140.406	748434.9	4287033	127.16	127.16		0	17091704	STL_LCN17	564	1	47
AERMOD 19191	Granite City NAAQS_2017_CO.SUM	CO	8-HR	ALL	2ND	1941.224	748434.9	4287033	127.16	127.16		0	17121624	STL_LCN17	564	1	47
AERMOD 19191	Granite City NAAQS_2016_CO.SUM	CO	8-HR	ALL	2ND	1856.671	748434.9	4287033	127.16	127.16		0	16032208	STL_LCN16	564	1	47
AERMOD 19191	Granite City NAAQS_2014_CO.SUM	CO	8-HR	ALL	2ND	1849.688	748434.9	4287033	127.16	127.16		0	14050724	STL_LCN14	564	1	47
AERMOD 19191	Granite City NAAQS_2015_CO.SUM	CO	8-HR	ALL	2ND	1835.384	748434.9	4287033	127.16	127.16		0	15122108	STL_LCN15	564	1	47
AERMOD 19191	Granite City NAAQS_2018_CO.SUM	CO	8-HR	ALL	2ND	1726.839	748470.1	4287000	126.94	126.94		0	18092424	STL_LCN18	564	1	47

1-29-20 US Steel CO NAAQS Analysis Results

Pollutant	Average	Group	Rank	Model Conc. (ug/m3)	Background Conc. (ug/m3)	Total Conc. (ug/m3)	Standard (ug/m3)	% Standard
CO	1-HR	ALL	1ST	3414.0	2286	5700.0	40000	14%
CO	8-HR	ALL	1ST	1941.2	1349	3290.2	10000	33%

Appendix D – Copy of 1996 Construction Permit

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

State of Illinois
ENVIRONMENTAL PROTECTION AGENCY

Mary A. Gade, Director
217/782-2113

P. O. Box 19506, Springfield, IL 62794-9506

CONSTRUCTION PERMIT

PERMITTEE

RECEIVED
JAN 3 1995
COLLINSVILLE OFFICE

Granite City Division
of National Steel Corporation
Attn: Joseph S. Kocot
20th and State Street
Granite City, Illinois 62040

Application No.: 95010001 I.D. No.: 119813AAI
Applicant's Designation: Date Received: January 3, 1995
Subject: Production Increase
Date Issued: January 25, 1996
Location: Southeastern Granite City

Permit is hereby granted to the above-designated Permittee for an increase in the allowable production rate of iron (from 2,372,500 to 3,165,000 net tons per year) and steel (from 2,774,000 to 3,580,000 net tons per year) as described in the above-referenced application. This permit is subject to standard conditions attached hereto and the following special conditions:

1. Prior to issuance of this permit, a draft of this permit has undergone a public notice and comment period, and a public hearing was held.

BLAST FURNACE OPERATIONS

2a. Total combined production of hot metal (a.k.a., iron) from blast furnaces A and B shall not exceed 9,849 net tons per day, averaged over any calendar month, and;

b. Total combined production of hot metal from blast furnaces A and B shall not exceed 3,165,000 net tons per year.

3a. Particulate emissions from the blast furnace casthouse baghouse and iron spout baghouse shall not exceed 0.010 gr/dscf, pursuant to 35 Ill. Adm. Code 212.445(b)(1).

b. The opacity of emissions from the blast furnace casthouse baghouse and the iron spout baghouse shall not exceed 10% on a 6 minute rolling average basis, pursuant to 35 Ill. Adm. Code 212.445(b)(1).

4a. Emissions of particulate matter from any opening in the blast furnace casthouse shall not exceed 20% opacity on a 6-minute rolling average basis beginning from initiation of the opening of the tap hole up to the point where iron and slag stops flowing in the troughs, pursuant to 35 Ill. Adm. Code 212.445(a)(2).

5. Emissions from Blast Furnace operations shall not exceed the limits in attached Tables 1 and 5.

BASIC OXYGEN FURNACE SHOP

6a. Total combined production of liquid steel from the Basic Oxygen Furnaces (BOF's) shall not exceed 11,000 net tons per day, averaged over any calendar month, and;

b. Total combined production of liquid steel from the BOF's shall not exceed 3,580,000 net tons per year.

7. The emissions of PM-10 from the BOF ESP stack for the total of all BOF processes (i.e., operations from the beginning of the charging process through the end of the tapping process) shall not exceed 60.0 lbs/hr and 0.225 lbs per ton of steel in process, pursuant to 35 Ill. Adm. Code 212.458(b)(23).

8. Visible emissions from any opening in the BOF shop (e.g., roof monitor) shall not exceed 20% on a 3 minute rolling average basis.

9a. The Permittee shall determine the opacity from the openings BOF shop on at least a weekly basis. Observations shall be conducted for at least an hour or the entire BOF cycle, whichever is greater.

b. The Permittee shall determine the opacity from the BOF ESP stack for at least one hour on any normal work day (i.e., Monday through Friday) that the continuous opacity monitor on the BOF ESP stack has an outage that exceeds two consecutive hours and is still down. The readings shall commence as soon as possible after the opacity monitor has been down for two consecutive hours. If meteorological conditions or lack of visibility preclude these observations from being conducted, then this shall be noted in the log book.

c. The opacity shall be determined in accordance with the observation procedures set out in 40 CFR Part 60, Appendix A, Method 9 including the requirement that readings be taken by a certified observer.

d. These determinations shall be recorded in a log book, which at a minimum shall include the date and time of observations, name and title of observer, individual opacity readings, calculated opacity so as to determine compliance with Section 212.123, and calculated opacity relative to 20% opacity on a three minute rolling average basis.

10. The Permittee shall follow the BOF operating procedures and requirements specified in attachment A. These requirements are designed to ensure proper operation of the BOF control system. These procedures shall be posted in the BOF pulpit (a.k.a., control room).

11. Flame suppression shall be used and maintained during the entire tapping process.

12a. The stack gas pulpit set point of the BOF ESP control system shall be set in accordance with the following, so as to establish sufficient particulate matter capture efficiency of the charging and primary hoods:

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

i. Set point requirements while only a single BOF vessel is in operation;

A. Minimum set point during charging process: 550,000 cfm;

B. Minimum set point during refining process: 650,000 cfm;

C. Minimum set point during tapping process: 200,000 cfm (until one minute after completing alloy addition);

ii. During dual operation of BOF vessels (a.k.a., overlapping BOF operation) the set point shall be set to establish the total draft necessary to control the corresponding portion of the process which is occurring on each vessel during the overlap. For example, minimum set point while charging at one vessel and tapping at the other would be equal to that necessary to establish a flow of 700,000 cfm (i.e., 550,000 + 150,000).

iii. Overlapping operations of the BOF vessels is allowed only as specified in operating permit application number 72080043.

iv. The BOF capture system shall be operated at the above minimum set points until and unless the Agency approves a lower minimum set point based on a demonstration that a better level of particulate matter control will occur, except for purposes of emissions testing as related to the set point.

b. The Permittee shall calibrate, operate, and maintain a continuous strip chart recorder of the ESP stack gas flow rate as measured by the stack gas flow meter during ESP use.

c. The Permittee shall record for each steel production cycle the various stack gas flow rates for each process (i.e., for each charge, each refine, each tap) of each steel production cycle. That is, the Permittee shall be able to distinguish the measured flow rate of stack gas during each production cycle.

d. The stack gas flow meter shall be calibrated on at least a quarterly basis.

13a. Within 270 days of the date issued of this permit, the Permittee shall install, calibrate, operate, and maintain a monitoring device that continually measures and records for each process (i.e., for each charge, each refine, each tap) of each steel production cycle the various exhaust ventilation rates or levels of exhaust ventilation through the main downcommer duct of the ESP emissions capture and transport system.

b. The monitoring system shall be designed to be used as a mechanism to ensure sufficient draft is maintained in the emissions capture hoods and transport ducts so as to maximize emissions capture and transport and minimize uncaptured emissions and emission leaks.

c. The monitoring system shall be operated, tested and maintained to ensure accurate and useful data.

d. The Agency may allow an equivalent system or method instead of the above monitoring system provided the Permittee demonstrates, and the Agency approves, that such system or method will ensure sufficient draft is maintained in the emissions capture hoods and transport ducts so as to maximize emissions capture and transport and minimize uncaptured emissions and emission leaks in an equivalent manner, and that such system or method can be installed and operated within the time period required for the monitoring system as stated in this permit.

14a. The Permittee shall visually inspect at least monthly all visible BOF vessel enclosures, hooding and ducts used to capture and transport emissions for the BOF ESP control system.

b. A log shall maintained of these inspections which includes observations of the physical appearance of the capture system and any noted deficiencies (e.g., the presence of any holes in ductwork or hoods, flow constrictions caused by dents or accumulated dust in ductwork, and fan erosion).

c. Any leaks or areas otherwise noted to be in need of repair, shall be repaired as soon as practicable.

15a. The Permittee shall operate, maintain, and repair the BOF ESP in a manner that assures compliance with the conditions of this permit.

b. An adequate inventory of spare parts for the BOF ESP shall be maintained.

16. Written operating procedures for the BOF ESP shall be maintained and updated describing proper normal process and equipment operating parameters, monitoring and instrumentation for measuring control equipment operating parameters, control equipment inspection and maintenance practices, and the availability of spare parts from inventory, local suppliers and other sources.

17. The Permittee shall keep operating records, a maintenance log, and inspection log for the BOF ESP and associated control systems which includes the following:

a. Operating time of the BOF;

b. Operating time of the capture systems and performance parameters, including air flow and fan amperage through the fan motors, gas temperature at inlet to ESP, damper settings, and steam injection rate;

c. Operating time of the ESP and performance parameters, including voltage and amperage of each transformer/rectifier set, number of sections in use;

d. All routine and nonroutine maintenance performed, including dates and duration of outages, inspection schedule and findings, leaks detected, repair actions, and replacements.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

18. Emissions from the BOF Shop shall not exceed the limits in attached Tables 2 and 5.

Note: For purposes of this permit, a BOF cycle is defined as the period from the beginning of the charging process through the end of the tapping process. The cycle is comprised of three main processes which are charging, refining, and tapping.

CONTINUOUS CASTING OPERATIONS

19. The continuous casting operations shall comply with 35 Ill. Adm. Code 212.450 and 212.458(b)(8).

20. Emissions from the continuous casting operations shall not exceed the limits in Tables 3 and 5.

FUEL COMBUSTION

21. Total fuel usage for blast furnace stoves (A and B), boiler house boilers (1-10), blast furnace boilers (11 and 12), ladle drying preheaters and blast furnace gas flares shall not exceed the following limits:

    a. Natural Gas usage: 190 million ft^3 per month and 1,145 million ft3 per year;

    b. Blast Furnace Gas (BFG) usage: 30,800 million ft3 per month and 185,030 million ft3 per year;

    c. Fuel Oil usage: 60 thousand gallons per month and 365 thousand gallons per year.

22. Emissions from the fuel combustion units listed above shall not exceed the limits in Tables 4 and 5.

ON-SITE FUGITIVE DUST CONTROL

(Refer to Attachment B for a table which summarizes the required on-site fugitive dust roadway control measures and maps indicating the referred to road segments)

23. The Permittee shall immediately initiate and maintain the on-site fugitive dust control measures specified in this permit so as eliminate dust spillage on in-plant and out-of-plant roadways.

24a. The Permittee shall sweep or flush at least every day the paved access area below the BOF ESP where ESP dust collection bags are used, stored and transported.

b. The Permittee shall implement a housekeeping program for the non-roadway areas below and around the BOF ESP. This program shall, at a minimum, contain the following:

    i. The ground and other accessible areas where dust may gather shall be swept or cleaned at least every day;

ii. Cleaning shall be performed in such a manner as to minimize the escape of dust into the atmosphere;

iii. Dust collection bags shall be inspected at least daily for rips, tears, or insecure connection to the discharge chutes of the ESP hoppers;

iv. Dust collection bags shall be inspected after removal from, and connection to, the discharge chutes of the ESP hoppers;

v. Ripped or torn bags shall be taken out of service and transported as soon as practicable in a covered truck.

25. Fugitive emissions of particulate matter from any roadway or parking area shall not exceed an opacity of 5%, pursuant to 35 Ill. Adm. code 212.316(e)(1).

26a. UNPAVED ROADS: On unpaved roads that are part of normal traffic patterns as identified in attachment B (including roads B, C, E, N, F-F, and CS(2)) the Permittee shall apply a chemical dust suppressant at least three times a month, with the following exceptions:

i. Road segment G-G, which shall be sprayed at least quarterly;

ii. Road segments P, V, Z, D-D, E-E, and H, which shall be sprayed at least 4 times per month until paving is completed. Paving shall be completed on these roads no later than July 31, 1996;

iii. Road segment L, which shall be sprayed at least 4 times per month.

b. All other unpaved roads shall be treated as necessary.

c. Applications of suppressant may be less frequent than specified above if weather conditions, i.e., precipitation or temperature, interfere with the schedule for spraying, provided each such instance shall be recorded in accordance with the daily records for on-site fugitive dust control required by this permit.

27a. PAVED ROADWAYS AND AREAS: Paved roadways and areas shall be maintained in good condition.

b. On paved roadways and other areas, the Permittee shall sweep or flush as follows:

i. Road segments D, K, M, F, G, J, R, and O shall be swept or flushed at least daily;

ii. Road segments P, V, W, X, Z, D-D, E-E, and CS(1) shall be swept or flushed at least five days per week;

iii. Road segments S and T shall be swept or flushed at least every other day;

iv. Road segments A and H shall be swept or flushed at least once per month;

v. All gate areas leading from the Steelworks area shall be swept or flushed at least daily;

vi. All gate areas leading from the iron making area shall be swept or flushed at least five times per week.

28. The above on-site dust control measures shall be conducted to maximize their effectiveness by performing said measures when the roads or areas are not normally obstructed by parked vehicles and by preferentially using filter sweeping (e.g., Enviro-Whirl sweeper) for the gate areas, the roads and areas surrounding the BOF and BOF ESP, and other key areas.

29. The Permittee shall maintain daily records relative to the on-site fugitive dust control program which includes the following information as a minimum:

a. The date (and time for the gate areas) each road or area was treated;

b. The manner in which the road or area was treated (i.e., filter sweep, conventional sweep, suppressant spray or flush);

c. Detailed information for use of dust suppressant, including but not limited to the application rate, dilution ratio, type of suppressant used, and the number of gallons of suppressant applied;

d. Observations, if any, concerning the condition of the roadway, e.g., presence of parked vehicles, detection of potholes;

e. The amount of precipitation and temperature recorded for each day, and if determination was made to suspend application of suppressant, include name and title of person who made determination to suspend application and explanation;

f. Any and all suspensions or deviations from the designated control procedures, with date, description, and explanation for suspension of application.

<u>OFF-SITE FUGITIVE DUST CONTROL</u>

30. The Permittee or the Permittee's Agent shall sweep or flush the following Granite City street road areas:

a. At least weekly, the quarter mile segment of Madison Avenue in front of the 16th street gate (i.e., 1/8 of a mile in either direction);

b. At least weekly, segment of 20th street between Lee and Quincy roads;

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

c. At least monthly, segment of 20th street between Madison and Route 203 (a.k.a. Edwardsville Road).

PM-10 CONTINGENCY MEASURES

31. The Permittee shall comply with the additional control measures (e.g., PM-10 contingency plan) required by 35 Ill Adm. Code Part 212 Subpart U.

COMPLIANCE DETERMINATIONS

32a. Compliance with the daily limits of this permit shall be determined from a monthly total of the relevant daily data divided by the number of days in the month.

b. Compliance with the monthly limits of this permit (e.g., fuel usage) shall be determined by direct comparison of monthly data to the applicable limit.

c. i. Compliance with the annual limits of this permit shall be determined based on a calendar year.

ii. A. Compliance with the production limits in conditions 2(b) and 6(b) shall also be determined on a month by month basis by showing that the actual production of iron and steel from the plant did not exceed the scheduled rate of production for a month given in the most recent production schedule provided to the Agency that shows compliance with the following requirements.

B. If no production schedule is submitted to the Agency by the Permittee for a particular year, the scheduled monthly production of iron and steel shall be set at one twelfth of the annual production limits in conditions 2(b) and 6(b).

C. 1. The Permittee may submit a schedule for iron and steel production for each month of the calendar year. Such schedule shall provide the scheduled monthly iron and steel production for each month and the total of such scheduled production shall not exceed the annual production limits in conditions 2(b) and 6(b). This schedule shall be submitted each year no later than December 15th of the preceding year.

2. During the course of the year, the Permittee may submit a revised production schedule which accounts for actual production levels which were below that scheduled for the previous months, provided that in no case shall the scheduled production for prior months in such a revised schedule be lowered to less than actual production levels or raised. Such revised schedule shall be submitted to the Agency no later than 15 days

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

after the first day of the month for which scheduled production has been raised. Such schedule shall be accompanied by data on actual production in preceding months.

33a. Compliance with opacity limits and measurements of opacity shall be made by opacity readings taken in accordance with the observation procedures set out in 40 CFR Part 60, Appendix A, Method 9.

b. The Permittee shall have at least two employees or agents experienced in making opacity readings to the extent that it is reasonably possible to do so, who shall be able to make the opacity readings required by this permit.

34a. Blast furnace hot metal production shall be measured at the BOF hot metal transfer station, and adjusted by documented slag and iron losses.

b. BOF liquid steel production shall be initially measured by a scale equipped crane and adjusted based upon documented steel production analysis of the continuous casters.

c. BFG usage shall be calculated based on 0.05846 $mmft^3$ BFG generated per net ton of hot metal produced.

d. Natural gas usage shall be determined by metered volumes.

e. Fuel oil usage shall be determined by tank height differentials.

RECORD KEEPING

35. The Permittee shall keep records of the following items and such other items which may be appropriate to allow the Agency to review compliance:

a. Blast Furnace hot metal production (total combined daily, monthly and annual in tons), including documentation on iron and slag losses;

b. BOF liquid steel production (total combined daily, monthly and annual in tons), including documentation on adjustments made due to production analysis and losses;

c. Fuel usage as follows; Usage of natural gas and BFG (total combined million ft^3 per month and year, each) and fuel oil (total combined gallons/month and year) for the blast furnace stoves (A and B), boiler house boilers (1-10), blast furnace boilers (11 and 12), ladle drying preheaters and blast furnace gas flares.

36. All records and logs required by this permit shall be retained at a readily accessible location at the source for at least three years from the date of entry and shall be made available for inspection and copying by the Agency and USEPA upon request. Any records retained in a computer shall be capable of being retrieved and

printed on paper during normal source office hours so as to be able to respond to an Agency request for records during the course of a source inspection.

STARTUP AND TESTING

37. The special conditions of this permit supplement the special conditions of any existing operating permits for this source, and supersede such conditions in cases where a conflict exists.

38. Operation at the increased production rates specified in this permit is allowed for 270 days from the date issued under this construction permit.

39a. The following tests shall be performed to demonstrate compliance with the conditions of this permit within 270 days from the date issued of this permit:

i. Blast Furnace testing: The emissions of particulate matter, volatile organic material, sulfur dioxide, nitrogen oxides, and the opacity from the blast furnace casthouse stack shall be measured. These tests shall be designed to verify compliance with 35 Ill. Adm. Code 212.445 and the requirements of this permit;

ii. Hot Metal Desulfurization testing: The emissions of particulate matter from the desulfurization baghouse shall be measured. These tests shall be designed to verify compliance with the requirements of this permit and 35 Ill. Adm. Code 212.446(b)(2);

iii. BOF testing: The emissions of particulate matter, carbon monoxide, and lead from the BOF ESP stack, and the opacity from both the BOF ESP stack and BOF Shop shall be measured. These tests shall be designed to verify compliance with 35 Ill. Adm. Code 212.446, 212.458 and the requirements of this permit;

iv. Fuel Combustion Units testing: The emissions of particulate matter from a representative boiler while burning blast furnace gas shall be measured. This test shall be designed to verify compliance with the requirements of this permit and the emission factor used (i.e., 2.9 lbs particulate emitted per mmcf BFG burned);

v. BFG generation testing: The amount of blast furnace gas generated ($mmft^3$) per ton of hot metal produced shall be determined. The Agency may waive this requirement for testing providing the Permittee submit a sufficient explanation of how BFG generation is determined with justification that such determination is appropriate for purposes of compliance determinations with this permit.

b. These tests shall be performed by an approved independent testing service during conditions which are representative of maximum emissions and at the maximum production rates allowed, or as close

to such rates as reasonable if the Permittee demonstrates to the Agency prior to testing that testing at such production rates within the time constraints of an Agency request to test is not practicable.

c. i. The following methods and procedures shall be used for the testing, unless another method is approved by the Agency: Refer to 40 CFR 60, Appendix A for USEPA test methods;

Location of sample points	USEPA Method 1
Gas flow and velocity	USEPA Method 2
Particulate Matter	USEPA Method 5
Sulfur Dioxide	USEPA Method 6
Nitrogen Oxides	USEPA Method 7
Opacity	USEPA Method 9
Carbon Monoxide	USEPA Method 10
Lead	USEPA Method 12

ii. All particulate measured shall be considered PM-10 unless emissions are tested by an appropriate USEPA test method for measurement of PM-10, as specified in 35 Ill. Adm. Code 212.110(e).

d. At least 60 days prior to the actual date of testing of the BOF, a written test plan shall be submitted to the Agency for review and approval. This plan shall be describe the specific procedures for testing the BOF, including as a minimum:

i. The persons who will be performing sampling and analysis and their experience with similar tests;

ii. The specific conditions under which testing will be performed including a discussion of why these conditions will be representative of maximum emissions and the means by which operating parameters for the source and the emissions capture and control system will be determined;

iii. The specific determinations of emissions and operation which are intended to be made, including sampling and monitoring locations;

iv. The test methods which will be used, with the specific analysis methods;

v. Any proposed use of an alternative test method, with detailed justification;

vii. The format and content of the Source Test Report.

e. The Agency shall be notified before these tests to enable the Agency to observe these tests. Notification for the expected date of testing shall be submitted a minimum of thirty (30) days prior to the expected date. Notification of the actual and expected time of testing shall be submitted a minimum of five (5) working days prior to the actual date of the test. The Agency may at its discretion

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

accept notifications with shorter advance notice provided that the Agency will not accept such notifications if it interferes with the Agency's ability to observe testing.

f. The Final Report of these tests shall include as a minimum:

i. A tabular summary of results which includes:

- process weight rate and/or fuel usage rate
- production rate
- allowable emission limit
- measured emission rate
- determined emission factor
- compliance demonstrated - Yes/No
- other pertinent information (e.g., for the BOF, pulpit set point for each process of the BOF cycle - charging, refining, and tapping);

ii. Description of test methods and procedures used, including description of sampling train, analysis equipment, and test schedule;

iii. Detailed description of test conditions, including,

- pertinent process information (e.g. fuel or raw material consumption)
- control equipment information, i.e. equipment condition and operating parameters during testing;

iv. Data and calculations, including copies of all raw data sheets and records of laboratory analyses, sample calculations, and data on equipment calibration;

g. Copies of the Final Report for these tests shall be submitted to the Agency within 14 days after the test results are compiled and finalized and in no case later than upon the submittal of the operating permit application for this production increase.

h. Submittals of information shall be made as follows:

i. Notice of Test - one copy to Source Emission Test Specialist, one copy to Regional Office, and one copy to Permit Section;

ii. Final Report - one copy to Source Emission Test Specialist, one copy to Regional Office, and one copy to Permit Section.

Pertinent Addresses are:

Illinois Environmental Protection Agency
Division of Air Pollution Control
Attn: Source Emission Test Specialist
Intercontinental Center
1701 1st Avenue
Maywood, Illinois 60153

Illinois Environmental Protection Agency
Division of Air Pollution Control
Regional Office
2009 Mall Street
Collinsville, Illinois 62234

Illinois Environmental Protection Agency
Division of Air Pollution Control
Attn: Permit Section
P.O. Box 19506
Springfield, Illinois 62794-9506

REPORTING

40. If there is an exceedance of the requirements of this permit as determined by the records required by this permit, the Permittee shall submit a report to the Agency's Compliance Unit in Springfield, Illinois within 30 days after the exceedance. The report shall include the emissions released in accordance with the record keeping requirements, a copy of the relevant records, and a description of the exceedance or violation, cause of the exceedance, and efforts to reduce emissions and future occurrences. This report shall be sent to:

Illinois EPA
Bureau of Air
Compliance Unit (#39)
P.O. Box 19276
Springfield, Illinois 62794-9276

41. The Permittee shall submit the following additional information from the prior calendar year with the Annual Emissions Report, due May 1st of each year:

a. Iron and steel production (tons/month and tons/yr, each);

b. Natural gas and BFG usage (mmft3/month and mmft3/yr, each);

c. Fuel oil usage (thousand gallons/month and thousand gallons/yr, for each type of oil).

APPLICABILITY OF MAJOR SOURCE RULES

42a. As a consequence of the above conditions, this permit is issued based upon the following changes in emissions, as further described in Table 6, accompanying increased production as allowed by this permit:

i. The increases in emissions of lead and VOM are not significant under 35 Ill. Adm. Code Part 203 or 40 CFR 52.21 - Prevention of Significant Deterioration;

ii. The increase in emissions of NO_x are being accompanied by contemporaneous emission decreases provided by the shutdown of equipment and operations such that the net emissions change is

not significant under 35 Ill. Adm. Code Part 203 or 40 CFR 52.21 - Prevention of Significant Deterioration.

iii. The increase in emissions of PM and PM-10 are being accompanied by contemporaneous emission decreases provided by additional road dust control and BOF capture and control such that the net emissions change is not significant under 35 Ill. Adm. Code Part 203 or 40 CFR 52.21 - Prevention of Significant Deterioration.

Also, the Permittee has agreed to provide further additional dust control consisting of the sweeping of Granite City public streets and housekeeping measures in the area below and surrounding the BOF ESP. Attachment C is a listing of the emission reductions provided by these control measures.

b. The increases in emissions of SO_2 and CO are significant under 40 CFR 52.21 - Prevention of Significant Deterioration (PSD). Accordingly, the project is considered a major modification and must comply with the requirements of PSD. These requirements include a demonstration of best available control requirements for affected SO2 and CO emission units, an analysis of air quality impacts, an analysis of the impacts of the project on visibility, vegetation's and soils, and the application and proposed permit must undergo a public participation. The Agency has determined that these additional requirements have been met.

c. The changes in emissions pertinent to this project are summarized as follows:

Units = tons/year

- Emission increases which could occur from the project:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
51.6	- 52.0	238.8	476.0	5,685	59.3	0.54

- Creditable contemporaneous actual emission decreases:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
58.0	58.0	226.5	0.38	23.31	32.8	0.0

- Other contemporaneous emission increases:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
20.7	20.3	26.0	0.25	11.8	1.6	0.0

- Net emission changes:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
+14.3	-89.2	+38.3	+475.9	+5,673	+28.1	+0.54

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

- Significant Levels:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
15	25	40	40	100	40	0.6

Explanatory Note:

PM	=	particulate matter = particulate;
PM-10	=	particulate matter less than or equal to 10 micrometers in size;
SO_2	=	sulfur dioxide;
NO_x	=	nitrogen oxides;
VOM	=	volatile organic material;
CO	=	carbon monoxide;
mm	=	million;
gr/dscf	=	grains per dry standard cubic foot;
acfm	=	actual cubic feet per minute;
mmcf	=	million cubic feet;
Mgal	=	thousands of gallons.

If you have any questions on this permit, please call Jim Ross at 217/782-2113.

Donald E. Sutton, P.E.
Manager, Permit Section
Division of Air Pollution Control

DES:JRR:jar

cc: IEPA, FOS Region 3

COPY
Original Signed by
Donald E. Sutton, P.E.

Permit Application #95010001

TABLE 1

BLAST FURNACE OPERATIONS

Maximum Hot Metal Production = 3,165,000 net tons per year

1. Casthouse Baghouse (furnace tapping)- captured emissions ducted to baghouse, uncaptured emissions emitted through roof, other openings, etc.

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.0703	111.19
PM-10	0.0703	111.19
SO_2	0.2006	422.0
NO_x	0.0144	22.79
VOM	0.0946	149.68

2. Blast Furnace - uncaptured fugitives

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.031	49.06
PM-10	0.0155	24.53
SO_2	0.0104	21.94
NO_x	0.0007	1.14
VOM	0.0047	7.42

3. Blast Furnace Charging
Maximum pellets charged = 4,308,581 tons/yr

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.0024	5.17
PM-10	0.0024	5.17

4. Slag Pits

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00417	6.60
PM-10	0.00417	6.60
SO_2	0.0100	15.83

Permit Application #95010001

TABLE 1 (cont.)

5. Iron Spout Baghouse- captured emissions controlled by iron spout baghouse.

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.02548	40.32
PM-10	0.02548	40.32
SO_2	0.0073	13.89

6. Iron Pellet Screen
Maximum pellets charged = 4,308,581 tons/yr

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00279	6.01
PM-10	0.00279	6.01

Permit Application #95010001

TABLE 2

BOF SHOP

Maximum Liquid Steel Production = 3,580,000 net tons per year

1. BOF ESP Stack (charge, refine, tap)

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.16	262.80
PM-10	0.16	262.80
NO_x	0.0389	69.63
VOM	0.0060	10.74
CO	8.993	16,097.47
Lead	0.1934 lbs/hr	1.26 tons/yr

2. BOF Roof Monitor

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.0987	176.71
PM-10	0.06614	118.40
Lead	0.0129 lbs/hr	0.08 tons/yr

3. Desulfurization and Reladling - Hot Metal Transfer

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.03721	58.88
PM-10	0.03721	58.88
VOM	0.0010	1.58
Lead	0.0133 lbs/hr	0.09 tons/yr

4. BOF Additive System (i.e., fluxes) with Baghouse, a.k.a., BOF hopper baghouse

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00032	0.57
PM-10	0.00032	0.57

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Permit Application #95010001

TABLE 2 (cont.)

5. Flux conveyor & transfer pits, bin floor

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.0016	2.86
PM-10	0.0016	2.86

6. Hot metal charging ladle slag skimmer

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.0050	7.94
PM-10	0.0050	7.94

Permit Application #95010001

TABLE 3

CONTINUOUS CASTING OPERATIONS

Maximum Liquid Steel Throughput = 3,580,000 net tons per year

1. Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy)

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00715	12.80
PM-10	0.00715	12.80

2. Deslagging Station and Material HS.

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00355	6.35
PM-10	0.00355	6.35

3. Caster Molds - Casting

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.006	10.74
PM-10	0.006	10.74
NO_x	0.050	89.50

4. Casters Spray Chambers

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00852	15.25
PM-10	0.00852	15.25

5. Slab Cut-off

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.0071	12.71
PM-10	0.0071	12.71

Permit Application #95010001

TABLE 3 (cont.)

6. Slab Ripping

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00722	12.92
PM-10	0.00722	12.92

Permit Application #95010001

TABLE 4

CERTAIN FUEL COMBUSTION UNITS

1. 10 boilers (#'s 1 - 10)
2. 2 boilers (#'s 11 - 12)
3. Blast Furnace Stoves A & B.
4. BFG Flares
5. Ladle Drying Preheaters (5 heaters).

Total combined fuel usage from affected units (i.e., Boilers, BF stoves, BF Flares, ladle drying preheaters)

	Maximum Usage ($mmft^3/Yr$)
NATURAL Gas (Total)	1,145
BFG	185,030
Fuel Oil	365 thousand gallons/yr

1. Natural Gas

Pollutant	Emission Factor (Lbs/mmcf)	Maximum Emissions (Tons/Yr)
PM	5.1	2.92
PM-10	5.1	2.92
SO_2	0.6	0.34
NO_x	306	175.19
VOM	2.8	1.60
CO	40	22.90

2. BFG

Pollutant	Emission Factor (Lbs/mmcf)	Maximum Emissions (Tons/Yr)
PM	2.9	268.29
PM-10	2.9	268.29
SO_2	6.65	615.22
NO_x	5.28	488.48
CO	13.7	1,267.46

Permit Application #95010001

TABLE 4 (cont.)

3. Fuel Oil

Pollutant	Emission Factor (Lbs/Mgal)	Maximum Emissions (Tons/Yr)
PM	9.72	1.77
PM-10	9.72	1.77
SO_2	141.3	25.79
NO_x	55	10.04
VOM	0.28	0.05
CO	5.0	0.91
Lead	0.336	0.06 (waste oil)

Permit Application #95010001

TABLE 5

LIMITS ON EMISSIONS FROM MAJOR PROCESSES AND ACTIVITIES

Units = tons/year

	PM	PM-10	SO_2	NO_x	VOM	CO	Lead
Blast Furnace Operations	218	194	474	24	157	--	--
BOF Shop	510	451	--	70	12	16,097	1.43
Continuous Casting Operations	71	71	--	90	--	--	--
Certain Fuel Combustion Units[A]	273	273	641	674	2	1,291	0.06
Roadways	27	27	--	--	--	--	--
Material Handling	2	2	--	--	--	--	--
	PM	PM-10	SO_2	NO_x	VOM	CO	Lead
TOTAL	1,101	1,018	1,115	858	171	17,388	1.49

[A] Blast furnace stoves (A and B), boiler house boilers (1-10), blast furnace boilers (11 and 12), ladle drying preheaters and blast furnace gas flares.

Permit Application #95010001

TABLE 6

EMISSIONS SUMMARY

Units = tons/year

- Emission increases which could occur from the project:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
51.6	-52.0	238.8	476.0	5,685	59.3	0.54

- Creditable contemporaneous actual emission decreases:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
58.0	58.0	226.5	0.38	23.31	32.8	0.0

- Other contemporaneous emission increases:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
20.7	20.3	26.0	0.25	11.8	1.6	0.0

- Net emission changes:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
+14.3	-89.2	+38.3	+475.9	+5,673	+28.1	+0.54

- Significant Levels:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
15	25	40	40	100	40	0.6

Permit Application #95010001

ATTACHMENT A

PROCEDURES TO ENSURE PROPER OPERATION
OF BOF ESP CONTROL SYSTEM

1. The emissions control operator shall:

   a. Check on a regular basis and report to the emissions control foreman or melter:

      i. Any ESP fields down;

      ii. Any ESP fields in which the meter readings are showing no current or a fault;

   b. Check on a regular basis that doors on all hopper screws are closed;

   c. Inspect on a regular basis the fans and motors for unusual sounds and/or visual problems. Any abnormalities will be immediately reported to the melter or maintenance foreman for investigation.

2. The melter shall:

   a. Check on a regular basis and report to the emissions control foreman or the area electrician any fields which the pulpit precipitator field short indicators shows as having a short and is able to reset;

   b. Check on a regular basis and report to the emissions control foreman or the maintenance foreman any draft or fan problems;

   c. Check the ESP stack opacity monitor on a regular basis and initiate the following in the event that the stack opacity level, as determined by the opacity monitor, exceeds 30% opacity on a six minute average:

      i. Check the pulpit indicators for proper operation of the steam and spray water system. Report any problems to emission control foreman or maintenance foreman;

      ii. Check the stack gas pulpit set point for proper setting;

      iii. Call the emissions control operator who shall perform the following steps;

         A. Check the AVC operation and power level. Report any problems to electrical maintenance foreman or area electrician;

         B. Check to ensure that doors on all hopper screws are closed;

   d. Check oxygen blow rates and adjust, if necessary;

   e. Check hot metal chemistry;

Permit Application #95010001

ATTACHMENT A (cont.)

f. A log shall be maintained of the above checks and any actions taken as a result.

3. The emission control foreman shall:

   a. Check on a regular basis the opacity monitor exceedances and trends. The control specialist shall be contacted to correct any problems;

   b. Check on a regular basis the draft rate set points;

   c. Check on a regular basis primary and secondary damper settings;

   d. Check on a regular basis ESP operation, including the following:

      i. Fields down;

      ii. Fields indicating shorts and unable to reset;

      iii. Hopper screw doors are closed;

   e. Check on a regular basis blow rates;

   f. Check on a regular basis spray water system operation;

   g. Check on a regular basis steam injection rate;

   h. Contact the area manager regarding electrical maintenance and to schedule the ESP repair work;

   i. Contact the area manger for mechanical maintenance to schedule the isolation of the ESP channel by closing the inlet and outlet gates of that chamber and opening the top hatches for entry into the chamber;

   j. Notify the emissions control operator and melter when isolation work begins;

   k. A log shall be maintained of the above checks and any actions taken as a result.

4. The crane operator shall use the following procedures, as appropriate, to minimize emissions and maximize emissions capture by the hoods:

   a. Use controlled pouring of the hot metal into the BOF vessel;

   b. Use careful positioning of the hot metal ladle with respect to the hood face and furnace mouth;

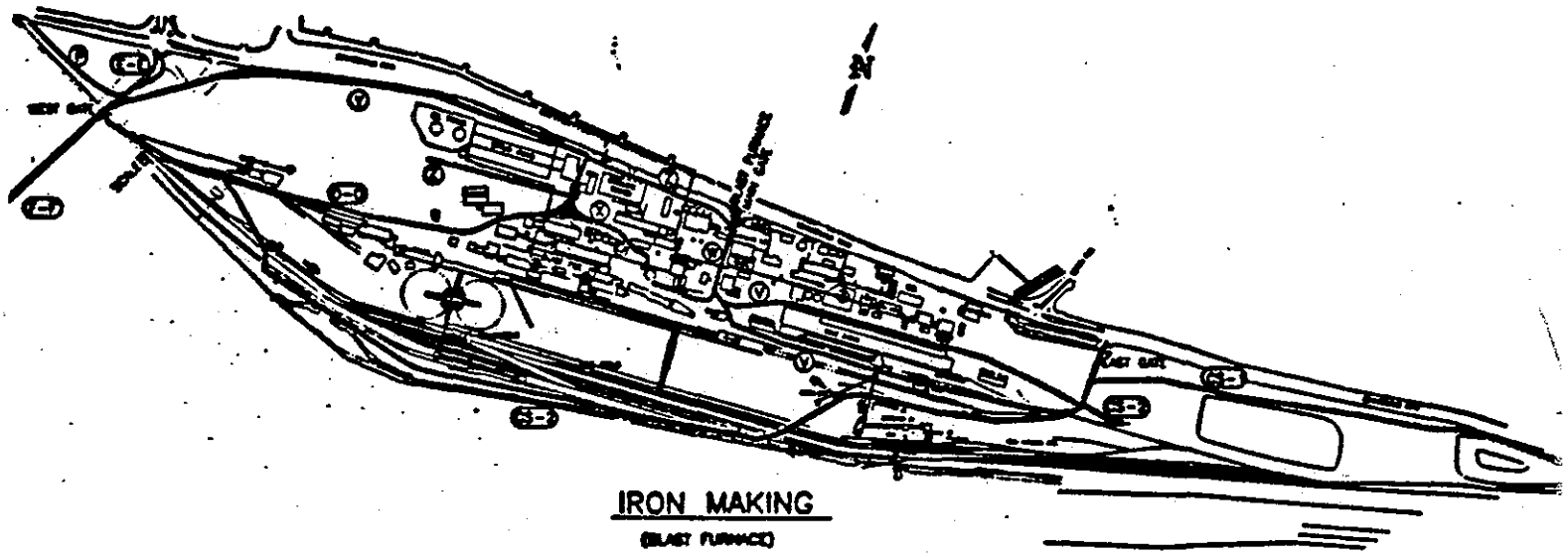
   c. Use the most beneficial furnace tilt angle;

   d. These procedures shall be posted in the crane operator booth.

Permit Application #95010001

ATTACHMENT B

ON-SITE FUGITIVE DUST ROADWAY CONTROL MEASURES AND
MAPS SHOWING THE ROAD SEGMENTS

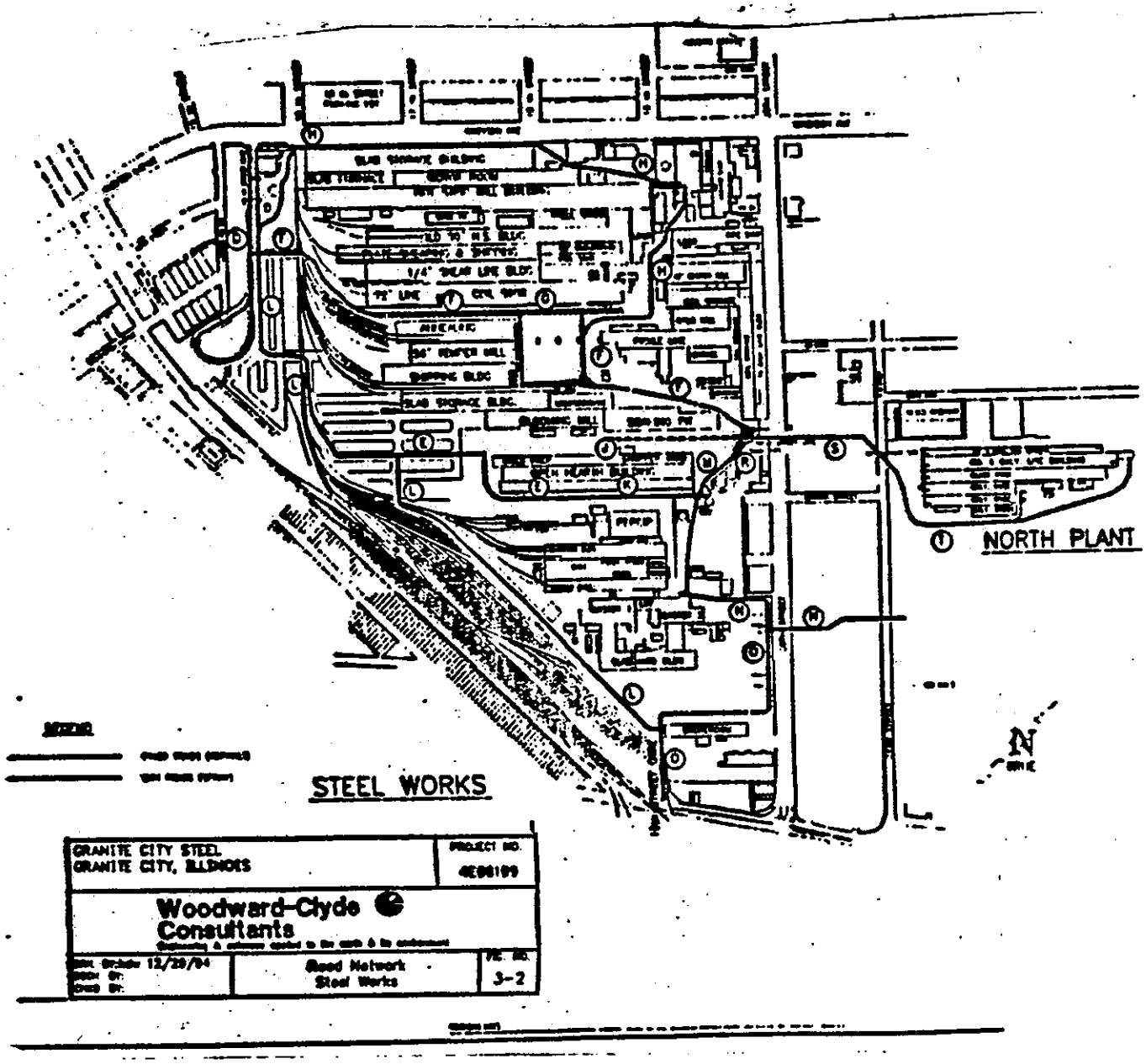


LEGEND

GRANITE CITY STEEL GRANITE CITY, ILLINOIS	PROJECT NO. 4E98109
Woodward-Clyde Consultants	
DRWN. BY: bdw 12/29/94 DESIGN. BY: CHKD. BY:	Road Network Iron Making Area
	FIG. NO. 3-3

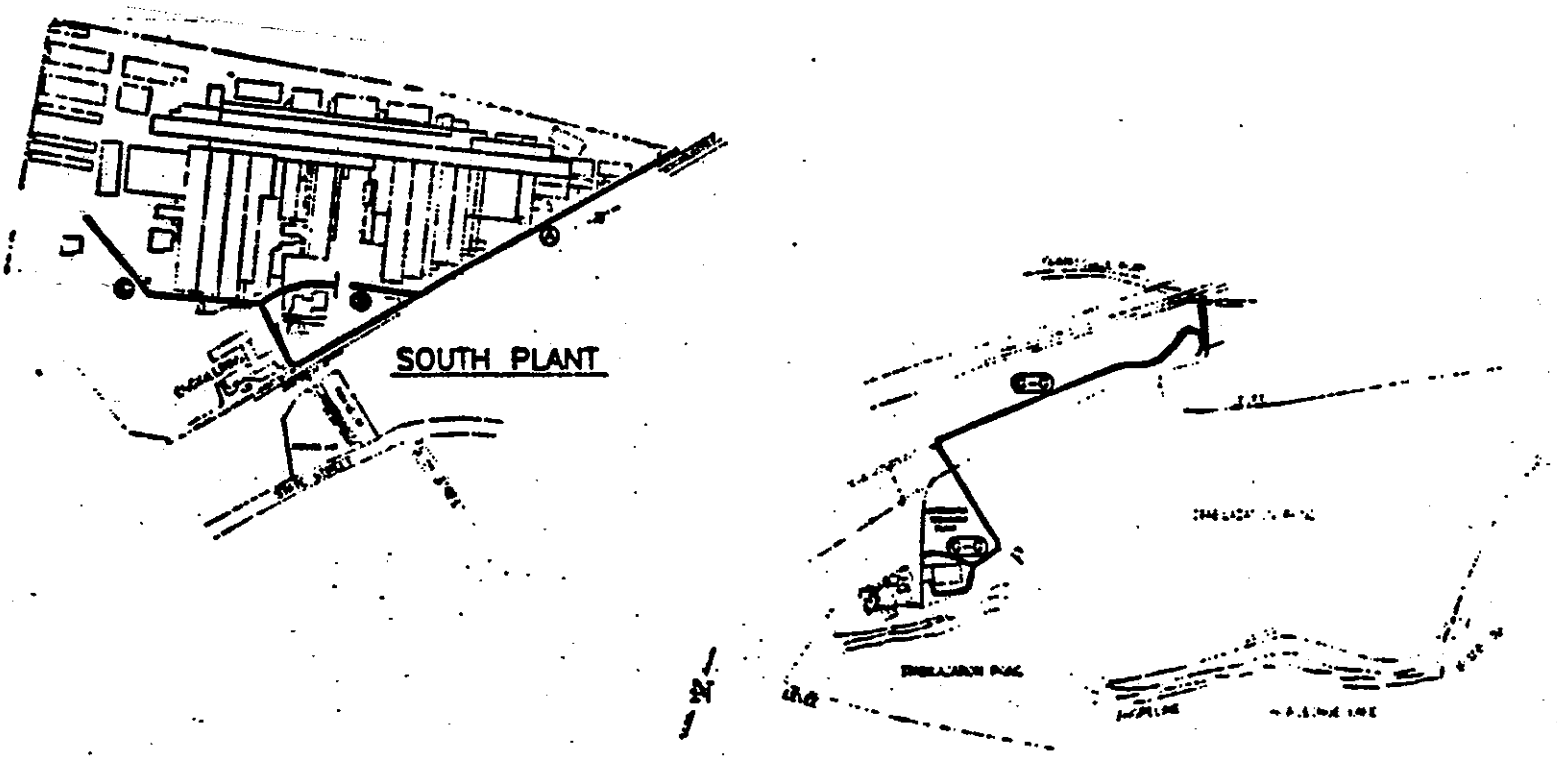
Permit Application #95010001

ATTACHMENT B (cont.)



Permit Application #95010001

ATTACHMENT B (cont.)



GRANITE CITY STEEL GRANITE CITY, ILLINOIS	PROJECT NO. 4E88109
Woodward-Clyde Consultants	
Date Printed: 12/29/94 DRAWN BY: CHKD BY:	Road Network South Plant & WWTP
	FIG. NO. 3-4

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Permit Application #95010001

ATTACHMENT C

CONTEMPORANEOUS REDUCTIONS IN THE
EMISSIONS OF PM-10

- Historic roadway emissions of 428 tons/yr, minus future potential roadway emissions of 27 tons/yr, equals a resulting reduction in roadway emissions of 401 tons/yr
- Historic material handling emissions of 17 tons/yr minus future potential material handling emissions of 2 tons/yr, equals a resulting reduction in material handling emissions of 15 tons/yr.
- Emission reductions resulting from the sweeping of city streets = 52 tons/yr*
- Emission reductions resulting from sweeping and housekeeping of areas below and around BOF ESP = 12 tons/yr*

Total reductions in the emissions of PM-10 as a result of the additional dust control measures required by Illinois' SIP and the special conditions of this permit = 480 tons/yr

* These are considered reasonable estimates of reductions and are subject to change upon further investigation of the actual reductions which will occur as a result of the control measures required by this permit.

JRR:jar

Appendix E – Copies EPA Determinations

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

IN RE SHELL OFFSHORE, INC.

OCS Appeal Nos. 11-05, 11-06 & 11-07

ORDER DENYING PETITIONS FOR REVIEW

Decided March 30, 2012

Syllabus

This decision addresses petitions for review that challenge an Outer Continental Shelf ("OCS") Permit to Construct and Title V Air Quality Operating Permit ("Permit") Region 10 ("Region") of the U.S. Environmental Protection Agency ("EPA" or "Agency") issued to Shell Offshore, Inc. ("Shell"). The Region issued the Permit on October 21, 2011, pursuant to Clean Air Act ("CAA or "Act") section 328, 42 U.S.C. § 7627, and applicable regulations governing air emissions from OCS sources at 40 C.F.R. part 55, and pursuant to Title V of the CAA, 42 U.S.C. § 7661, and implementing regulations at 40 C.F.R. part 71, as well as applicable Alaska code and regulatory provisions. The Permit authorizes Shell to "construct and operate the Conical Drilling Unit *Kulluk* and associated air emission units and to conduct other air pollutant emitting activities" within Shell's lease blocks in the Beaufort Sea off the North Slope of Alaska. The Permit also provides for the use of an associated fleet of support ships, including icebreakers, supply ships, and oil spill response vessels in addition to the *Kulluk*.

The Board received three petitions for review of the Permit. One petition was filed by Resisting Environmental Destruction of Indigenous Lands ("REDOIL"), Alaska Wilderness League, Center for Biological Diversity, Natural Resources Defense Council, Northern Alaska Environmental Center, Oceana, Pacific Environment, Sierra Club, and the Wilderness Society (collectively, "REDOIL Petitioners"). A second petition was filed by the Inupiat Community of the Arctic Slope ("ICAS"). The third petition was filed by Mr. Daniel Lum.

The three petitions collectively raise seven issues for review: (1) Have Petitioners demonstrated that the Region clearly erred in establishing limitations to restrict the *Kulluk* drilling unit's potential to emit? (2) Have REDOIL Petitioners demonstrated that the Region clearly erred in declining to require prevention of significant deterioration ("PSD") increment consumption analyses for the *Kulluk's* proposed emissions as part of the Title V permitting process? (3) Did REDOIL Petitioners raise below their contention that Shell's ambient air quality analysis was flawed in that it failed to conform to applicable Agency guidance? (4) Have REDOIL Petitioners demonstrated that the Region clearly erred in its ambient air exemption determination? (5) Have Petitioners demonstrated that the Region failed to satisfy its obligation to consider environmental justice under Executive Order 12898 and comply with applicable Board precedent? (6) Has ICAS demonstrated that the Region clearly erred or abused its discretion in providing forty-six days to comment on the draft permit and in denying ICAS's request for non-overlapping comment periods? (7) Has ICAS demonstrated that the Region clearly erred in its public hearing procedures or that any alleged procedural deficiencies otherwise warrant review?

Held: The Board denies review of the Permit. Petitioners have not met their burden of demonstrating that review is warranted on any of the grounds presented.

(1) Limitations on Potential to Emit. The Board concludes that Petitioners have failed to demonstrate that the Region erred in establishing limitations to restrict the potential to emit nitrogen dioxide ("NO_2"), carbon monoxide ("CO"), sulfur dioxide ("SO_2"), and greenhouse gases ("GHGs") for emission units located on the *Kulluk* and on the Associated Fleet when operating within twenty-five miles of the *Kulluk* while it is an OCS source. The Region exercised its discretion and applied its technical expertise to establish practically enforceable source-wide emission limits that accommodate the substantial and unpredictable variations in emissions based on the atypical nature of Shell's operations. The Region explained in the record its rationale, based on the Region's technical expertise and applied in certain limited circumstances, for supplementing source-specific emission factors derived for most of the emission units or groups of emission units with either AP-42 emission factors, or emission factors derived from source test data Shell submitted to the Region in support of two separate, previously issued OCS PSD permits authorizing Shell to conduct exploratory activities in the Chukchi and Beaufort Seas using the *Discoverer* drillship.

(2) PSD Increment Consumption Analyses. The Board concludes that REDOIL Petitioners failed to demonstrate clear error in the Region's decision not to require PSD increment consumption analyses for the *Kulluk*'s proposed emissions as part of the Title V permitting process. The Board holds that the Region provided a reasonable interpretation of CAA section 504(e), which imposes permitting requirements on "temporary" stationary sources, in its Response to Comments document. The Region determined that "PSD major sources are subject to NAAQS and increment in the permitting process, whereas non-PSD sources are subject only to the NAAQS unless the applicable minor source program also includes the [PSD] increment[s]." The Region concluded that the State of Alaska's minor source preconstruction program does not require permanent minor sources to demonstrate compliance with PSD increments as a condition of construction, so neither would it require such compliance of temporary minor sources. The Board finds REDOIL Petitioners' series of challenges to this basic analysis to be deficient in a variety of ways and therefore upholds the Region's decision.

(3) Ambient Air Quality Analysis. REDOIL Petitioners contend that Shell's ambient air quality analysis was flawed in that it failed to conform to applicable Agency guidance. Upon examination of the administrative record, the Board concludes that REDOIL Petitioners failed to raise this issue during the comment period. This issue, therefore, was not preserved for review.

(4) Ambient Air Exemption Determination. The Board concludes that REDOIL Petitioners have not shown that the Region clearly erred in its decision to exempt the area within a 500 meter radius from the *Kulluk* – the area within the U.S. Coast Guard safety zone – from the definition of "ambient air." The Region, in its Response to Comments, provided a reasonable interpretation of the ambient air regulation and the Agency's longstanding interpretation of that regulation as applied in the OCS context.

(5) Environmental Justice Analysis. The Board concludes that ICAS and Mr. Lum have not demonstrated that the Region failed to satisfy its obligations to comply with Executive Order 12898 and applicable Board precedent. The Region conducted an environmental justice analysis that demonstrated compliance with the NAAQS and endeavored to include and analyze data that is germane to the environmental justice issues raised during the comment period. The Region appropriately determined that it was not required to analyze the mobile source emissions from vessels that operate outside of twenty-five miles from the *Kulluk* while it is an OCS source where, as here, the Title V permit did not address these

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

mobile source emissions, and the record lacked sufficient data for such an analysis. In addition, in the remaining arguments they put forth in their petitions, ICAS and Mr. Lum do not demonstrate how the Region's responses to comments are inadequate, overcome the particularly heavy burden a petitioner must meet to demonstrate that review of the Region's technical decisions is warranted, or raise issues within the Board's jurisdiction.

(6) Public Comment Period. The Board concludes that ICAS has failed to show that the Region clearly erred or abused its discretion in either selecting a 46-day comment period or in denying ICAS's request for nonconcurrent comment periods. The length of time the Region provided for comment on this permit was 16 days more than the 30-day regulatory minimum and 1 day more than the amount of time ICAS had specifically requested. ICAS's attempt to recalculate the length of the comment period based on an unexplained mathematical formula involving the number and lengths of other comment periods is unconvincing. Furthermore, ICAS has not pointed to any regulations that prohibit the Agency from issuing concurrent permits or that require – or even specify – a different comment period length when the Agency does issue concurrent permits. Finally, it is clear from the administrative record that the Region appropriately balanced conflicting considerations in deciding on the length of the comment period for this permit and in denying the request for nonoverlapping periods, and ICAS has failed to demonstrate otherwise.

(7) Public Hearing. The Board concludes that ICAS has failed to demonstrate that the Region clearly erred in its public hearing procedures or that any alleged procedural deficiencies otherwise warrant review. ICAS has not shown that the Region violated any part 71 or 124 procedural regulation. Moreover, the alleged problems ICAS has identified do not, even if the Board were to find them to constitute a deficiency in some way, warrant Board review.

Before Environmental Appeals Judges Charles J. Sheehan, Kathie A. Stein, and Anna L. Wolgast.

Opinion of the Board by Judge Stein:

Table of Contents

SR 1154

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

I. *STATEMENT OF THE CASE*

A group of conservation petitioners ("REDOIL Petitioners"),[1] the Inupiat Community of the Arctic Slope ("ICAS"), and Mr. Daniel Lum each petitioned[2] the Environmental Appeals Board ("Board") to review an Outer Continental Shelf ("OCS") Permit to Construct and Title V Air Quality Operating Permit ("Permit") that U.S. Environmental Protection Agency ("EPA" or "Agency") Region 10 ("Region") had issued to Shell Offshore, Inc. ("Shell"). *See generally* OCS Permit to Construct and Title V Air Quality Operating Permit, Permit No. R10 OCS030000 (Oct. 21, 2011) (Administrative Record ("A.R.") J-2). The Region issued the Permit pursuant to Clean Air Act ("CAA" or "Act") section 328, 42 U.S.C. § 7627, and applicable regulations governing air emissions from OCS sources at 40 C.F.R. part 55, and pursuant to Title V of the CAA, 42 U.S.C. § 7661, and implementing regulations at 40 C.F.R. part 71, as well as applicable Alaska code and regulatory provisions.[3] *See* Permit at 6 (citing all relevant provisions).

The Permit authorizes Shell to construct and operate the *Kulluk* drilling unit and associated air emission drilling units in certain lease blocks within the Beaufort Sea. *Id*. at 1. The Region and Shell each filed a response to the petitions. Thereafter, both REDOIL Petitioners and ICAS filed motions requesting leave to file reply briefs. These motions are currently pending before the Board and are addressed below in Part V. The Board did not hold oral argument in this case. For the reasons discussed below, the Board denies review of the Permit.

---

[1] REDOIL Petitioners include Resisting Environmental Destruction of Indigenous Lands ("REDOIL"), Alaska Wilderness League, Center for Biological Diversity, Natural Resources Defense Council, Northern Alaska Environmental Center, Oceana, Pacific Environment, Sierra Club, and The Wilderness Society.

[2] Mr. Lum's petition was designated as OCS Appeal No. 11-05, REDOIL Petitioners' petition was designated as OCS Appeal No. 11-06, and ICAS's petition was designated as OCS Appeal No. 11-07.

[3] The Permit was issued under multiple CAA and Alaska air pollution provisions because it is a consolidation of three air permits. According to the Region, it consolidated "an OCS/Title V permit under 40 CFR Parts 55 and 71 for operations beyond 25 miles of Alaska's seaward boundary; an OCS/minor permit for air quality protection under 40 CFR Part 55 and 18 Alaska Administrative Code (AAC) 50.502 and for owner requested limitations under 40 CFR Part 55 and 18 AAC 50.508 for operations within 25 miles of Alaska's seaward boundary; and an OCS/Title V permit under 40 CFR Part 55 and 18 AAC 50.326 for operations within 25 miles of Alaska's seaward boundary." Response to Comments for OCS Permit to Construct and Title V Air Quality Operating Permit Conical Drilling Unit Kulluk at 1 (A.R. J-3).

SR 1156

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

II. *ISSUES*

The Board has determined that the three petitions filed in this case, collectively, present the following seven issues for review:

A. Have Petitioners demonstrated that the Region clearly erred in establishing limitations to restrict the *Kulluk* drilling unit's potential to emit?

B. Have REDOIL Petitioners demonstrated that the Region clearly erred in declining to require PSD increment consumption analyses for the *Kulluk*'*s* proposed emissions as part of the Title V permitting process?

C. Did REDOIL Petitioners raise below their contention that Shell's ambient air quality analysis was flawed in that it failed to conform to applicable Agency guidance?

D. Have REDOIL Petitioners demonstrated that the Region clearly erred in its ambient air exemption determination?

E. Have Petitioners demonstrated that the Region failed to satisfy its obligation to consider environmental justice under Executive Order 12898 and comply with applicable Board precedent?

F. Has ICAS demonstrated that the Region clearly erred or abused its discretion in providing 46 days to comment on the draft permit and in denying ICAS's request for nonoverlapping comment periods?

G. Has ICAS demonstrated that the Region clearly erred in its public hearing procedures or that any alleged procedural deficiencies otherwise warrant review?

III. *STANDARD OF REVIEW*

Under the part 124 procedural regulations, which apply to OCS permits,[4] the Board will not ordinarily review a permit unless it is based on a clearly erroneous finding of fact or conclusion of law, or involves a matter of policy or exercise of discretion that warrants review. 40 C.F.R. § 124.19(a); Consolidated Per-

[4] The OCS regulations direct the Agency to follow the applicable part 124 permit regulations in processing OCS permits. 40 C.F.R. § 55.6(a)(3). Accordingly, the part 124 permit appeal provision, 40 C.F.R. § 124.19, applies here. *See In re Shell Gulf of Mex., Inc.*, 15 E.A.D. 470, 476 (EAD 2012) [hereinafter *Shell Discoverer 2012*].

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

mit Regulations, 45 Fed. Reg. 33,290, 33,412 (May 19, 1980). The Board also applies this standard in reviewing Title V permits issued under part 71.[5] *See* 40 C.F.R. § 71.11(*l*)(1); *In re Peabody W. Coal Co.*, 12 E.A.D. 22, 32-33 (EAB 2005). When analyzing permits, the Board is cognizant of the preamble to section 124.19, in which the Agency states that the Board's power of review "should be only sparingly exercised" and that "most permit conditions should be finally determined at the [permit issuer's] level." Consolidated Permit Regulations, 45 Fed. Reg. at 33,412; *accord In re Cardinal FG Co.*, 12 E.A.D. 153, 160 (EAB 2005); *see also Peabody*, 12 E.A.D. at 33 (applying these same principles in the context of a part 71 permit appeal).

The petitioner bears the burden of demonstrating that review is warranted. *See* 40 C.F.R. § 124.19; *id.* § 71.11(l)(1). To meet this burden, the petitioner must satisfy threshold pleading requirements including timeliness, standing, and issue preservation. *See* 40 C.F.R. § 124.19; *id.* § 71.11(l)(1); *In re Russell City Energy Ctr., LLC* ("*Russell City II*"), 15 E.A.D. 1, 10 (EAB 2010), *appeal docketed sub nom. Chabot-Las Positas Cmty. Coll. Dist. v. EPA*, No. 10-73870 (9th Cir. Dec. 20, 2010); *In re BP Cherry Point*, 12 E.A.D. 209, 216 (EAB 2005). For example, a petitioner seeking review must file an appeal of the permit decision within 30 days of service of the decision, and must have filed comments on the draft permit or participated in the public hearing. 40 C.F.R. § 124.19(a); *accord Russell City II*, 15 E.A.D. at 10. In addition, a petitioner must not only specify objections to the permit, but also explain why the permit issuer's previous response to those objections is clearly erroneous or otherwise warrants review. *See* 40 C.F.R. § 124.13 (requiring that all persons who believe a condition of a draft permit is inappropriate "must raise all reasonably ascertainable issues and submit all reasonably available arguments supporting their position by the close of the public comment period"); *id.* § 124.19(a) (stating that a petition for review to the Board "shall include * * * a demonstration that any issues being raised were raised during the public comment period"); *see also In re Avenal Power Ctr., LLC*, 15 E.A.D. 384, 387 (EAB 2011), *appeals docketed sub nom. Sierra Club v. EPA*, No. 11-73342 (9th Cir. Nov. 3, 2011), *El Pueblo Para el Aire y Agua Limpio v. EPA*, No. 11-73356 (9th Cir. Nov. 4, 2011); *BP Cherry Point*, 12 E.A.D. at 216-17. The petitioner's burden is particularly heavy in cases where a petitioner seeks review of an issue that is fundamentally technical or scientific in nature, as the Board will typically defer to a permit issuer's technical expertise and experience on such matters if the permit issuer adequately explains its rationale and supports its reasoning in the administrative record. *See, e.g.*, *In re Dominion Energy Brayton Point, LLC*, 12 E.A.D. 490, 510 (EAB 2006); *Peabody*, 12 E.A.D. at 33-34; *In re NE Hub Partners, L.P.*, 7 E.A.D. 561, 567-68 (EAB

[5] The part 71 regulatory language governing Title V permit appeals is nearly identical to the part 124 regulatory language governing review of other types of permits. *Compare* 40 C.F.R. § 71.11(l)(1) *with* 40 C.F.R. § 124.19; *see also Peabody*, 12 E.A.D. at 33 n.26.

1998), *review denied sub nom. Penn Fuel Gas, Inc. v. EPA*, 185 F.3d 862 (3rd Cir. 1999); *see also In re Ash Grove Cement Co.*, 7 E.A.D. 387, 404 (EAB 1997).

When evaluating a permit appeal, the Board examines the administrative record prepared in support of the permit to determine whether the permit issuer exercised his or her "considered judgment." *Ash Grove Cement*, 7 E.A.D. at 417-18; *accord In re Cape Wind Assocs., LLC*, 15 E.A.D. 327, 330 (EAB 2011); *In re GSX Servs. of S.C., Inc.*, 4 E.A.D. 451, 454 (EAB 1992). The permit issuer must articulate with reasonable clarity the reasons supporting its conclusion and the significance of the crucial facts it relied upon when reaching its conclusion. *E.g.*, *In re Shell Offshore, Inc. (*"*Shell 2007*"), 13 E.A.D. 357, 386 (EAB 2007) (citing *In re Carolina Light & Power Co.*, 1 E.A.D. 448, 451 (Act'g Adm'r 1978)); *Ash Grove Cement*, 7 E.A.D. at 417 (same). As a whole, the record must demonstrate that the permit issuer "duly considered the issues raised in the comments and [that] the approach ultimately adopted by the [permit issuer] is rational in light of all information in the record." *In re Gov't of D.C. Mun. Separate Storm Sewer Sys.*, 10 E.A.D. 323, 342 (EAB 2005); *accord In re City of Moscow*, 10 E.A.D. 135, 142 (EAB 2001); *NE Hub*, 7 E.A.D. at 568.

Finally, the Board endeavors to construe liberally objections raised by parties unrepresented by counsel (i.e., those proceeding pro se), so as to fairly identify the substance of the arguments being raised. *In re Sutter Power Plant*, 8 E.A.D. 680, 687 & n.9 (EAB 1999); *accord In re Shell Gulf of Mex., Inc. (*"*Shell Discoverer 2012*"*)*, 15 E.A.D. 470, 478 (EAB 2012); *Russell City II*, 15 E.A.D. at 12. While the Board does not expect such petitions to contain sophisticated legal arguments or to utilize precise technical or legal terms, the Board nonetheless expects such petitions "to articulate some supportable reason or reasons as to why the permitting authority erred or why review is otherwise warranted." *Sutter*, 8 E.A.D. at 687-88 (citing *In re Beckman Prod. Servs.*, 5 E.A.D. 10, 19 (EAB 1994)).

IV. *SUMMARY OF DECISION*

For all of the reasons stated below, the Board concludes that: (a) Petitioners failed to demonstrate that the Region clearly erred in establishing limits to restrict the *Kulluk*'*s* potential to emit; (b) REDOIL Petitioners failed to demonstrate that the Region clearly erred in declining to require PSD increment consumption analyses for the *Kulluk*'*s* proposed emissions as part of the Title V permitting process; (c) REDOIL Petitioners failed to raise below their contention that Shell's ambient air quality analysis was flawed in that it failed to conform to applicable Agency guidance; (d) REDOIL Petitioners failed to demonstrate that the Region clearly erred in its ambient air exemption determination; (e) Petitioners have not demonstrated that the Region's environmental justice analysis and related conclusions

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

failed to satisfy its obligation to comply with Executive Order 12898 and applicable Board precedent; (f) ICAS failed to demonstrate that the Region clearly erred or abused its discretion in providing 46 days to comment on the draft permit and in denying ICAS's request for nonoverlapping comment periods; and (g) ICAS failed to demonstrate that the Region clearly erred in its public hearing procedures or that any alleged procedural deficiencies otherwise warrant review. Accordingly, the Board denies review of the Permit.

V. *RELEVANT PROCEDURAL AND FACTUAL HISTORY*

On July 22, 2011, the Region issued a draft permit consolidating three permits that regulated air pollution from Shell's proposed exploratory drilling operations on OCS lease blocks in the Beaufort Sea off the North Slope of Alaska, as authorized by the United States Bureau of Ocean Energy Management, Regulation and Enforcement ("BOEMRE").[6] The Region solicited public comment on the draft permit from July 22, 2011, through September 6, 2011. *See* Statement of Basis for Draft OCS Permit to Construct and Title V Air Quality Operating Permit ("Statement of Basis") at 10 (A.R. H-4). In addition, the Region held an informational meeting and public hearing on the draft permit on August 23, 2011, in Barrow, Alaska, and a separate public hearing on August 26, 2011, in Anchorage, Alaska. *Id*. at 11. All of the petitioners submitted comments on the draft permit. *See* E-mail from Daniel Lum to EPA Region 10 (Aug. 10, 2011) (A.R. I-31) [hereinafter Lum Comments]; E-mail from Alaska Wilderness League, Audubon Alaska, Center for Biological Diversity, Defenders of Wildlife, Earthjustice, Eyak Preservation Council, Greenpeace, National Wildlife Federation, Natural Resources Defense Council, Northern Alaska Environmental Center, Ocean Conservancy, Oceana, Pacific Environment, REDOIL, Sierra Club, The Wilderness Society, and World Wildlife Fund to EPA Region 10 (Sept. 6, 2011) (A.R. I-53) [hereinafter REDOIL Comments]; Letter from North Slope Borough, AEWC, and ICAS to Doug Hardesty, Air Permits Project Manager, EPA Region 10 (Sept. 6, 2011) (A.R. I-54) [hereinafter ICAS Comments]; *see also* Lum Petition at 1 (noting that he also provided comments at the public hearing).

On October 21, 2011, the Region issued the Permit. *See* Permit at 1. At the same time, the Region issued a response to both the written comments it had received on the draft permit and the oral comments that had been presented at the public hearings. *See generally* Response to Comments for OCS Permit to Construct and Title V Air Quality Operating Permit Conical Drilling Unit Kulluk ("RTC") (A.R. J-3); *see id.* at 2 (describing comments to which the document responded). The Permit authorizes Shell to conduct air pollutant emitting activities for the purpose of oil exploration with the conical drilling unit *Kulluk* on lease

[6] For a description of the three permits, *see supra* note 3.

SR 1160

blocks in the Beaufort Sea. The Permit provides for the use of an associated fleet of support vessels ("Associated Fleet"), such as icebreakers, oil spill response vessels ("OSRVs"), and a supply ship, in addition to the *Kulluk*.

The Board received three timely petitions for review of the Permit: one from Mr. Lum, one from REDOIL Petitioners, and one from ICAS. The Region and Shell each filed a single response to those petitions. ICAS and REDOIL Petitioners each filed motions requesting leave to file reply briefs and attached their proposed reply briefs. Shell filed an opposition to the motions for leave to file replies. Before addressing the issues raised by the petitions, the Board first considers whether it is appropriate to grant Petitioners' motions.

A petitioner seeking leave to file a reply brief in an appeal of a new source review ("NSR") permit issued pursuant to the CAA, such as the OCS Permit at issue here, must state "with particularity the arguments to which the Petitioner seeks to respond and the reasons the Petitioner believes it is both necessary to file a reply to those arguments * * * and how those reasons overcome the presumption in the Standing Order."[7] *Shell Discoverer 2012*, 15 E.A.D. at 481 (citing Order Governing Petitions for Review of Clean Air Act New Source Review Permits 3 (Apr. 19, 2011) ("Standing Order"), *available at* http://www.epa.gov/eab (click on Standing Orders)).

Upon consideration of Petitioners' motions to file reply briefs and proposed reply briefs, the Board finds that only two select issues within REDOIL Petitioners' and ICAS's reply briefs meet the high threshold required to overcome the presumption against reply briefs that the Board applies in NSR appeals. *See* Standing Order at 3. In particular, in its reply brief, ICAS responds to arguments concerning ICAS's challenge to the public hearing procedures that the Region advances for the first time in the response brief. ICAS could not have responded to these particular arguments prior to the Region's response because a portion of the Region's rationale in its response brief does not appear in the administrative record. In addition, both ICAS and REDOIL Petitioners assert that the Region referenced for the first time in its response a decision by the Administrator as support for the Region's rationale that the Agency has previously concluded that rolling emission limits accompanied by prescribed emission factors and appropriate monitoring and recordkeeping sufficiently restrict a source's potential to emit. *See* Region Response at 17 (citing *In re Pope & Talbot, Inc.*, Petition No. VIII-2006-04 (Adm'r 2007) (A.R. B-24)). ICAS and REDOIL Petitioners did not have an op-

[7] In April 2011, the Board issued a standing order in which it adopted certain procedures intended to facilitate expeditious resolution of petitions requesting review of permits issued under the CAA NSR program, including OCS permits. *See* Standing Order at 1 n.2; *see also* 40 C.F.R. § 124.19. Among other things, the Board will apply a presumption against the filing of reply briefs and sur-replies in NSR appeals. *See* Standing Order at 3. However, the Board maintains discretion to modify these procedures as appropriate on a case-specific basis. *Id.* at 6.

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

portunity to review the Administrator's decision in the context of this appeal or to analyze its relevance to the Region's stated rationale until the Region cited it for support in its response brief. Accordingly, the Board grants, in part, ICAS's and REDOIL Petitioners' motions for leave to file a reply brief. Thus the Board, in reaching its conclusions set forth in this order, has considered the portions of ICAS's reply brief and REDOIL Petitioners' reply brief that address the public process for the permit and the Region's inclusion of the *Pope & Talbot* decision as support for the Region's PTE decisions. *See* ICAS Reply at 3, 6-7; REDOIL Petition at 9-10. The Board denies REDOIL Petitioners' and ICAS's motions for leave to file a reply brief with respect to all other issues.[8]

The Board analyzes the parties' arguments and sets forth its determinations below.

VI. *ANALYSIS*

A. *ICAS and REDOIL Petitioners Have Not Demonstrated That the Region Clearly Erred in Establishing Limitations to Restrict the Kulluk Drilling Unit's PTE*

ICAS and REDOIL Petitioners both challenge the Region's determination of the *Kulluk's* potential to emit ("PTE") and argue that the Region should require Shell to obtain a preconstruction prevention of significant deterioration ("PSD") permit. They complain that the PTE restrictions Shell requested and the Region included in the permit to ensure that the *Kulluk* remains a synthetic minor source for nitrogen oxides ("NO_x"), carbon monoxide ("CO"), greenhouse gases ("GHGs"), and sulfur dioxide ("SO_2") are practically unenforceable.[9] The Region counters that the restrictions it imposed in the permit that reduce Shell's emissions below the PSD threshold levels for all criteria pollutants are practically enforceable and constitute fundamentally technical decisions that are consistent with CAA statutory and regulatory authority as well as Agency guidance and past practice. This PTE question is central to the Board's analysis because the Region uses the potential to emit to determine which provisions of the CAA, including both the Title V permit requirements and the PSD preconstruction permit requirements, apply to the *Kulluk*. The question the Board must resolve, then, is whether the restrictions the Region included in the permit to limit the *Kulluk's* PTE are both

[8] The Board notes that Mr. Lum attempted to file by e-mail a request to file a reply brief and a request for oral argument. *See* E-mail from Daniel Lum to Eurika Durr, Clerk of the Board, Environmental Appeals Board, U.S. EPA (Nov. 4, 2011 6:18 pm EDT). The Board denies Mr. Lum's requests.

[9] While ICAS challenges the Region's PTE limitations for all of these pollutants, REDOIL Petitioners only challenge the Region's PTE limitations with respect to NO_x and CO. *See* ICAS Petition at 10-28; REDOIL Petition at 9-14.

SR 1162

practically enforceable and reasonable in light of the applicable statutory and regulatory authorities as well as Agency guidance and practice, and whether the Region provided adequate support for its decisions in the administrative record.

Before addressing the parties' arguments, a brief review of the relevant statutory and regulatory authorities is warranted.

1. *Statutory and Regulatory Context*

a. *CAA Section 328 and OCS Air Regulations*

Section 328 of the CAA, 42 U.S.C. § 7627, establishes air pollution controls for OCS sources[10] and requires OCS sources to "attain and maintain Federal and State ambient air quality standards" and to comply with the PSD provisions contained in CAA Title I, part C. EPA promulgated the Outer Continental Shelf Air Regulations, 40 C.F.R. part 55, to implement CAA section 328 and established within part 55 "the air pollution control requirements for OCS sources and the procedures for implementation and enforcement of the requirements." 40 C.F.R. § 55.1.

Section 328(a)(1), 42 U.S.C. § 7627(a)(1), also requires that, for OCS sources located within 25 miles of a state's seaward boundary, the requirements shall be the same as would apply if the source were located in the corresponding onshore area ("COA"), including, but not limited to, state and local requirements for emission controls, emission limitations, offsets, permitting, monitoring, testing, and reporting. As the Board has explained before, "OCS sources must obtain

---

[10] Section 328 defines an OCS source as follows:

> The terms "Outer Continental Shelf source" and "OCS source" include any equipment, activity, or facility which –
>
> (i) emits or has the potential to emit any air pollutant,
>
> (ii) is regulated or authorized under the Outer Continental Shelf Lands Act [43 U.S.C. § 1331 et seq.], and
>
> (iii) is located on the Outer Continental Shelf or in or on waters above the Outer Continental Shelf.
>
> Such activities include, but are not limited to, platform and drill ship exploration, construction, development, production, processing, and transportation. For purposes of this subsection, emissions from any vessel servicing or associated with an OCS source, including emissions while at the OCS source or en route to or from the OCS source within 25 miles of the OCS source, shall be considered direct emissions from the OCS source.

CAA § 328(a)(4)(C), 42 U.S.C. § 7627(a)(4)(c).

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

a preconstruction permit from either EPA or an EPA-delegated agency if the OCS source is located within twenty-five miles of a state's seaward boundary and is subject to either federal or state requirements listed in 40 C.F.R. §§ 55.13 or 55.14."[11] *Shell 2007*, 13 E.A.D. at 365 (citing 40 C.F.R. §§ 55.6(b)(1), 55.11 and CAA § 328(a)(3), 42 U.S.C. § 7627(a)(3)). The Agency has retained the authority to implement and enforce section 328 in the OCS off the coast of Alaska as opposed to delegating that authority to the state. Accordingly, as mentioned above, Shell submitted its permit applications to the Region, and the procedural rules contained at 40 C.F.R. part 124 apply. 40 C.F.R. § 55.6(a)(3).

Because requirements for these OCS sources are based on onshore requirements, which may change, section 328(a)(1) and the corresponding regulations in part 55 require EPA to update the OCS requirements as necessary to maintain consistency with onshore requirements. *See* CAA § 328(a)(1), 42 U.S.C. § 7627(a)(1); 40 C.F.R. §§ 55.6(b)(2), 55.12; *see also Shell 2007*, 13 E.A.D. at 364 & n.6. In response to Shell's December 10, 2010, notice of intent submitted to the Agency pursuant to 40 C.F.R. § 55.4, the Agency first proposed in the Federal Register a consistency update on February 10, 2011, and later published the final consistency update on June 27, 2011, subsequent to a public notice and comment period. *See* Outer Continental Shelf Air Regulations Consistency Update for Alaska, 76 Fed. Reg. 37,274 (June 27, 2011) (codified at 40 C.F.R. § 55.14(e) & appx. A); Statement of Basis at 17. This most recent consistency update incorporated, except where specifically noted, Alaska Administrative Code title 18, articles 1 through 5 and article 9, into part 55. 76 Fed. Reg. at 37,279-80; Statement of Basis at 17. In particular, articles 3 and 5 establish the minor source and major source permitting requirements with which the *Kulluk* must comply. *See Shell 2007*, 13 E.A.D. at 364 & n.6.

In addition, because the permit authorizes the *Kulluk* to operate on a group of lease blocks located both within 25 miles and beyond 25 miles of the state's seaward boundary, the permit conditions that refer to lease blocks wholly or partially located beyond 25 miles of the seaward boundary are designated as "outer

---

[11] Section 55.13 states, among other things, that the PSD program applies to OCS sources located within 25 miles of a state's seaward boundary whenever the OCS source requires construction of a new major stationary source or a modification at an existing major source and the COA is classified under the PSD program as in attainment or unclassifiable. 40 C.F.R. § 55.13(d)(1) ("40 C.F.R. [§] 52.21 shall apply to OCS sources [l]ocated within 25 miles of a state's seaward boundary if the requirements of 40 C.F.R. [§] 52.21 are in effect in the COA."); *see also Shell 2007*, 13 E.A.D. at 364.

Section 55.14 incorporates by reference regulatory requirements that states which border the OCS in the Pacific, Atlantic, and Arctic Oceans and the Gulf of Mexico have promulgated to meet the national ambient air quality standards ("NAAQS"). 40 C.F.R. § 55.14(d); CAA § 328(a)(1), 42 U.S.C. § 7627(a)(1) (defining the geographic scope of EPA authority to regulate air pollution from OCS sources). These state regulations are known as state implementation plans ("SIPs") and are created pursuant to CAA § 110, 42 U.S.C. § 7410.

SR 1164

OCS," and conditions that refer to lease blocks wholly or partially located within 25 miles of the seaward boundary are designated as "COA." Permit at 9 (noting that conditions identified with "COA" are those that apply on the "inner OCS," within 25 miles of the state's seaward boundary, and that all other conditions not identified as "COA" or "outer OCS" apply to lease blocks on both the inner and outer OCS); *see also* Statement of Basis at 7.

b. *The PSD Program and PTE*

The PSD program is a preconstruction NSR program that applies to areas designated as either in attainment with the national ambient air quality standards ("NAAQS")[12] or unclassifiable and requires new major stationary sources[13] to limit their impact on ambient air quality by obtaining a PSD permit before construction begins. CAA §§ 160-169, 42 U.S.C. §§ 7470-7479; 40 C.F.R. § 52.21(a)(2).

A source's PTE relates to its inherent ability to emit air pollutants. *Shell 2007*, 13 E.A.D. at 365; *Peabody*, 12 E.A.D. at 30. Under the PSD program, a permitting authority must determine a source's PTE to identify which sources are "major sources" subject to regulation under the applicable PSD requirements, making PTE a technical determination that "is jurisdictional in nature." *Ala. Power Co. v. Costle*, 636 F.3d 323, 352 (D.C. Cir. 1979), *quoted in Peabody*, 12 E.A.D. at 30; *see also* CAA § 165(a), 42 U.S.C. § 7475(a) (requiring a PSD permit for any "major emitting facility"); *Shell Discoverer 2012*, 15 E.A.D. at 515 n.58. The regulations that implement the PSD program define PTE as:

---

[12] The NAAQS are maximum ambient air concentrations for specific pollutants that EPA has determined are necessary to protect public health and welfare. *See* CAA §§ 108(a)(1)(A), 109, 42 U.S.C. §§ 7408(a)(1)(A), 7409; 40 C.F.R. § 50.4-.12.

[13] EPA regulations define a major stationary source as any of certain specifically listed stationary sources that emit or have a potential to emit 100 tons per year ("tpy") or more of any regulated NSR pollutant, *see* 40 C.F.R. § 52.21(b)(50), or any other stationary source that emits, or has the potential to emit, 250 tpy or more of a regulated NSR pollutant. 40 C.F.R. § 52.21(b)(1)(i)(a)-(b); *accord* CAA § 169(1), 42 U.S.C. § 7479(1) (defining a "major emitting facility" in the same way).

Alaska regulations, which incorporate large parts of the federal PSD regulations into title 18 of the Alaska Administrative Code, provide that a new PSD permit is required prior to actual construction of a new major stationary source. Alaska Admin. Code tit. 18, § 50.040 (adopting federal standards by reference); *id.* §§ 50.302(a)(1), 50.306. The Alaska regulations also define a major stationary source as any of certain specifically listed stationary sources that emit or have a potential to emit 100 tpy or more of any regulated NSR pollutant, or any other stationary source that emits, or has the potential to emit, 250 tpy or more of a regulated NSR pollutant. *Id.* § 50.990(52) (incorporating by reference definition of major stationary source from 40 C.F.R. § 51.166(b)(1)); *accord* Alaska Stat. § 46.14.990 (same).

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

> [T]he maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable.

40 C.F.R. § 52.21(b)(4).[14] In sum, PTE reflects a source's maximum emissions capacity considering the application of any emission control equipment, or other capacity-limiting restrictions, that effectively and enforceably limit emissions capacity. *Shell 2007*, 13 E.A.D. at 366; *Peabody*, 12 E.A.D. at 31 (citing Part 71 Rulemaking, 61 Fed.Reg. 34,202, 34,212 (July 1, 1996)).

Alaska regulations require that, under certain circumstances, a stationary source with a PTE of less than 250 tons per year ("tpy") obtain a minor source permit. Alaska Admin. Code tit. 18, § 50.502. Specifically in terms of the *Kulluk*'*s* operations, Alaska regulations require a minor source permit prior to the construction of a new stationary source with the potential to emit more than 40 tpy of NO_x. *Id.* § 50.502(c)(1)(B). Thus, as the Board noted in *Shell 2007*, under the Alaska PSD program, a new stationary source that has a PTE between 40 and 250 tpy of NO_x must obtain a minor source permit before commencing construction, and a stationary source with a PTE greater than 250 tpy of NO_x must obtain a major source permit. 13 E.A.D. at 366.

A source that would otherwise exceed the applicable PSD major source threshold of 250 tpy of any regulated NSR pollutant may, as in this instance, seek to avoid regulation as a major source under the PSD program by requesting that the permitting authority impose enforceable permit restrictions on the source's PTE. *Shell* 2007, 13 E.A.D. at 366, *cited in* RTC at 20; *see also Peabody*, 12 E.A.D. at 26 & n.11, 31. A Title V permit may function as a vehicle for a permitting authority to establish enforceable permit limits that restrict the source's potential to emit air pollutants to a level below the PSD major source threshold, in this instance 250 tpy, allowing the source to qualify instead as a "synthetic minor" source.[15] *Peabody*, 12 E.A.D. at 31 & n.21.

---

[14] The OCS regulations define the term "potential emissions" almost identically to the PTE definition in part 52, with the exception of first sentence, which instead states that "[p]otential emissions means the maximum emissions of a pollutant from an OCS source." 40 C.F.R. § 55.2.

[15] EPA guidance defines the term "synthetic minor" as "air pollution sources whose maximum capacity to emit air pollution under their physical and operational design is large enough to exceed the
Continued

If a source accepts limitations that restrict its potential to emit air pollutants to a level below the PSD threshold, that source will be a synthetic minor source for purposes of the PSD program and will therefore not be subject to PSD permitting requirements "unless future facility modifications increase emission capacity enough to exceed the PSD major source threshold." *Id.* at 31-32. As the Board noted in *Peabody*, in order for a capacity restriction to be cognizable as a PTE limit, it must be practically enforceable, which Agency guidance has interpreted to mean that:

> [T]he permit's provisions must specify: (1) a technically accurate limitation and the portions of the source subject to the limitation; (2) the time period for the limitation (hourly, daily, monthly, and annual limits such as rolling annual limits); and (3) the method to determine compliance including appropriate monitoring, recordkeeping, and reporting.

12 E.A.D. at 32 (quoting Memorandum from John Seitz, Dir., Office of Air Quality Planning & Standards, U.S. EPA, to EPA Reg'l Air Div. Dirs., *Options for Limiting the Potential to Emit (PTE) of a Stationary Source Under Section 112 and Title V of the Clean Air Act* 5-6 (Jan. 25, 1995) [hereinafter *Options for Limiting PTE*] (A.R. B-9)).

In this instance, the pre-permit PTE for units located on the *Kulluk*, and on the Associated Fleet when operating within 25 miles of the *Kulluk* while it is an OCS source,[16] exceeded applicable PSD thresholds for NO_x, CO, SO_2, and GHGs. Statement of Basis at 24-25 & tbl. 2-1.[17] To avoid exceeding the PSD major

---

(continued)
major source threshold but [is] limited by an enforceable emissions restriction that prevents this physical potential from being realized." Memorandum from John Seitz, Dir., Office of Air Quality Planning & Standards, U.S. EPA, & Eric Schaeffer, Dir., Office of Regulatory Enforcement, U.S. EPA, *Potential to Emit Transition Policy for Part 71 Implementation in Indian Country* 2 n.2 (Mar. 7, 1999), *quoted in Shell Discoverer 2012*, 15 E.A.D. at 515-16 n.59, and *Peabody*, 12 E.A.D. at 31 n.21.

Alaska regulations refer to such a limitation as an owner requested limit ("ORL"), which can be used to "avoid one or more permit classifications * * * at a stationary source that will still be subject to at least one permit classification; a limitation approved under an ORL is an enforceable limitation for the purpose of determining * * * a stationary source's potential to emit." Alaska Admin. Code tit. 18, § 50.508(5).

[16] The permit states that the *Kulluk* will be an OCS source at any time it is attached to the seabed at a drill site by at least one anchor. Permit at 8; Statement of Basis at 17, 19-20 (A.R. H-4).

[17] The primary emission sources on the *Kulluk* and the Associated Fleet are internal combustion engines that consume diesel fuel. Statement of Basis at 9, 12-14. Incinerators, heaters, boilers, and seldom used sources on the *Kulluk* and the Associated Fleet also emit pollution but to a far lesser extent. *Id.*

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

source thresholds, Shell requested that the Region include in the permit practically enforceable restrictions that will reduce the *Kulluk's* PTE below PSD threshold levels for each of the four pollutants. *See* Letter from Susan Childs, Alaska Venture Support Integrator Manager, Shell Offshore Inc., to Doug Hardesty, EPA Region 10, attach. 2 (Apr. 29, 2011) (describing Shell's proposed restrictions and how they would affect emissions) (A.R. E-17). The final permit authorizing the *Kulluk* to operate within the Beaufort Sea contains source-wide emission limits, operational restrictions, and monitoring, recordkeeping and reporting requirements intended to ensure that the *Kulluk* can operate as a synthetic minor source. Permit Conditions D.1-D.4.

With this framework in mind, the Board now turns its attention to Petitioners' arguments presented in these appeals.

2. *The Region Did Not Clearly Err in Establishing Source-Wide Emission Limits to Restrict PTE for NO_x and CO*

The Permit restricts emissions from the *Kulluk* and the Associated Fleet to no more than 240 tpy of NO_x and no more than 200 tpy of CO.[18] Permit Conditions D.4.1, D.4.2. For both pollutants, the PTE limits are determined on a rolling 365-day basis by calculating emissions for each day and adding the emissions calculated for the previous 364 days. *Id.* For both NO_x and CO, daily emissions from each emission unit or group of emission units "shall be determined by multiplying the appropriate emission factor (lb/unit) specified in Tables D.2.1 – D.2.2 (until a test-derived emission factor has been determined according to Permit Condition E.2) by the recorded daily operation rate (units/day) and dividing by 2000 lb/ton." *Id.* The Region further explained that "[c]ompliance with the emissions limits for NO_x and CO is determined by applying the relevant emission factor to the amount of fuel combusted by each emission unit (or hours of operation for incinerators)." RTC at 29. The Permit also includes conditions that require source-wide recordkeeping and monitoring to ensure that Shell complies with the source-wide limits. Permit at 56-61 (including operations and fuel monitoring in Permit Condition F.2 as well as selective catalytic reduction ("SCR") and oxida-

[18] ICAS asserts that the Region should include a 5-10% buffer zone between the PSD threshold emissions level of 250 tpy and the *Kulluk's* restricted PTE, and that the NO_x emission limit of 240 tpy does not provide this. ICAS Petition at 15 (citing a comment letter from Region 9 to the Nevada Division of Environmental Protection in which Region 9 "encourage[d] a 5-10% buffer between the permitted emission limits and the federal threshold" for a permit that established a CO synthetic minor limit of 249 tpy). However, the 240 tpy emission limit for NO_x contained in the current Permit represents a 4% buffer between the synthetic minor limit and the PSD threshold emission level of 250 tpy, which is ten times larger than the 0.4% buffer between a 249 tpy emission limit and the PSD threshold of 250 tpy contained in the Nevada permit. The Board agrees with the Region that Congress established specific thresholds to determine when a source would be considered major for purposes of PSD review. *See* RTC at 30. The buffer that ICAS requests is neither a legal requirement nor an established Agency policy, and thus the Region appropriately declined ICAS's request.

tion catalyst ("OxyCat") control device monitoring in Permit Conditions F.3 – F.4).

REDOIL Petitioners and ICAS make several challenges to the Region's decision to restrict the *Kulluk*'*s* PTE for NO_x and CO using source-wide emission limits. Both petitioners assert that the Region's decision to limit CO and NO_x emissions using source-wide limits in effect applies blanket emission limits, which Agency guidance expressly prohibits because they are practically unenforceable, and that the limited exception in the Agency guidance that allows for source-wide limits is inapplicable to the *Kulluk*'*s* operations. REDOIL Petition at 10-11; ICAS Petition at 11. Both petitioners also object to the Region's use of generic emission factors[19] to calculate source-wide emission limits. In particular, both petitioners assert that (1) the Region should have developed source-specific emission factors for all units of the OCS source; (2) the AP-42 emission factors applied to the emergency generator, the OSRVs, and heaters and boilers lead to inaccurate and underestimated emissions for those sources; and (3) the Region did not require Shell to conduct enough stack tests to accurately calculate source-specific emission factors. ICAS Petition at 15-20; REDOIL Petition at 11-14.

The Region responds that Agency guidance documents generally "illustrate that the Clean Air Act and the implementing regulations allow for a flexible, case-by-case evaluation of appropriate methods for ensuring practical enforceability of PTE limits." Region Response at 14-15 (quoting *In re Orange Recycling & Ethanol Prod. Facility*, Pet. No. II-2001-05, at 5 (Adm'r Apr. 8, 2002) (A.R. B-17)). Specifically, the Region asserts that source-wide emission limits for NO_x and CO are indeed practically enforceable and are most appropriate given the uncertainty of a number of factors that otherwise preclude the Region from establishing PTE restrictions based on operational limits. *Id.* at 18; RTC at 26-27, 29-30. In addition, the Region asserts that the emission factors used to calculate NO_x and CO emissions provide reliable emission calculations. Region Response at 19-23. In particular, the Region asserts that it made an appropriate technical determination to apply AP-42 emission factors or emission factors derived from *Discoverer*[20] data rather than source-specific emission factors for certain emission units. *Id*. The Region adds that the permit conditions that apply to source-specific

[19] *See infra* Part VI.A.2.b.

[20] The Region issued Shell two OCS PSD permits to conduct exploratory drilling activities in the Chukchi and Beaufort Seas utilizing the drillship *Discoverer* that were twice appealed to the Board, first in 2010, and then again in 2011 subsequent to a Board remand of the permits to the Region. *See Shell Discoverer 2012*, 15 E.A.D. at 474-75 (describing history of *Discoverer* permit proceedings). In preparing the permit applications for the *Discoverer*'s operations, Shell conducted source-specific emission tests for various emission units on the *Discoverer* and an associated fleet of support ships, including icebreakers, supply ships, and oil spill response vessels. *See id.*, 15 E.A.D. at 479-80 (describing associated fleet).

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

emission factors require source tests that are inadequate in frequency and unrepresentative of the variation in Shell's proposed operations to allow the Region to derive accurate emission factors. *Id.*

a. *Blanket Emission Limits and Practical Enforceability*

ICAS and REDOIL Petitioners correctly assert that the use of blanket emission limits alone, essentially statements that actual emissions of a pollutant will not exceed a particular quantity, is generally prohibited to restrict PTE because such limits are not enforceable as a practical matter. *See United States v. La.-Pac. Corp.*, 682 F. Supp. 1122, 1133 (D. Colo. 1987) ("[C]ompliance with blanket restrictions on actual emissions would be virtually impossible to verify or enforce."), *quoted in* REDOIL Petition at 11; *see also* Office of Air Quality Planning & Standards, U.S. EPA, *New Source Review Workshop Manual* at C.4 (draft Oct. 1990) [hereinafter *NSR Manual*] ("Blanket emissions limits alone (e.g., tons/[year], lb/[hour]) are virtually impossible to verify or enforce, and are therefore not enforceable as a practical matter."), *quoted in* ICAS Petition at 13; Memorandum from Terrell Hunt, Assoc. Enforcement Counsel, U.S. EPA, & John Seitz, Dir., Stationary Source Compliance Div., U.S. EPA, *Guidance on Limiting Potential to Emit in New Source Permitting* 7 (June 13, 1989) (A.R. B-4) [hereinafter *1989 Guidance on Limiting PTE*].[21] However, the Petitioners' characterization of the source-wide emission limits for NO_x and CO contained in the Permit as blanket emission limits must fail. ICAS and REDOIL Petitioners do not acknowledge the Region's explanation in the Response to Comments for why it chose to apply source-wide emission limits in the Permit, nor do they establish that the Region's fundamentally technical determinations contravene Agency guidance.

The Region made clear in the Response to Comments that its decision to employ source-wide emission limits calculated as rolling 365-day limits to restrict NO_x and CO was based in large part on the substantial and unpredictable variations in emissions based on the atypical nature of Shell's operations. RTC at 26-27; Region Response at 18. Variability in Shell's exploratory operations, multiple engines and generators located on both the *Kulluk* and numerous vessels in the Associated Fleet, the state of the weather and the sea, ice thickness, and the changing nature of the activities that Shell may need to conduct all influenced the Region's conclusion that the need for operational flexibility made it impractical to establish unit-specific limits or operating parameters for some pollutants, such as NO_x and CO, that might typically be applied to limit a stationary source's PTE. RTC at 27; *see* Statement of Basis at 38. The Region continued that, in its judgment, the choice to restrict the *Kulluk*'s PTE for NO_x and CO using source-wide emissions limits "accounts for variability in operations and emissions, yet still

[21] Appendix C of the NSR Manual is based largely on the 1989 Guidance on Limiting PTE. *NSR Manual* at C.1 n.1.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

provides assurance that limits on potential to emit can be enforced as a practical matter." RTC at 28.

Although the restrictions to limit the PTE of emission units located on the *Kulluk* and the Associated Fleet utilize a rolling 365-day limit, a longer time period than generally recommended in Agency guidance,[22] as the Region points out, the continuous monitoring and recording of fuel usage and the application of source-test derived or specified emission factors have the practical effect of constraining Shell's fuel use, thus ensuring compliance with the PTE limits. Region Response at 15, 17 (citing *In re Pope & Talbot, Inc.*, Petition No. VIII-2006-04 (Adm'r 2007) (A.R. B-24), in which rolling emission limits in addition to prescribed emission factors and appropriate monitoring and recordkeeping were sufficient to restrict PTE).[23] In essence, although the Region could not incorporate more traditional operational limits into the Permit based on the atypical nature of the permitted activities, the daily calculation of NO_x and CO emissions in conjunction with continuous monitoring and recording of fuel usage ensure that the NO_x and CO PTE restrictions can be practically enforced.

Despite the Region's explanation in the Response to Comments regarding the need to consider the facts unique to this Permit, neither ICAS nor REDOIL Petitioners explain why, especially in light of the *Kulluk*'s atypical operations as

---

[22] The 1989 Guidance on Limiting PTE recommends that the time limit over which production or operational limits extend should be "as short term as possible" in order for such limitations to be enforceable as a practical matter, and generally not exceeding one month, but the Guidance also recognizes that in rare circumstances a limit spanning a longer time may be appropriate. *1989 Guidance on Limiting PTE* at 9. The Guidance specifies that a limit spanning a longer time is appropriate if it is rolling and that it should not exceed an annual limit rolled on a monthly basis. *Id.* The Guidance also notes that:

> [P]ermits where longer rolling limits are used to restrict production should be issued only to sources with substantial and unpredictable annual variation in production[] * * * Rolling limits could be used as well for sources which shut down or curtail operation during part of a year on a regular seasonal cycle, but the permitting authority should first explore the possibility of imposing a month-by-month limit.

Id. at 9-10. In this instance, although the Guidance was written prior to Congress authorizing EPA to regulate air emissions from sources located on certain areas of the OCS, *see* Region Response at 17, including the Arctic, the circumstances the Guidance anticipates that would make a longer time limit appropriate apply in this instance to the *Kulluk* permit, where the operations are seasonal and thus variation in production would be substantial. *See 1989 Guidance on Limiting PTE* at 9-10.

[23] Although the Board agrees with Petitioners that the Region did not cite this decision until it submitted its response to the petitions for review, and thus accepts their reply briefs with respect to this point, *see supra* Part V, the Board nonetheless disagrees that this publicly available decision of the Administrator is inapposite to the current appeal. The *Pope & Talbot* decision underscores the Agency's ability to exercise its discretion and its technical expertise in order to craft practically enforceable synthetic minor limits.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

compared to other stationary sources, the Permit's PTE limits are not practically enforceable. *See* Region Response at 17. Rather, Petitioners hew closely to the language in the 1989 Guidance on Limiting PTE prohibiting blanket emissions, asserting instead that because the Permit does not contain production or operational limits to restrict PTE, the NO_x and CO emission limits constitute blanket emission limits that contravene Agency guidance. ICAS Petition at 11-14; REDOIL Petition at 9-11. The 1989 Guidance on Limiting PTE sets forth the types of limitations that will restrict a source's PTE and states in relevant part:

> To appropriately limit potential to emit * * * permits * * * must contain a production or operational limitation in addition to the emission limitation in cases where the emission limitation does not reflect the maximum emissions of the source operating at full design capacity without pollution control equipment. Restrictions on production or operation that will limit potential to emit include limitations on quantities of raw materials consumed, fuel combusted, hours of operation, or conditions which specify that the source must install and maintain controls that reduce emissions to a specified emission rate or to a specified efficiency level.

1989 Guidance on Limiting PTE at 5-6.[24] In addition, neither ICAS nor REDOIL Petitioners address the operational limits included in the Permit and discussed in

[24] The Guidance also acknowledges that the "particular circumstances of some individual sources make it difficult to state operating parameters for control equipment limits in a manner that is easily enforceable as a practical matter" and lists two exceptions. *1989 Guidance on Limiting PTE* at 7. Although the Guidance preceded EPA's authority to regulate air emissions on parts of the OCS, *see* Region Response at 17, and thus could not have anticipated the circumstances of the permit at issue in these appeals, the Region nonetheless asserts that the circumstances surrounding the current permit are sufficiently analogous to the second exception for volatile organic compound ("VOC") surface coating operations, which contemplates no add-on controls but allows for the restriction of PTE by limiting the VOC contents and quantities of coatings used. *Id.* at 17-19 (referring to *1989 Guidance on Limiting PTE* at 8).

The VOC exception focuses on circumstances where operating and production parameters could not be readily set due to the wide variety of coatings and products and due to the unpredictable nature of the operations. *1989 Guidance on Limiting PTE* at 8. The Region asserted that the rationale informing the VOC surface coating operation exception is sufficiently similar to the present circumstances and analogized that an effective way to restrict NO_x and CO was through source-wide emissions limits supported by test-derived or specified emission factors, similar to the VOC content of coatings, continuous monitoring and recording of operational parameters, and tracking the quantity of VOC coating used. RTC at 30; Region Response at 18. REDOIL Petitioners and ICAS assert that the VOC exception should be construed quite narrowly and that the VOC surface coating operation exception within the 1989 Guidance on Limiting PTE could not apply to the *Kulluk* and the Associated Fleet. *See* ICAS Petition at 20; REDOIL Petition at 13-14. Petitioners do not state more than a differ-
Continued

SR 1172

the Response to Comments. *See* RTC at 29 (discussing hourly operational limits on mudline cellar drilling and overall drilling activity and the installation of SCR and OcyCat controls to limit NO_x emissions).

Finally, ICAS challenges the Region's inclusion of requirements in the Permit to calculate daily emissions for NO_x and CO on a weekly basis, arguing that it is a "critical flaw to enforceability of the permit because it means that Shell will only know where it stands vis-a-vie [sic] its NO_x and CO permit limits once a week." ICAS Petition at 14 (citing Permit Conditions D.1.1, D.1.2). The Board finds ICAS's argument here unavailing in light of the Region's thorough explanation in the Response to Comments. *See* RTC at 44; Region Response at 19, 23. The Region explained that although the calculations of emission limits will be conducted weekly, data is continuously collected and recorded and will eventually be generated in the same terms as the emission limits. *See* RTC at 44; Region Response at 23. Moreover, the Region points out that Shell is required to process data from numerous emission units across multiple vessels for 168 individual hours (24 hours x 7 days). RTC at 44. The permit requirements to continuously monitor and record data necessary to conduct daily emissions calculations ensures, as ICAS raises, the ability to assess and verify compliance immediately should an inspector, the Region, or Shell require it. RTC at 44; Region Response at 23. In this instance, ICAS does not acknowledge the Region's response or address why that response is inadequate and thus warrants review. As this Board has previously stated, "[p]etitions for review may not simply repeat objections made during the comment period; instead they must demonstrate why the permitting authority's response to those objections warrants review." *Peabody*, 12 E.A.D. at 46 n.58; *accord In re Knauf Fiber Glass GmbH, (*"*Knauf II*"*)*, 9 E.A.D. 1, 5 (EAB 2000); *see also* standard of review discussion *supra* Part III.

In addition, as the Board noted above in Part VI.A.1.b, the determination of a source's PTE is inherently an exercise that requires technical expertise. Neither REDOIL Petitioners nor ICAS have met the particularly heavy burden of demonstrating that review of the Region's decisions to employ source-wide emission limits to restrict the *Kulluk*'s PTE is warranted. *See, e.g.*, *Peabody*, 12 E.A.D. at 33; *NE Hub*, 7 E.A.D. at 567 ("When issues raised on appeal challenge a Region's technical judgments, clear error or a reviewable exercise of discretion is not

(continued)
ence of opinion or alternative view on a technical issue. *See NE Hub*, 7 E.A.D. at 567. Without more, petitioners cannot sustain the burden of demonstrating that review of the Region's exercise of its technical judgment is warranted. *See Peabody*, 12 E.A.D. at 33; *In re Teck Cominco Alaska Inc.*, 11 E.A.D. 457, 473 (EAB 2004).

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

established simply because petitioners document a difference in opinion or an alternative theory regarding a technical matter.").

b. *Emission Factors*

An emission factor is a representative value used to relate the quantity of a pollutant released to the atmosphere with an activity associated with the release of that pollutant. U.S. EPA, AP-42, *Compilation of Air Pollutant Emission Factors*, Volume 1: Stationary Point and Area Sources 1 (Jan. 1995) (5th ed.) ("AP-42 Guidance"). Emission factors essentially represent an average of a range of emission rates of the subject sources. *Id.* at 2. As stated above in Part VI.A.2, in this instance compliance with the PTE restrictions for NO_x and CO are determined by calculating daily emissions of each pollutant, which requires multiplying the appropriate emission factor by the recorded daily operation rate and dividing by 2000 lb/ton. Permit Conditions D.4.1, D.4.2.

REDOIL Petitioners and ICAS challenge several aspects of the Region's use of emission factors to assist in calculating compliance with the restricted PTE for both NO_x and CO. Both petitioners challenge the Region's decision to forgo source-specific emission testing to establish emission factors for all emission units on the *Kulluk* and the Associated Fleet and further assert that this will cause the Region and Shell to underestimate the quantities of NO_x and CO emitted by the OCS source. ICAS Petition at 15-19; REDOIL Petition at 11-13. REDOIL Petitioners and ICAS assert that the use of AP-42 emission factors and emission factors derived from *Discoverer* test results for those emission units that will not undergo source-specific testing constitutes clear error because these more generic emission factors will likely lead to an underestimation of emissions from the units to which they are applied. ICAS Petition at 16-18; REDOIL Petition at 11-12 (referring to AP-42 emission factors as "notoriously inaccurate default factors"). Finally, ICAS challenges the frequency and number of stack tests used to develop source-specific emission factors for emission units and further asserts that by Shell's own admission there is a 15% variability in stack test data that results in a less conservative emission factor than the Region claims. ICAS Petition at 16-17.

The Board notes at the outset that the development of emission factors for use in calculating daily emissions to determine compliance with PTE restrictions requires the sort of quintessential technical expertise the permit issuer possesses, here the Region, to which the Board will defer if "the record demonstrates that the Region duly considered the issues raised in the comments and if the approach ultimately selected by the Region is rational in light all of the information in the record." *NE Hub*, 7 E.A.D. at 567-68, *quoted in Peabody*, 12 E.A.D. at 34; *see also Avenal Energy Ctr.*, 15 E.A.D. at 387. As explained more fully below, for each challenge regarding the derivation and use of emission factors set forth in the Permit, REDOIL Petitioners and ICAS have failed to sustain the particularly heavy burden petitioners must overcome to demonstrate that review of a funda-

SR 1174

mentally technical decision is warranted. *See, e.g.*, *Peabody*, 12 E.A.D. at 33; *NE Hub*, 7 E.A.D. at 567-68.

The Region fully explained in the Response to Comments its rationale for supplementing source-specific emission factors derived for most of the emission units or groups of emission units located on the *Kulluk* or the Associated Fleet with either AP-42 emission factors[25] or emission factors derived from *Discoverer* source test data for a minority of units. RTC at 32-33; *see also* Region Response at 20-21. In support of its decision to utilize a mix of source-specific testing for emission factors in addition to using AP-42 and *Discoverer* test data emission factors, the Region stated that it "believes the permit strikes an appropriate balance between the need for accurate emission factors to reliably calculate emis-

[25] ICAS's attempt to analogize the situation the Board confronted in *Peabody* to the current permit appeal falls short. Although *Peabody* discusses the use of AP-42 emission factors in a PTE calculation where the source was seeking synthetic minor status, ICAS fails to acknowledge critical factual elements that distinguish *Peabody* from the current appeal.

In *Peabody*, the permittee was a large coal-processing plant built prior to the effective date of the PSD program that requested a PTE limit for particulate matter with a diameter of 10 microns or less ("PM_{10}") in the permittee's Title V permit so that the facility could remain a synthetic minor source for PM_{10} emissions should it conduct any major modifications in the future. *See Peabody*, 12 E.A.D. at 24-34. Of critical importance, the facility's emissions were primarily fugitive, and thus, emission testing to directly measure PM_{10} emissions was not feasible. *Id.* at 34. The permittee consequently submitted a request for a PTE limit based on a quantitative estimate of the facility's capacity to emit PM_{10}, which in turn relied on estimates of uncontrolled emissions from each unit based on the application of AP-42 emission factors that were then used to estimate net emissions by applying assumed emission control efficiencies for the emission control equipment in use. *Id.* at 34-35 & n.31. Peabody's proposed compliance regimen did not include direct measurement of PM_{10} emissions. As the Board stated, "[b]ecause Peabody's approach would rely entirely on the application of emission factors and assumed control efficiencies, for purposes of both estimating maximum emissions capacity and monitoring ongoing compliance, the accuracy and appropriateness of the emission factors and the control efficiency assumptions were the focal point of Region IX's analysis of Peabody's proposal." *Id.* at 35-36.

Contrary to the facility in *Peabody*, in this instance the use of AP-42 factors to calculate compliance with restricted PTE for NO_x and CO was essentially a last resort method for calculating compliance, whereas the emission units that accounted for at least 90% of the NO_x and CO emissions were subject to source-specific emission testing. *See id.* at 32-33. The Region made clear that in the relatively small number of instances where an AP-42 emission factor was employed to calculate compliance with PTE, the Region chose conservatively higher emission factors. In *Peabody*, the Region made a technical determination and "concluded that Peabody had not sufficiently demonstrated that it met the central criteria for establishing [PTE] – technical accuracy and a reliable method of determining compliance." *Id.* at 39. In this instance, the Region made a technical determination that Shell has sufficiently demonstrated that the *Kulluk* could demonstrate compliance with the NO_x and CO PTE limits included in the permit in a manner that is technically accurate, and that the compliance of the emission units can be verified based on source-specific testing. The Region's exercise of its technical expertise to conclude that in limited circumstances AP-42 emission factors were appropriate to demonstrate compliance with the restricted PTE is rational in light of all of the information in the record. Thus, ICAS's contention that *Peabody* governs the appeal currently before the Board is unpersuasive.

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

sions for comparison to permit limits and the complexity of testing numerous emission units in a short period of time." RTC at 33. The Region also noted that, in response to comments received, it decided to require source-specific emission testing for incinerators and that, after that change, the permit will require source testing of emission units that constitute 91% of NO_x and 97% of CO emissions. *Id.* at 32. Of the remaining units that were not required to undergo source testing to develop an emission factor, the Region set forth in detail why it had chosen emission factors derived from *Discoverer* source test data or the AP-42 emission factors, in many instances raising the value of an emission factor to provide a more conservative estimate of emissions.[26] *Id.* at 32-33; *see also* Region Response at 20; Statement of Basis at 38 (noting that testing for source-specific emission factors (Permit Condition E.2) uses a protocol that results in conservatively high unit-specific emission factors that in turn help to ensure compliance with PTE).

[26] The Region explained in the Statement of Basis that an important element of Permit Condition E.2, which catalogues the procedures for conducting tests to determine equipment-specific emission factors, "is the selection of worst[-]case emission factors for each emission unit or group of emission units tested." Statement of Basis at 43; *see also* Permit at 52-56. The record demonstrates that the Region thoughtfully and judiciously employed emission factors derived from *Discoverer* test data and AP-42 emission factors, and consistently chose higher, more conservative emission factors when there was any question or discrepancy. For example, for those NO_x emission units for which the Permit does not require source testing and that rely on emission factors based on *Discoverer* test data, the Region adjusted the emission factor to reflect the conservative 90th percentile (or higher) values from the test data. RTC at 32. The Region further explained that for heaters and boilers – the only remaining group of NO_x emission units that rely on AP-42 for emission factors – the Region expects the AP-42 emission factor to be a conservative representation of actual emissions. *Id.* (noting that while AP-42 predicted an NO_x emission factor for heaters and boilers of 0.02 lb/gal, Shell testing of *Discoverer* boilers shows a range of values between 0.011 lb/gal and 0.015 lb/gal); *see also* RTC at 46 (noting that the boiler and heater NO_x emission factor used in the *Kulluk* permit is "lower than the *Discoverer* BACT limit for similar equipment, but is higher than available test data for a similar source"). ICAS challenged the Region's use of an NO_x emission factor in the Permit that is lower than the one in the *Discoverer* permits, *see* ICAS Petition at 18-19, but ICAS failed in its petition to even acknowledge the Region's response to its comment regarding the NO_x emission factor for heaters and boilers, let alone "substantively confront the permit issuer's subsequent explanation." *Peabody*, 12 E.A.D. at 33 (citing *In re Zion Energy, LLC*, 9 E.A.D. 701, 705 (EAB 2011)).

With respect to emission units that will not undergo source testing to verify CO emission factors, the Region similarly explained that it believed emission factors are reasonable for use in the permit given that AP-42 emission factors will represent only 3% of the total CO emissions. RTC at 32. In addition, the Region notes that the CO emissions from tests conducted for two boilers on the *Discoverer* were nearly identical to the AP-42 emission factor. *Id.* at 33 (explaining that the Region chose the highest, most conservative emission factor of the three). Finally, the Region notes that one of the potential oil spill and response boats has an actual CO emission factor for its propulsion engine that is based on the manufacturer's data and is one tenth of what the AP-42 factor predicts. *Id.*; *see also* Permit Table D.2.2 (demonstrating that the Region chose to include the much higher AP-42 emission factor for the OSRV propulsion engine).

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

While REDOIL Petitioners[27] and ICAS may disagree with the Region's approach, Petitioners do not demonstrate that the Region's choices in deriving emission factors for emission units will result in an underestimation of pollutants emitted by the *Kulluk* and the Associated Fleet. The Region has demonstrated that it balanced its primary task of accurately calculating NO_x and CO emission factors to ensure that the *Kulluk* and the Associated Fleet will not exceed the restricted PTE with the practical need to calculate emission factors for numerous and varied emission units aboard both the *Kulluk* and the Associated Fleet. The Board has frequently stated that it will not grant review where, as here, the record demonstrates a bona fide difference of opinion or alternative theory regarding a technical matter but the approach the Region ultimately selected is rational in light of all the information in the record. *Peabody*, 12 E.A.D. at 34 (quoting *NE Hub*, 7 E.A.D. at 567).

Finally, ICAS asserts that the *Discoverer* source test data is not sufficient to accurately generate worst-case scenario emission factors for *Kulluk* emission units because similar sources tested on the *Discoverer* were subject to BACT, and further, that in using stack test results from the *Discoverer* to develop emission factors for the *Kulluk* permit, the Region never accounted for "15% variability in Shell's stack tests," resulting in inadequate emission factors. ICAS Petition at 17-19. The Region points out, however, that the *Discoverer* stack tests on which the Region relied to calculate the 90th percentile value and assess the appropriateness of AP-42 factors were not subject to post-combustion controls limiting NO_x or CO and thus provided an appropriate comparison for purposes of deriving emission factors for the *Kulluk*. Region Response at 21 (citing *Discoverer* stack test results and communications discussing them in the administrative record, specifically A.R. B-55, B-63, C-406, and C-489). With respect to the 15% variability in stack test results[28] that ICAS alleges, the Region points to the technical litera-

---

[27] REDOIL Petitioners contend that the Region's recognition that Shell's approach involves "inherent uncertainty" regarding what equipment will be aboard the *Kulluk* and the Associated Fleet, which in turn requires "thorough source testing," coupled with the Region's refusal to require source testing for all equipment, is "internally inconsistent and thus arbitrary and unlawful." REDOIL Petition at 12. However, the Region responded that it used its technical expertise to determine that in this instance, a mix of both source-specific testing to derive emission factors, in addition to using AP-42 factors and emission factors derived from *Discoverer* test data where appropriate, was reasonable and not inconsistent. Region Response at 20-21. The Board agrees with the Region that the decision to use source-specific testing to derive emission factors, in conjunction with the emission factors developed from *Discoverer* data and from AP-42, is inherently technical. In order to effectively exercise its expertise, the Region should not, as REDOIL Petitioners suggest, be cabined by a rigid interpretation of how emission factors should be determined. REDOIL Petitioners have failed to meet the particularly high threshold for demonstrating that Board review of the Region's fundamentally technical decision is warranted. *Peabody*, 12 E.A.D. at 33-34.

[28] ICAS also asserts that stack tests are "conducted once a year for one or two years depending on the source," at three different loads, and even when the worst-case emissions are used, the stack tests fail to account for Shell's varying emissions. ICAS Petition at 16. The Region explained in re-

Continued

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

ture Shell referenced in Shell's comments, which addresses "uncertainty in determining front-half PM [particulate matter] emission rates" and does not directly address procedures for deriving NO_X and CO emission factors. *Id.* at 22-23; *see also* Permit Conditions E.1.2, E.1.7, E.1.14 (requiring Shell to submit a testing plan and follow EPA-approved test methods, and establishing Region's authority to require additional stack tests if necessary). As the Region correctly points out, ICAS has not demonstrated that the worst-case stack test results, which embody the Region's fundamentally technical determinations, will be biased low and underreport emissions. Region Response at 22-23; *see, e.g.*, *Teck Cominco*, 11 E.A.D. at 473 (discussing heavy burden assigned to petitioners seeking review of issues that are essentially technical in nature).

3. *ICAS Has Failed to Demonstrate That the Region Clearly Erred in Restricting the Kulluk and the Associated Fleet's Potential to Emit GHGs*

ICAS also challenges the Permit's GHG emission limit, which restricts Shell's annual GHG emissions to 80,000 tpy of carbon dioxide equivalent ("CO_2e").[29] *See* ICAS Petition at 21-26; *see also* Permit Condition D.4.4; RTC at 28. EPA promulgated regulations, commonly referred to as the "Tailoring Rule," that set forth applicability criteria to determine which GHG emission sources become subject to the PSD and Title V programs under the Act.[30] Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule, 75 Fed. Reg. 31,514, 31,516 (June 3, 2010). In this instance, despite the fact that

---

(continued)
sponse that Permit Condition E.2.1 requires each source-tested unit to be tested prior to each of the first two drilling seasons and subsequently every two or five years depending on any variability observed in the results of the two initial tests. Region Response at 22; *see also* Statement of Basis at 44 (frequency of source-specific emission factor testing after first two years based on variability of results). Further, each test requires three 1-hour runs at each of the three tested operating loads, which results in nine results total for each aggregate source test. Region Response at 22. Without more than its bare assertion that the current source tests do not adequately address Shell's varying emissions when the data is used to derive emission factors, ICAS cannot demonstrate that the permit conditions that dictate the frequency and parameters of source tests warrant Board review.

[29] GHGs are defined as "the aggregate group of six greenhouse gases: carbon dioxide, nitrous oxide, methane, hydroflourocarbons, perflourocarbons, and sulfur hexaflouride." 40 C.F.R. § 52.21(b)(49)(i). CO_2e represents the amount of GHGs emitted and is computed by "[m]ultiplying the mass amount of emissions (tpy), for each of the six greenhouse gases in the pollutant GHGs, by the gas's associated global warming potential published at Table A-1 subpart A of [40 C.F.R.] part 98 of this chapter – Global Warming Potentials." *Id.* § 52.21(b)(49)(ii)(a).

[30] The regulations provide that any source that is considered a new major source for a regulated NSR pollutant other than GHGs will also be subject to regulation for GHGs if it emits or has the potential to emit 75,000 tpy or more of CO_2e. 40 C.F.R. § 52.21(b)(49)(iv). New stationary sources that emit or have the potential to emit more than 100,000 tpy or more of CO_2e are also subject to regulation for GHGs. *Id.* § 52.21(b)(49)(v).

SR 1178

the OCS source's pre-permitted potential to emit exceeded 100,000 tpy of CO_2e, *see* Statement of Basis at 24, the Permit restricts the potential to emit GHGs to 80,000 tpy of CO_2e and thus prevents Shell from being subject to regulation for GHGs under the PSD program. *See* RTC at 24.

As noted previously, the vast majority of emissions, including GHG emissions, from both the *Kulluk* and the Associated Fleet result from internal combustion sources such as engines and boilers, along with incinerators. Statement of Basis at 12, 14, 39; RTC at 35. The Permit contains operational restrictions on the amount of time a source can operate, the amount of fuel and waste combusted, and the type of fuel combusted to ensure compliance with the Permit's GHG emission limit.[31] *See* Statement of Basis at 37-39; RTC at 33-36; *id.* at 34-35 (noting that in response to comments the Region adjusted the methane emission factor upward by a factor of four to represent a reasonable upper-bound estimate of the number of wells that could be drilled in a single season, which in turn required a small reduction to the total amount of fuel that may be combusted in engines and boilers during any rolling 12-month period). In addition to the combustion sources and the incinerators, a relatively small amount of GHG emissions in the form of methane results from the drilling mud system ("DMS").[32] *See* RTC at 35. GHG emissions from the DMS, calculated at 85 tpy of CO_2e, represent only 0.11% of the total GHG emissions allowed under the permit, 80,000 tpy of CO_2e. *Id.* The Region calculated an unrestricted PTE for methane emissions of 1,596 lbs/month,

---

[31] The Permit imposes annual limits of 120 days of operation as an OCS source during a drilling season, which spans from July 1 through November 30, and 1,632 hours of total drilling activity in a drilling season, of which only 480 hours may be used to conduct mudline cellar drilling activity, which is expected to generate the most air pollution. *See* Permit Conditions D.3.1-D.3.5. The Permit also limits the total aggregate combustion of fuel over a 12-month rolling period, the type of fuel combusted, and the total aggregate daily waste-combusting capacity of incinerators. *See* Permit Conditions D.4.6-.7, .9; *see also* RTC at 34-35. In addition, the Permit includes various monitoring and recordkeeping requirements to document when emissions should be counted toward emission limits, testing requirements for the derivation of source-specific emission factors, tracking and documentation requirements for the fuel and waste combusted, and maintenance requirements to ensure that emission units are properly operated and maintained. *See* Permit Conditions D.1-.4, D.8, F.2.1-.7; *see also* RTC at 36-37, 43.

[32] The Region explained methane emissions from the DMS as follows:

> When wells are drilled through porous, hydrocarbon[-]bearing rock, drilling fluids (mud) circulated through the drill bit can carry gaseous hydrocarbons from the well back to [the] Kulluk. These gases are typically released as fugitive emissions when the mud is processed for reuse on the Kulluk or stored and shipped away; however, some of the emissions pass through a vent.

Statement of Basis at 38.

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

the equivalent of 17 tons per month ("tpm") of CO_2e.[33] *Id.* The Permit accounts in Condition 4.4.2 for methane emissions encompassing the source's full unrestricted PTE of 17 tpm of CO_2e, which are added to GHG emissions from combustion sources when calculating total GHG emissions. *See* Statement of Basis at 39; *Shell Discoverer 2012*, 15 E.A.D. at 516.

ICAS raises several challenges to the Permit's GHG emission limit. Similar to its challenges of the Permit's synthetic minor limits for NO_x, CO, and SO_2, ICAS contends that the Permit contains a blanket emission limit for GHGs that is practically unenforceable and further asserts that the requirement that GHG emissions only be calculated monthly to determine compliance with the established rolling 12-month limit is inadequate to verify compliance "in a given moment." ICAS Petition at 21-22 (citing *NSR Manual* at C.3, C.5, H.5); *see* Permit Conditions D.1.3-.4. In addition, ICAS asserts that the Region clearly erred by accepting an owner-requested limit for methane attributable to mud off-gassing from the DMS that is not only unenforceable, but also less than the "maximum expected capacity" or "upper-bound projection" ConocoPhillips submitted in another Arctic OCS permit proceeding. *Id.* at 22-26.

Based on the foregoing information, ICAS's general assertion that the GHG emission limit is practically unenforceable must fail. The Region has demonstrated in both the Permit and the documentation in the record supporting the Permit that it crafted a synthetic minor limit that would not only prevent Shell from being subject to regulation under the PSD program for GHG emissions, but also

---

[33] In calculating the unrestricted PTE for DMS methane emissions, the Region included several conservative assumptions to ensure a wide margin of safety for total methane emissions over Shell's five-month period of operation. *See* RTC at 34; *Options for Limiting PTE* at 8 (noting that for sources with inherent physical limitations that restrict the potential emissions of an emissions unit, if such limitations can be documented and confirmed, the permitting authority may factor them into estimates of a stationary source's PTE). For example, the Region assumed that the total unrestricted PTE for DMS methane emissions for the entire five months of drilling operations would be emitted during each of the five months. RTC at 35.

In addition, despite much of the methane emissions being fugitive emissions that are not counted towards PSD applicability for exploratory drill rigs, *see* 40 C.F.R. § 52.21(b)(1)(iii), Shell agreed to consider all of the methane emissions from the DMS as point source emissions that would count towards Shell's potential to emit GHGs. *See* RTC at 35; *see also* Statement of Basis at 38-39. In its petition, ICAS disputes the Region's claim that counting such fugitive emissions towards PTE represents a conservative approach that lends a "measure of safety" and asserts that the part 71 regulations governing Title V permits require such fugitive emissions to be included. ICAS Petition at 24 (citing 40 C.F.R. § 71.3(d), which states that fugitive emissions from a part 71 source "shall be included in the permit application and the part 71 permit in the same manner as stack emissions"). However, as the Region correctly points out in its response, the definitions of major source in both 40 C.F.R. § 52.21(b)(1)(iii) and 40 C.F.R. § 71.2 make clear that fugitive emissions are not considered when determining whether a source is a major source. Region's Response at 26 n.21 (citing the Tailoring Rule and noting that it retained this approach of determining whether a source becomes subject to regulation for GHGs).

SR 1180

would be practically enforceable as a result of the numerous operational restrictions in combination with monitoring, recordkeeping, and reporting requirements contained in the Permit. While ICAS acknowledges the operational limits contained in the Permit, ICAS simultaneously disputes their efficacy without explaining why such operational limits will not have their intended effect of restricting Shell's potential to emit GHGs.[34] *See* ICAS Petition at 21-22. Without stating more than mere disagreement, ICAS cannot meet the especially high threshold of demonstrating that the Region's inherently technical decisions regarding the GHG emission limit warrant Board review. *See, e.g.*, *NE Hub Partners*, 7 E.A.D. at 567; *Shell Discoverer 2012*, 15 E.A.D. at 501.

ICAS's more specific contention that the Region clearly erred by accepting an owner requested restriction for methane from mud off-gassing that is practically unenforceable is unavailing. *See* ICAS Petition at 22-26. ICAS raised this same argument in previous appeals of two OCS PSD permits the Region issued to Shell for operations in the Chukchi Sea of the Arctic OCS. *See Shell Discoverer 2012*, 15 E.A.D. at 514-19; *see also supra* note 20. In brief, the monthly calculation of methane to be released in mud off-gassing in both *Shell Discoverer 2012* and the current appeal are not only the same amount, 17 tpm, they also both reflect the unrestricted PTE for methane emissions from DMS operations. *See* RTC at 34-35; *Shell Discoverer 2012*, 15 E.A.D. at 517-18. The Board rejects ICAS's assertion in this instance, relying on the same reasons it gave in *Shell Discoverer 2012*:

> [T]he Permit[] in this case do[es] not include owner requested limits on PTE for methane emissions. Rather, * * * methane emissions were assumed to occur at the source['s] full PTE for the five-month drilling season

[34] Similarly, ICAS's contention that the Region clearly erred by not requiring more frequent calculations of GHG emissions than the monthly calculations the Permit requires, *see* Conditions D.1.3-.4, falls short. The Region explained that its decision to calculate emissions on a monthly basis stemmed from "good confidence in the overall [GHG emission] compliance technique and therefore 'yearly' emissions are required to be summed only monthly." Statement of Basis at 38. Although GHG emission calculations will be calculated once a month based on the Region's stated confidence in its compliance method, the data required to make such calculations is collected continuously through fuel usage monitoring. RTC at 43-44 ("Shell is generally required to continuously measure and record, on an hourly basis, the fuel consumed by each emission unit or group of emission units."); *see also* Region Response at 24 (citing *1989 Guidance on Limiting PTE* and noting that "in light of annual variations in operations and the fact that the source operates during only part of the year" the Region determined that a 12-month rolling limit for CO_2e was appropriate as stated). Again, ICAS has failed to meet its burden of demonstrating that review is warranted, where, as here, it has not addressed the Region's stated rationale for requiring only monthly calculation of GHG emissions and has not demonstrated that monthly calculation of GHG emission would inhibit verification of compliance with the GHG emission limit. *See supra* Part III.

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

> (0.798 tons per month),[35] and the Permit[] count[s] these emissions towards the total GHG limitation * * * . The Region determined that because these unrestricted emissions of methane (when combined with GHG emissions from combustion sources) would not result in an exceedance of the Permit[']s] total GHG emissions limit, additional permitting restriction limits were not required.
>
> Under these circumstances, ICAS's reliance on the requirement that permits include conditions ensuring the enforceability of limitations on a source's PTE is misplaced, as the Permits do not contain owner requested limits on methane emissions or otherwise limit the source[']s] PTE from DMS operations.

Shell Discoverer 2012, 15 E.A.D. at 517-18 (citations omitted).

In addition, ICAS has not demonstrated that the Region's calculation of methane emissions from the DMS underestimated the "upper-limit" projection that is in turn used to identify the "maximum capacity" of a source based on an "inherent physical limitation." RTC at 34 (citing *Options for Limiting PTE* at 8 and Memorandum from John Seitz, Dir., Office of Air Quality Planning & Standards, to Reg'l Air Dirs., U.S. EPA, *Calculating Potential to Emit (PTE) and Other Guidance for Grain Handling Facilities* at 4-5 (Nov. 14, 1995) (A.R. B-10) [hereinafter *Grain Handling Guidance*]). ICAS's assertion is premised on ConocoPhillips' higher estimate of DMS methane emissions submitted to the Region in another permit proceeding concerning exploratory drilling in the Arctic OCS. ICAS Petition at 23-26. However, ICAS simply states that the discrepancy between Shell's and ConocoPhillips' calculations of DMS methane emissions means that the Region clearly erred in accepting Shell's methane calculations, but it does not acknowledge or evaluate the record information Shell submitted that explains in depth the causes for the divergent methane calculations.[36] Upon considering this

---

[35] This is the same unrestricted PTE for methane emissions as in the *Kulluk* permit (1596 lb / 2000 lb = 0.798 tons).

[36] In *Shell Discoverer 2012*, ICAS asserted that it was unable to evaluate the basis for Shell's estimates of DMS methane emissions that the Region had relied on to calculate PTE because Shell did not release its estimates until after the close of the comment period. 15 E.A.D. at 517 n.63. In that instance, the Board concluded that the Region was authorized to supplement the record with previously unavailable information confirming that Shell's estimate of methane PTE was a reasonable upper-bound estimation, and "[t]hus, ICAS had the opportunity to evaluate the basis for Shell's PTE estimates and the Region's assessment of those estimates in preparing its appeal to this Board." *Id.* (citing *In re Cape Wind Assoc., LLC*, 15 E.A.D. 327, 332-33, 335 (EAB 2011), and 40 C.F.R. §§ 124.17(a)-(b), .18(b)).

Continued

information, the Region exercised its technical expertise in concluding that Shell's estimates of methane emissions from the DMS were permissible, especially given the conservative assumptions the Region incorporated when calculating PTE. ICAS does not address either the record information that supports the Region's decision to accept Shell's methane estimate or the Region's stated rationale for concluding that methane monitoring is not required. *See* RTC at 35-36 (explaining that, based on the inherent limitations that exist and the relatively small contribution of the DMS to overall GHG emissions, the Region does not believe monitoring of DMS emissions or operations is necessary in addition to the monitoring already required in the permit). As this Board has often stated, a petitioner cannot demonstrate that review is warranted if the petitioner fails to substantively confront a permit issuer's response. *Peabody*, 12 E.A.D. at 33 (noting that to obtain review a petitioner must "explain why, in light of the permit issuer's rationale, the permit is clearly erroneous or otherwise deserving of review"); *see also In re BP Cherry Point*, 12 E.A.D. 209, 217 (EAB 2005). Moreover, as stated above, the Region's decision regarding the GHG emission limit is inherently technical in nature, and ICAS has fallen short of the particularly high threshold it must meet to demonstrate that review of the Region's technical determination is warranted. *See Peabody*, 12 E.A.D. at 33-34; *see also NE Hub*, 7 E.A.D. at 567-68.

4. *The Region Did Not Clearly Err in Restricting OCS Source's Potential to Emit SO_2*

The Permit restricts SO_2 emissions from the *Kulluk* and the Associated Fleet to no more than 10 tpy, well below the 250 tpy PSD threshold level. *See* Permit Condition D.4.3. Compliance with this limit is determined on a rolling 12-month basis and is achieved by requiring that Shell not combust any liquid fuel with sulfur content greater than 0.01 percent by weight in any emission unit on the *Kulluk* or the Associated Fleet and that all fuel purchased for use in emission units on the *Kulluk* and Associated Fleet have a maximum sulfur content of 0.0015 percent by weight. Permit Conditions D.4.5, D.4.9. Shell is required to keep diesel

(continued)

The material in question is not only in the record submitted with the *Discoverer* appeals, it also appears in the record for the instant appeal. *See* E-mail from Susan Childs, Shell, to Doug Hardesty, EPA Region 10 (Sept. 16, 2011 14:31 pm PDT) (A.R. CCC-438 in *Shell Discoverer 2012* and A.R. C-575 in the current appeal). Thus in the current appeal there is no question that the information from Shell clarifying and explaining its estimate of DMS methane emissions, including the highly conservative assumptions Shell included in its estimate, was at ICAS's disposal. In addition, Shell submitted further clarification of its DMS methane estimates as compared to ConocoPhillips' in order to "explain how different assumptions led to different results, and why Shell believes that ConocoPhillips' estimate is unrealistically high." E-mail from Susan Childs, Shell, to EPA Region 10 (Sept. 20, 2011 17:57 pm PDT) (A.R. C-577). ICAS's petition does not address either of these record submissions or the Region's reliance on this information to determine that the Region's calculation of methane emissions from the DMS represents "a reasonable upper-bound projection for Shell's operations [that] is not expected to be exceeded under any reasonably anticipated operating scenario." RTC at 35.

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

fuel purchase records documenting sulfur content for each batch of fuel purchased. Permit Condition D.4.9.2. In addition, the total amount of fuel combusted in engines and boilers must not exceed 7,004,428 gallons during any rolling 12-month period. Permit Condition D.4.6; *see also* Permit Condition F.2.4 (requiring Shell to (1) obtain representative fuel samples and determine fuel sulfur content in parts per million from fuel storage tanks on the *Kulluk* and the Associated Fleet prior to their mobilization, (2) determine the sulfur content of each delivery of fuel to the *Kulluk* and the Associated Fleet once the vessels are mobilized, and (3) maintain records of all sampling and analysis).

ICAS asserts that the Region justifies its blanket SO_2 emissions limits by including "purported 'operational limits'" that restrict fuel content and usage and concludes that compliance with the restricted PTE for SO_2 is practically unenforceable because these operational limits are not unit-specific and because the overall limit is based on a 12-month rolling limit. ICAS Petition at 26-27. ICAS offers no explanation as to why the operational limits and averaging time the Region chose to include in the Permit, both of which are clearly considered legitimate in Agency guidance, nonetheless constitute clear error. *See* Region Response at 28; *Options on Limiting PTE* attach. 1 at 5 ("[L]imitations on sulfur dioxide emissions could be based on specified sulfur content of fuel and the source's obligation to limit usage to certain maximum amounts."); *1989 Guidance on Limiting PTE* at 9-10 (noting that in certain situations a rolling limit of up to a year may be appropriate for sources with "substantial and unpredictable annual variation in production," including "source which shut down or curtail operation during part of the year on a regular seasonal cycle").

ICAS also challenges the monitoring provisions for small and/or infrequently used emission units that are not required to have fuel flow monitors. ICAS Petition at 27. As the Region correctly points out, however, ICAS makes no attempt to explain why the specified fuel measurement alternatives, together with the requirement to measure and record fuel usage before and after operation, do not allow for a reliable and accurate assessment of fuel usage. Region Response at 28 (citing Permit Condition F.2.2.2). Here again, ICAS offers nothing more than a bald assertion of clear error without any analysis of why the Region erred. Where, as here, the Region's decision was technical in nature, ICAS has failed to meet the particularly high threshold for establishing that review of the Region's technical determination is warranted.

5. *Shell's Minor Source Permit Is Not a "Sham" Permit*

ICAS asserts that in order to ensure the *Kulluk*'s status as a minor source, Shell has agreed to operational limitations in its OCS/Title V permit that are not represented in other authorizations and permit applications for Shell's exploratory activities in the Beaufort Sea. ICAS Petition at 28. ICAS alleges that Shell's incidental hazard assessment, required under the Marine Mammal Protection Act,

SR 1184

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

16 U.S.C. § 1371(a)(5)(A), (D), authorizes 78 days of drilling whereas the OCS/Title V permit only authorizes 68 days of drilling. *Id.* Based on this single discrepancy, ICAS categorically concludes that "Shell is submitting permit applications and seeking authorization from other agencies with different plans than are provided for in its air permit." ICAS Petition at 28-29. ICAS also asserts that the Region did not adequately respond to its concern that Shell's application for a minor source permit is a sham.[37] *Id.*

At the outset, the Board notes that ICAS's assertion that Shell has secured a sham minor source permit with the intention to avoid preconstruction review as a major source under the PSD program is wholly unsupported in the record.[38] As the Region noted in the Response to Comments, there is nothing to indicate that Shell intends to later apply to the Region to remove the synthetic limits contained in the Permit. RTC at 22. The Region continued that, regardless of what the incidental hazard assessment says regarding the number of days Shell may drill, Shell nonetheless "must comply with all requirements of the Kulluk Permit and failure to do so is a violation of the CAA." *Id.* (citing Permit Condition A.3). Finally, the Region made clear that whether an original request for a minor source permit is a "sham" may be evaluated when the Region receives a request to remove the synthetic limits. *Id.*

ICAS rejects the Region's statement that there is nothing to suggest that Shell intends to obtain a minor source permit now and then apply for a major source permit down the road, and baldly asserts that "this is not the proper test." ICAS Petition at 28. ICAS ignores the element of intent to obtain a minor source

---

[37] The NSR Manual defines a sham permit as follows:

> A sham permit is a federally enforceable permit with operating restrictions limiting a source's potential to emit such that potential emissions do not exceed the major or de minimis levels for the purpose of allowing construction to commence prior to applying for a major source permit. Permits with conditions that do not reflect a source's *planned* mode of operation may be considered void and cannot shield the source from the requirement to undergo major source preconstruction review. In other words, if a source accepts operational limits to obtain a minor source construction permit but intends to operate the source in excess of those limitations once the unit is built, the permit is considered a sham.

NSR Manual at C.6.

[38] ICAS asserts that its concern with the potential for Shell to obtain a minor source sham permit arose because "Region 10 has provided no assurance that reporting mechanisms in the permit will provide sufficient time for Shell to halt drilling with enough of an emissions buffer remaining to secure a partially drilled well for the entire winter season * * * ." ICAS Petition at 29. ICAS also acknowledges that any exceedance of an emission limit would allow the Agency to exercise its enforcement powers. *Id.* Without more, ICAS cannot demonstrate that the Region clearly erred in determining that Shell's minor source permit is not a sham.

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

sham permit that both the Region in the Response to Comments and the 1989 Guidance on Limiting PTE discuss and instead quotes the NSR Manual language for the proposition that the "proper test" is a permit that does not reflect a source's "*planned* mode of operation." ICAS Petition at 28 (citing *NSR Manual* at C.6) (emphasis in original); *see also 1989 Guidance on Limiting PTE* at 12. However, the 1989 Guidance on Limiting PTE contains guidelines for determining, based on an evaluation of specific facts and evidence in each individual case, when minor source construction permits are shams and includes two of four criteria that discuss the intent of the source to circumvent the PSD preconstruction review process. *1989 Guidance on Limiting PTE* at 14-15.[39]

ICAS has not identified any information in the record that supports its assertion that Shell is seeking to avoid preconstruction review. Moreover, minor source sham permits are generally discovered when a source seeks another air emissions permit that requests the permit issuer to relax the synthetic limits in the minor permit, *see 1989 Guidance on Limiting PTE* at 12-14, rather than when the source seeks another authorization under a different statute such as the Marine Mammals Protection Act. Finally, ICAS has not demonstrated any deficiency in the Region's response to its comment regarding sham permits. *See, e.g., Russell City II*, 15 E.A.D. at 24 (noting that the part 124 regulations require a response to comments document to "demonstrate that all significant comments were considered but does not require a permit issuer to respond to each comment in an individualized manner or require the permit issuer's response to be of the same length or level of detail as comment") (citation omitted).

For all of the reasons stated above, the Board denies review of this issue.

---

[39] Specifically, the guidelines for determining when minor source construction permits are shams state in relevant part:

> 1. Filing a PSD or nonattainment NSR permit application
>
> If a major source or major modification permit application is filed simultaneously with or at the same time as the minor source construction permit, this is strong evidence of *an intent to circumvent the requirements of preconstruction review*.
>
> * * *
>
> 4. Statement of authorized representatives of the source regarding plans for operation
>
> Statements by representatives of the source to EPA or to state or local permitting agencies about the source's plans for operation can be evidence *to show intent to circumvent preconstruction review requirements.*

1989 Guidance on Limiting PTE at 14-15 (emphasis added).

SR 1186

B. *REDOIL Petitioners Have Not Demonstrated That the Region Clearly Erred in Declining to Require PSD Increment Consumption Analyses for the Kulluk's Proposed Emissions as Part of the Title V Permitting Process*

1. *Section 504(e) of CAA Title V Imposes Permitting Requirements on "Temporary" Stationary Sources*

The CAA's PSD program requires permit applicants to demonstrate compliance with ambient air quality "increments" (also called "PSD increments") for specific air pollutants. *See* CAA §§ 161, 163, 165(a)(3)(A), 42 U.S.C. §§ 7471, 7473, 7475(a)(3)(A); 40 C.F.R. § 52.21(c), (k). Such increments are maximum allowable increases in pollutant concentrations that may occur in particular areas.[40] They are designed to "prevent significant deterioration" of air quality in locations that already have relatively clean air by ensuring that contaminants contributed by proposed new sources, combined with levels of contamination already present in the ambient air as of a specific baseline date, fall within bounds established by the Agency. *See generally NSR Manual* ch. C.

As noted in Part VI.A.1.b above, Congress designed the PSD program to regulate "major" sources of air pollution, which have potential to emit certain specific pollutants in amounts exceeding major source threshold levels. "Minor" sources, which have projected emissions that fall below the PSD major source thresholds, generally are not regulated under the PSD program. The Board determined above that the *Kulluk* qualifies as a minor source for PSD purposes, and so it is not required to obtain a PSD permit. The *Kulluk* nonetheless is still subject to permitting under the CAA's Title V program. The question presented is whether section 504(e) of Title V imposes PSD increment requirements in this circumstance.

In section 504(e) of Title V Congress set out permitting requirements for "temporary" stationary sources of air pollution as follows:

> The permitting authority may issue a single [Title V] permit authorizing emissions from similar operations at multiple temporary locations. No such permit shall be issued unless it includes conditions that will assure compliance with all the requirements of this chapter [i.e., the CAA] at

[40] To date, EPA has established PSD increments for four pollutants – SO_2, NO_2, PM_{10}, and $PM_{2.5}$. The increments consist of numeric concentrations, measured in micrograms of pollutant per cubic meter of air, that vary according to averaging period (3-hour, 24-hour, or annual averages) and geographic location (areas designated as "Class I," "Class II," or "Class III"). *See* 40 C.F.R. § 52.21(c) (table of increment levels).

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

> all authorized locations, including, but not limited to, ambient standards and compliance with any applicable increment or visibility requirements under part C of subchapter I of this chapter [i.e., the PSD program].

CAA § 504(e), 42 U.S.C. § 7661c(e). In allowing for a streamlined permitting process in which a single permit could authorize emissions at multiple temporary locations, Congress explained:

> Some sources requiring [Title V] permits do not operate at fixed locations. These might include asbestos demolition contractors and certain asphalt plants. Subsection (e) allows the permittee to receive a permit allowing operations, after notification to the permitting authority, at numerous fixed locations without requiring a new permit at each site. Any such permit must assure compliance at all locations of operation with all applicable requirements of the Act, including visibility protection and PSD requirements and ambient standards.

H.R. Rep. No. 101-490, pt. 1, at 350 (1990).

The parties' dispute centers on competing interpretations of section 504(e) and whether, in providing for a streamlined permitting process for temporary sources, Congress intended temporary minor sources to have increment provisions in their Title V permits where the state implementation plans do not otherwise impose increment provisions on such sources.

Section 504(e) is an unusual provision, not only because it addresses temporary rather than permanent stationary sources of air pollution (which comprise the majority of Title V sources), but also because it imposes substantive air requirements on temporary sources. As a general matter, Title V is a procedural rather than a substantive statute. It serves as a vehicle for collecting diverse CAA requirements otherwise applicable to a source into one all-encompassing air permit for that source. *See*, *e.g.*, *Ohio Pub. Interest Research Grp., Inc. v. Whitman*, 386 F.3d 792, 794 (6th Cir. 2004) ("Title V does not impose new obligations; rather, it consolidates pre-existing requirements into a single, comprehensive document for each source"); Operating Permit Program, 57 Fed. Reg. 32,250, 32,251 (July 21, 1992) (explaining that Title V "generally does not impose substantive new requirements" on sources but instead attempts to "clarify, in a single document, which requirements apply to a source," thereby enabling all parties to better understand and track that source's CAA compliance). For the most part, requirements that are "applicable" to a source's emissions units under a Title V permit are directly imposed not by Title V itself but, rather, by state or federal implementation plans, preconstruction permits, the air toxics or acid rain programs, and other

SR 1188

substantive CAA provisions. *See* 40 C.F.R. §§ 70.2, 71.2 (definitions of "applicable requirements" under state and federal operating permit program regulations, respectively).

To ensure adequate regulation of temporary sources, Congress directed that Title V permits for such sources must include, as noted above, "conditions that will assure compliance with all the requirements of [the CAA] at all authorized locations, including, but not limited to, ambient standards and compliance with any applicable increment or visibility requirements under [the PSD program]." CAA § 504(e), 42 U.S.C. § 7661c(e). The parties do not dispute that this language serves to impose, through Title V itself, substantive CAA requirements on temporary sources. *See* REDOIL Petition at 19-25; Region Response at 5-6. Indeed, they agree that, because of section 504(e), the *Kulluk*'s Title V permit "must contain terms and conditions that ensure compliance with the NAAQS at all relevant locations." Statement of Basis at 26, *quoted in* Region Response at 5; *see* REDOIL Petition at 21. The parties strongly dispute, however, whether PSD increments should also be included in the complement of substantive requirements for the *Kulluk*.

2. *Under the Region's Interpretation, PSD Increment Compliance Demonstrations Are Not Mandatory for Temporary Minor Sources but May Be Required by States*

The Region's basic position is that section 504(e) uniformly imposes ambient standards (i.e., NAAQS) compliance requirements on all temporary sources, but that it does not uniformly so impose PSD increment requirements. The Region initially based this distinction on the language of section 504(e) and the implementing regulations, as well as on a prior Agency interpretation of these authorities. *See* Statement of Basis at 25-27. The distinction hinged primarily on Congress' insertion of the adjective "applicable" in section 504(e) to modify not "ambient standards" but only "increment or visibility requirements under [the PSD program]." *Id*. at 26; *see* CAA § 504(e), 42 U.S.C. § 7661c(e). PSD increments are only "applicable" to a temporary source, the Region reasoned, if the source also qualifies as a PSD major source, obligated to obtain a PSD permit. Statement of Basis at 26 ("applicable" increment requirements are those applicable "under [the PSD program]" (i.e., part C of subchapter I of the CAA), which covers only PSD major sources). By this logic, the *Kulluk*, a PSD minor source, would not have to demonstrate compliance with PSD increments at any of its authorized locations. *Id*.

Commentors on the *Kulluk*'s draft permit pressed the Region on this point, which prompted it to take a closer look at the entire issue. The Region prepared a lengthy, detailed Response to Comments document, in which it repeated the above points, but also added a far more robust discussion of the preconstruction permitting programs for major and minor sources. The Region explained that,

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

under the statute and implementing regulations, states have discretion to impose PSD increment requirements on PSD minor sources as part of their minor source construction permitting programs, if the states deem such requirements necessary to prevent significant deterioration of air quality. *See* RTC at 102-09 (citing and discussing, e.g., CAA §§ 110(a)(2)(C), 161, 163, 165(a)(3)(A), 504(e), 42 U.S.C. §§ 7410(a)(2)(C), 7471, 7473, 7475(a)(3)(A), 7661c(e); 40 C.F.R. §§ 51.160(a)(2), (b)(2), .166(a)(1), (3), 70.2, 71.2, 71.6(e)). The Region emphasized that states are not *obliged* to do this but have discretionary authority to pursue this course if they deem it necessary to fulfill their obligations under CAA sections 161 and 163(a). *See id*. at 103-06.

These clarifications led the Region to encapsulate its understanding of section 504(e) and the preconstruction programs in the following way: "PSD major sources are subject to NAAQS and increment in the permitting process, whereas non-PSD sources are subject only to the NAAQS unless the applicable minor source program also includes the [PSD] increment[s]." *Id*. at 107. The Region concluded that the State of Alaska's minor source preconstruction program does not require permanent minor sources to demonstrate compliance with PSD increments as a condition of construction, so neither would it require such compliance of temporary minor sources. *See id*. at 103-04, 107-08; *see also* Region Response at 12, 11 n.7. For this reason, the Region declined to require that Shell conduct PSD increment compliance analyses for *Kulluk* emissions at any of its authorized locations in the Beaufort Sea.

The Region's statutory and regulatory interpretation of the Title V temporary source program finds support in Board case law that recognizes the states' primary role in using PSD increments to manage economic growth. In *In re West Suburban Recycling & Energy Center, LP*, 8 E.A.D. 192 (EAB 1999), the Board observed the following:

> From the beginning of the PSD program, EPA has acknowledged that decisions about how increment should be used or allocated are primarily within the province of the states. For example, in the preamble to the original PSD regulations, EPA noted that allocation of PSD increment could affect economic development and that EPA should endeavor to preserve the states' authority on issues of economic development and growth:
>
> > "EPA should not make decisions [that] would have a significant impact upon future growth options of the [s]tates."

8 E.A.D. at 196 (quoting Approval and Promulgation of State Implementation Plans, 43 Fed. Reg. 26,388, 26,401 (June 19, 1978)); *accord In re Commonwealth*

SR 1190

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Chesapeake Corp., 6 E.A.D. 764, 768 (EAB 1997) ("'The PSD requirements provide for a system of area classifications [that] affords [s]tates an opportunity to identify local land use goals. * * * Each classification differs in terms of the amount of [industrial or other] growth it will permit before significant air quality deterioration would be deemed to occur.'" (quoting *NSR Manual* at C.4-.5)).

3. *REDOIL Petitioners Have Not Demonstrated That the Region's Interpretation Is Clearly Erroneous*

On appeal, REDOIL Petitioners claim on a number of grounds that the Region's interpretation is clearly erroneous and thus a basis for remand of this permit. REDOIL Petition at 19-37. REDOIL Petitioners' central contention is that the plain language, structure, and purpose of section 504(e) reveal Congress' "unambiguously expressed intent" to tie increment requirement applicability to the increment status of the geographic area or areas in which a temporary source will emit pollutants. *See id*. at 20-32. REDOIL Petitioners also contend that the Agency's implementing regulations confirm the plain meaning of the statutory language and, additionally, contain provisions that "at least imply" independent obligations to ensure PSD increment compliance. *Id*. at 33-35.

REDOIL Petitioners observe that section 504(e) distinguishes between ambient standards (i.e., NAAQS), which apply to all temporary sources "at all times and in all locations," *id*. at 21, and PSD increment standards, which do not apply at all times and in all locations because they "are not universally applicable to all areas." *Id*. Rather, as designed by Congress, PSD increments "apply" only in areas where they specifically have been triggered, by means of the submission of an initial, complete PSD permit application to emit in a particular area. *Id*.; *see* CAA §§ 163, 169(4), 42 U.S.C. §§ 7473, 7479(4); 40 C.F.R. § 52.21(b)(14)(ii), (15)(i). The concentration of pollutants in such an area's ambient air is measured at the time the initial application is submitted (the "baseline date") and then fixed as the "baseline concentration" for that area. *See NSR Manual* at C.6-.8, .12-.15. From that point forward, PSD increments serve as the maximum allowable increases that pollutant concentrations may rise above the established baseline levels. CAA § 163, 42 U.S.C. § 7473; 40 C.F.R. § 52.21(c).

REDOIL Petitioners reason from this basic design that Congress intended "applicable increment * * * requirements" in section 504(e) to be area-dependent rather than source-dependent. *See* REDOIL Petition at 21-22, 25-27, 29. By this logic, any new source, including any new temporary minor source, that proposes to emit in geographic areas where increments previously have been triggered would be obligated to demonstrate compliance with such increments as "applicable" requirements under section 504(e). Only in areas where increments have not yet been triggered would PSD increments be inapplicable to temporary minor sources. *See id*. REDOIL Petitioners claim the Agency's implementing regula-

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

tions are fully in accord with this interpretation and thus do not bar increment compliance demonstrations prior to issuance of Title V permits. *Id*. at 33-35.

As described below, the Region did not clearly err in its own interpretation of these authorities. The Board agrees with the Region that its interpretation more fully comports with the structure and language of the CAA and the implementing regulations, and rejects REDOIL Petitioners' assertion that the statutory language is so plain that there is no ambiguity about whether Congress intended to impose increment provisions on temporary minor sources where the state implementation plan does not otherwise impose increment requirements on such sources. REDOIL Petitioners misapprehend or fail to grapple with several key points that formed the basis for the Region's interpretation in its final permitting decision and Response to Comments.

a. *REDOIL Petitioners Misunderstand Portions of the Region's Response to Comments*

In several of its points of advocacy before this Board, REDOIL Petitioners reveal a misunderstanding of the explanations the Region set forth in the Response to Comments. In the most significant example, REDOIL Petitioners argue that the Region erroneously construes "any applicable increment * * * requirements under Part C" in section 504(e) to mean that only those temporary sources that are also PSD major sources must demonstrate PSD increment compliance. REDOIL Petition at 29, 33-34. While this description reflects the position the Region advanced in the Statement of Basis,[41] it fails to acknowledge the very substantial further interpretive exegesis the Region developed and presented in its Response to Comments on the draft permitting record (which included the Statement of Basis). In that later and more comprehensive analysis, the Region made clear that, in its view, states have discretionary authority in their minor source preconstruction programs to impose PSD increment requirements on temporary minor sources, either as implementation plan requirements or on a case-by-case basis, as they deem necessary to protect the NAAQS. *See* RTC at 103-06. REDOIL Petitioners fail to address or demonstrate why the Region's position, as more fully articulated in the Response to Comments, is clearly erroneous. Because REDOIL Petitioners have failed to substantively confront the Region's Response to Comments, they cannot prevail on this ground. *See, e.g., In re Guam Waterworks Auth.*, 15 E.A.D. 437, 450 (EAB 2011) (petitioners "must substantively confront the permit issuer's explanations in its response to comments document"); *In re Peabody W. Coal Co.*, 12 E.A.D. 22, 33 (EAB 2005) (same).

[41] The Region acknowledges that statements in the Statement of Basis could be read to suggest such an approach. Region Response at 8.

REDOIL Petitioners also misunderstand the interplay of sections 161, 165, and 504(e) of the Act, as those provisions are discussed by the Region in the Response to Comments. *See* RTC at 103-06. REDOIL Petitioners point out that section 163, not section 165, is the source of increment requirements within the PSD program and contends that the Region "ignore[d]" this provision in interpreting section 504(e). REDOIL Petition at 30. In so arguing, REDOIL Petitioners take the position that section 504(e) makes the section 163 increments directly applicable to temporary sources. *See id*. at 30-31. The plain language of section 163, however, is to the contrary. It provides that "each applicable implementation plan shall contain measures assuring that maximum allowable increases over baseline concentrations [i.e., increments] * * * shall not be exceeded." CAA § 163(a), 42 U.S.C. § 7473(a). Moreover, the text of section 161, which establishes implementation plan requirements, provides that such plans "shall contain emission limitations and such other measures as may be necessary * * * to prevent significant deterioration of air quality." CAA § 161, 42 U.S.C. § 7471.

Increments, in other words, are not directly imposed by section 504(e). Instead, they must be implemented (i.e., applied to a source) through either of two means: (1) a state implementation plan, per section 161 and 40 C.F.R. § 51.166(a)(1); or (2) the PSD major source permitting program, per section 165(a)(3)(A) and 40 C.F.R. § 52.21. *See* RTC at 103-04. Thus, while section 504(e) can serve as the direct source of NAAQS compliance requirements and other CAA requirements for temporary sources (*see infra* note 44 and accompanying text), it only imposes PSD increment requirements to the extent such requirements are "applicable" to the source.

Finally, REDOIL Petitioners also suggest that the State of Alaska's operating permit regulations are "more lenient" than the federal regulations because they do not require PSD minor sources to demonstrate compliance with PSD increments as a preconstruction condition. REDOIL Petition at 27-28. Noting that the Alaska rules apply to sources on the inner OCS only, and not on the outer OCS, REDOIL Petitioners suggest that the purportedly more stringent federal operating permit rules in effect on the outer OCS require temporary sources situated on the outer OCS to demonstrate compliance with PSD increments. *Id*. at 28 (citing 40 C.F.R. §§ 71.2, 71.6(e)). REDOIL Petitioners claim, therefore, that Shell must conduct, at the very least, a PSD increment analysis for the *Kulluk*'s authorized locations on the outer OCS. *Id*.

This argument reveals a misunderstanding of the Region's discussion of relevant legal requirements on the inner versus outer OCS. In the Response to Comments, the Region explained:

> In this case, the requirements for Title V temporary sources in the inner OCS and outer OCS off of Alaska are the same because Alaska has adopted EPA's Part 71 rules

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

> with respect to Title V temporary sources by reference for application onshore and Region 10 has in turn adopted these requirements into the [Corresponding Onshore Area] regulations for application in the inner OCS.

RTC at 109. As the Region explained, PSD increments are not applicable to any temporary minor sources, wherever they might be located on the OCS, *unless* a state exercises its discretion to require minor source compliance with such increments. A state, of course, has limited jurisdiction, and its authority does not extend beyond its borders. *E.g.*, CAA § 107(a), 42 U.S.C. § 7407(a) ("[e]ach [s]tate shall have the primary responsibility for assuring air quality within the entire geographic area comprising such [s]tate"). That would mean, therefore, that in the outer OCS or other places where only federal operating permit rules apply, PSD increments would not be applicable to temporary minor sources, *unless* federal OCS regulations required it or EPA chose to add increment compliance obligations under 40 C.F.R. § 55.13(h)[42] once the source becomes operational. *See* RTC at 109. REDOIL Petitioners fail to squarely confront this legal landscape, which results in a failure to demonstrate how the Region's interpretation is clearly erroneous. *See, e.g.*, *In re Teck Cominco Alaska, Inc.*, 11 E.A.D. 457, 494-95 (EAB 2004) (burden of demonstrating review is warranted rests with the petitioner, who must raise objections to the permit and explain why the permit issuer's previous response to those objections is clearly erroneous or otherwise warrants review); *In re Westborough*, 10 E.A.D. 297, 305, 311-12 (EAB 2002) (same).

b. *REDOIL Petitioners Mischaracterize the Title V Regulatory Scheme*

REDOIL Petitioners' notion that "applicable increment requirements" in section 504(e) mean "applicable to the *area*" rather than "applicable to the *source*" is not supported by the Title V regulatory model as a whole. A Title V permit for a temporary source to operate at multiple locations must include, among other things, "[c]onditions that will assure compliance with all applicable requirements at all authorized locations." 40 C.F.R. §§ 70.6(e)(1), 71.6(e)(1). Broadly speaking, the Board has recognized that "'[a]pplicable requirement' is a term of art in the Title V program that, in general, refers to any substantive requirement that applies to an *emissions source* under any CAA regulatory provisions." *Peabody*,

---

[42] This OCS-specific regulation provides:

> If the Administrator determines that additional requirements are necessary to protect [f]ederal and [s]tate ambient air quality standards or to comply with part C of title I, such requirements will be incorporated in this part.

40 C.F.R. § 55.13(h).

12 E.A.D. at 28 n.14 (emphasis added) (citing 40 C.F.R. § 71.2). Further, the regulations implementing the federal Title V program provide that "[a]pplicable requirement means all of the following as they apply to *emissions units in a part 71 source*." 40 C.F.R. § 71.2 (emphasis added). In turn, the term "emissions unit" means "any part or activity of a *stationary source* that emits or has the potential to emit any regulated air pollutant." *Id*. (emphasis added).

Accordingly, the Region's interpretation of the term "applicable" in section 504(e) as meaning "applicable to the source" is consistent with the Agency's Title V regulations, in which applicability is determined by reference to the *source*, not the *area*. REDOIL Petitioners fail to present legal authorities supporting their own novel view of applicability in a way sufficient to demonstrate that the Region's different approach is clearly erroneous.

c. *REDOIL Petitioners Confuse Air Quality Management Obligations with Permitting Obligations*

REDOIL Petitioners argue that the Region's interpretation of section 504(e) should be rejected because it is inherently inconsistent. REDOIL Petition at 31-32. On the one hand, REDOIL Petitioners note, the Region explicitly recognized that the *Kulluk* will consume a portion of the available PSD increments in its authorized drilling areas, but the Region nonetheless refused to impose preconstruction increment compliance requirements in the Title V permit, finding them "inapplicable." RTC at 102, 105-06. On the other hand, the Region acknowledged that after the *Kulluk* becomes operational, it might be necessary to impose increment-related restrictions; i.e., increments would be "applicable." In the Response to Comments, the Region stated:

> If, at any time after the *Kulluk* begins operation under its Title V/OCS permit, Region 10 determines that the actual emissions increases from the permitted OCS source cause or contribute to an increment violation, Region 10 has authority to adopt additional requirements to ensure that increments are not violated.

Id. at 106 (footnote omitted). REDOIL Petitioners argue that the Region cannot have it both ways, contending on this basis that the Region's interpretation should not be sustained. REDOIL Petition at 32.

The Board perceives no conflict between the Region's purportedly "inconsistent" positions on increment applicability. As the Region noted in its Response to Comments, EPA has authority, separate and apart from section 504(e) and the preconstruction programs, to address violations of increment standards that might arise once sources become operational. *See* RTC at 106 (citing CAA §§ 301, 328, 42 U.S.C. §§ 7601, 7627; 40 C.F.R. § 55.13(h)). Moreover, states have authority

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

to revise their implementation plans to adopt emission limits and other remedial control measures in cases where existing controls are not adequately protecting air quality increments. 40 C.F.R. § 51.166(a)(3), *cited in* RTC at 106.[43] REDOIL Petitioners confuse permitting obligations with ongoing air quality management obligations, but the two are distinct. *See* RTC at 105-06. Simply positing that the Region's view of "applicable" increments is inconsistent is not sufficient to overcome the specific statutory and regulatory authority the Region references in support of its position. The Board therefore finds no showing of clear error justifying a remand on this ground.

d. *REDOIL Petitioners Misconstrue the Regulations*

The Agency's Title V implementing regulations for state and federal operating permit programs closely parallel the language of section 504(e). *Compare* CAA § 504(e), 42 U.S.C. § 7661c(e), *with* 40 C.F.R. §§ 70.6(e), 71.6(e). The regulations define "applicable requirement" for Title V purposes as (among other things): "(2) [a]ny term or condition of any preconstruction permits" issued under parts C or D of title I; and "(13) [a]ny [NAAQS] or increment or visibility requirement under part C of title I of the Act, but only as it would apply to temporary sources permitted pursuant to section 504(e) of the Act." 40 C.F.R. §§ 70.2, 71.2. REDOIL Petitioners argue on appeal, as commentors did on the draft permit, that the Region's interpretation of "applicable requirement" improperly reads the thirteenth requirement out of the regulations by subsuming it within the second requirement. REDOIL Petition at 33-34.

The Region explained in the Response to Comments why this was not so. *See* RTC at 107-08. The Region stated that "the intent of the Title V temporary source provisions is to relieve sources of the burden of applying for Title V permits for each new location, while at the same time[] assuring compliance with all requirements to which the source would be subject if it were a new [permanent] source at each such new location." *Id*. at 108. For a temporary source that is also a PSD major source, this would include ensuring that the NAAQS and increment standards are met at each future location – a requirement that, the Region pointed out, would exceed the requirements otherwise applicable to the source under the

---

[43] This state implementation plan regulation provides, in relevant part:

> If the [s]tate or the Administrator determines that a[n implementation] plan is substantially inadequate to prevent significant deterioration or that an applicable increment is being violated, the plan shall be revised to correct the inadequacy or the violation.

40 C.F.R. § 51.166(a)(3). The regulations also provide, in the next subsection, that the state "shall review the adequacy of a[n implementation] plan on a periodic basis and within 60 days of such time as information becomes available that an applicable increment is being violated." *Id*. § 51.166(a)(4).

SR 1196

PSD program alone.[44] *Id*. at 107. For a temporary source that is also a PSD minor source, this would include ensuring that the NAAQS and, if required under the implementation plan for minor permanent sources, PSD increment standards are met at each future location, even if the implementation plan did not require such a demonstration for temporary minor sources. *See id*. at 107-08; Region Response at 12.

REDOIL Petitioners fail to meaningfully confront the Region's reasoning on this issue or demonstrate why it is clearly erroneous. Instead, REDOIL Petitioners reference an irrelevant minor permit modification provision (40 C.F.R. § 71.7(e)(1)(i)(A)(3)), rather than a minor source provision, as support for their position. REDOIL Petition at 34. REDOIL Petitioners also suggest that the Title V permitting regulations in sections 70.6(e) and 71.6(e) establish a more expansive regulatory program than the one the Region finds present in section 504(e); indeed, one that would even be broad enough to require the *Kulluk* to demonstrate PSD increment compliance. *Id*. at 33. The Board finds otherwise, in light of the fact that sections 70.6(e) and 71.6(e) are expressly limited by a reference to section 504(e) itself and therefore cannot expand the meaning of the statute. *See* RTC at 107-08.

4. *Increment Section Conclusion*

The Board has carefully examined each of REDOIL Petitioners' increment-related arguments and determined that none have merit. Petitioners' burden is to show clear error, but REDOIL Petitioners have failed in all instances to achieve this standard. The Board therefore denies review of the Permit on this ground.[45]

C. *REDOIL Petitioners Failed to Raise Below Their Contention That Shell's Ambient Air Quality Analysis Was Flawed in That It Failed to Conform to Applicable Agency Guidance*

On February 9, 2010, EPA published in the Federal Register a final rule (effective April 12, 2010) revising the primary NO_2 NAAQS "in order to provide requisite protection of public health as appropriate under section 109 of the Clean Air Act." Primary NAAQS for NO_2, 75 Fed. Reg. 6474, 6475 (Feb. 9, 2010); *see also Shell 2010*, 15 E.A.D. at 149-50 & n.74. This rule set the new 1-hour NO_2

[44] As such, the NAAQS and PSD increment requirements for future locations would be "additional" requirements imposed on the temporary source by section 504(e). RTC at 107-08.

[45] In light of the Board's decision to uphold the Region's interpretation of section 504(e) and the implementing regulations, the Board need not reach REDOIL Petitioners' final argument, which challenges the Region's finding that air quality modeling establishes the *Kulluk*'s emissions will not violate the PSD increments.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

NAAQS standard (hereinafter "the 1-hour NO_2 NAAQS") at 100 parts per billion ("ppb") to supplement the existing annual standard, set at 53 ppb. 75 Fed. Reg. at 6475. EPA regulations specify how attainment of the standard is to be calculated, providing that the 100 ppb standard is met "when the annual 98th percentile of the daily maximum 1-hour average concentration is less than or equal to 100 ppb, as determined in accordance with Appendix S of this part for the 1-hour standard." 40 C.F.R. § 50.11(f). This calculation is sometimes referred to as "the form."[46] *See* 75 Fed. Reg. at 6477 n.5, 6492-93. The 100 ppb standard reflects the maximum allowable NO_2 concentrations anywhere in an area. *Id*. at 6493, 6502. EPA has issued guidance clarifying procedures for demonstrating compliance with the new 1-hour NO_2 NAAQS. *See* REDOIL Petition Ex. 16 (Memorandum from Stephen D. Page, Dir., Office of Air Quality Planning & Standards, U.S. EPA, to Reg'l Air Dirs., U.S. EPA, *Guidance Concerning the Implementation of the 1-Hour NO_2 NAAQS for the Prevention of Significant Deterioration* (June 29, 2010) ("Page Memo"));[47] Memorandum from Tyler Fox, Leader, Air Quality Monitoring Grp., Office of Air Quality Planning & Standards, U.S. EPA, to Reg'l Air Dirs., U.S. EPA, *Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-Hour NO_2 National Ambient Air Quality Standard* (Mar. 1, 2011) ("Fox Memo") (A.R. BB-83).

REDOIL Petitioners assert that Shell's ambient air quality analysis was flawed.[48] In particular, REDOIL Petitioners state that in "identifying the Kulluk's

---

[46] The 98th percentile form corresponds approximately to the 7th or 8th highest daily maximum concentration in a year. 75 Fed. Reg. at 6492.

[47] According to the Page Memo, the guidance was issued in response to reports that sources were modeling potential violations of the 1-hour NO_2 NAAQS. Page Memo at 1. The Memo states that "[t]o respond to these reports and facilitate the PSD permitting of new and modified major stationary sources, we are issuing the attached guidance in the form of two memoranda." *Id.* The attached memoranda are titled "General Guidance for Implementing the 1-hour NO_2 National Ambient Quality Standard in Prevention of Significant Deterioration Permits, Including an Interim 1-hour NO_2 Significant Impact Level" and "Applicability of Appendix W Modeling Guidance for the 1-hour NO_2 National Ambient Air Quality Standard." *Id*. at 1-2. Although the Page Memo attaches these two memoranda, the Memo is consecutively numbered as a single document.

[48] In order to establish compliance with the NAAQS and PSD increments, permit applicants must conduct an "ambient air quality analysis," which applicants must prepare under the permitting rules for each regulated pollutant their proposed facilities will emit in "significant" amounts. 40 C.F.R. § 52.21(b)(23)(i), (m)(1)(i). This analysis predicts a pollutant's future concentration in the ambient air by modeling a proposed facility's expected emissions of the pollutant against the backdrop of existing ambient conditions. To conduct an air quality analysis, a permit applicant compiles data on the proposed facility's physical specifications and anticipated emission rates, local topography, existing ambient air quality, meteorology, and related factors. *See*, *e.g.*, *id.* § 52.21(l), (m); *id*. pt. 51 app. W (Guideline on Air Quality Models); *In re Knauf Fiber Glass, GmbH*, 8 E.A.D. 121, 145-48 (EAB 1999); *NSR Manual* at C.16-.23, .31-.50. These data are then processed using mathematical models that calculate the rates at which pollutants are likely to disperse into the atmosphere under various climatological conditions, with the goals of determining whether emissions from the proposed source will cause or

Continued

SR 1198

98th percentile cumulative impact – *i.e.*, the Kulluk's impact added to background levels of pollutants – for comparison to the 1-hour NO_2 standard, Shell used an approach that the Region admits is 'less conservative.' More specifically, Shell used background values that were already adjusted to the 98th percentile, instead of basing its calculations on the full distribution of background values." REDOIL Petition at 38 (footnote omitted). According to REDOIL Petitioners, this method for demonstrating compliance with the 1-hour NAAQS was rejected in the Page Memo as "not being protective of the [NAAQS]." *Id*. at 38-39 (quoting Page Memo at 18). REDOIL Petitioners then cite to a portion of the more recent Fox Memo which, according to them, allows for the method Shell used to calculate background values. *Id*. at 39. That is, the Fox Memo states that the approach used in the Page Memo was overly conservative and should not be used in certain cases. *Id*. (citing Fox Memo at 17-20). REDOIL Petitioners assert that the Region allowed Shell to demonstrate compliance with the form of the 1-hour NAAQS using the approach permitted in the Fox Memo without providing an explanation as to why the determination in the Page Memo was incorrect. *Id*. at 40. REDOIL Petitioners argue that "[b]ecause neither EPA nor the Region provided any explanation about whether and, if so, how, its earlier conclusion [in the Page Memo] that the use of the 98th percentile background values is 'not protective' of the national ambient air quality standard was incorrect, EPA's new guidance and the approach taken by the Region here in reliance on it are arbitrary." *Id*. (quoting Page Memo at 17-20). REDOIL Petitioners contend that the Region had an obligation to explain this "departure from its prior analysis." *Id*. at 40-41.

Upon examination of the record, the Board concludes that this issue was not adequately raised during the comment period and was therefore not preserved for review. As stated above, the regulations require any person who believes that a permit condition is inappropriate to raise "all reasonably ascertainable issues and * * * all reasonably available arguments supporting [petitioner's] position" during the comment period on the draft permit. 40 C.F.R. § 124.13. That requirement is made a prerequisite to appeal by 40 C.F.R. § 124.19(a), which requires any petitioner to "demonstrat[e] that any issue[] being raised [was] raised during the public comment period * * * to the extent required[.]". *In re ConocoPhillips Co.*, 13 E.A.D. 768, 800-01 (EAB 2008); *accord In re Christian Cnty. Generation, LLC*, 13 E.A.D. 449, 457 (EAB 2008); *Shell 2007*, 13 E.A.D. at 394 n.55.

The requirement that an issue must have been raised during the public comment period in order to preserve it for review is not an arbitrary hurdle placed in the path of potential petitioners. *Russell City II*, 15 E.A.D. at 10; *In re City of Marlborough*, 12 E.A.D. 235, 244 n.13 (EAB 2005), *appeal dismissed for lack of*

(continued)
contribute to a violation of either the NAAQS or the PSD increments. *See* 40 C.F.R. § 52.21(f); *id*. pt. 51 app. W; *NSR Manual* at C.24-.27, .51-.70.

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

juris., No. 05-2022 (1st Cir. Sept. 30, 2005); *In re BP Cherry Point*, 12 E.A.D. 209, 219 (EAB 2005). Rather, the requirement serves an important function related to the efficiency and integrity of the overall administrative permitting scheme. *Marlborough*, 12 E.A.D. at 244 n.13. The intent of the rule is to ensure that the permitting authority first has the opportunity to address permit objections and to give some finality to the permitting process. *Id.*; *In re Sutter Power Plant*, 8 E.A.D. 680, 687 (EAB 1999). As the Board has explained, "[t]he effective, efficient and predictable administration of the permitting process demands that the permit issuer be given the opportunity to address potential problems with draft permits before they become final." *In re Teck Cominco*, 11 E.A.D. 457, 481 (EAB 2004) (quoting *In re Encogen Cogeneration Facility*, 8 E.A.D. 244, 250 (EAB 1999)). "In this manner, the permit issuer can make timely and appropriate adjustments to the permit determination, or, if no adjustments are made, the permit issuer can include an explanation of why none are necessary." *In re Essex Cnty. (N.J.) Res. Recovery Facility*, 5 E.A.D. 218, 224 (EAB 1994).

Although REDOIL Petitioners' comments on the draft permit asserted that Shell had used background ambient air data in a manner that understated the impact of its operations, *see* REDOIL Comments at 9-11, nowhere in these comments did Petitioners assert that Shell's approach conflicted with the Page Memo or that the Region had any obligation to provide an explanation for its alleged departure from the Page Memo. Indeed, REDOIL Petitioners' comments recognized that, according to the Fox Memo, Shell's approach is appropriate in some circumstances. *Id*. at 11. The comments, however, did not assert any conflict between the Page Memo and the Fox Memo nor is it clear to this Board that any such conflict exists. Thus, this "battle of the memos" issue was not preserved for review.[49] *See Shell Discoverer 2012*, 15 E.A.D. at 507.

---

[49] *See Teck Cominco*, 11 E.A.D. at 481-82 (denying review where issue was not specifically raised during the comment period). The Board notes that the issue REDOIL Petitioners did raise during the comment period was fully and adequately addressed in the Region's Response to Comments. Specifically, in commenting on the draft permit, REDOIL Petitioners raised the argument that Shell had failed to demonstrate compliance with the 1-hour NO_2 NAAQS because, according to REDOIL Petitioners, Shell used background ambient air data in a manner that understated the impact of its operations. REDOIL Comments at 10-11. As stated above, REDOIL Petitioners' comments recognized that Shell's approach to analyzing background data was consistent with the Fox Memo, but argued that Shell's approach was inconsistent with the 1-hour NO_2 NAAQS standard itself. *Id*. at 11. The Region provided a detailed response to this assertion in the Response to Comments. RTC at 74-78. Nothing in the REDOIL Petition indicates why the Region's response on this issue was erroneous or otherwise warrants Board review, nor does the Board find anything erroneous in the Region's response. Thus, even if Petitioners had preserved this issue, the Board would deny review. *See, e.g., In re Guam Waterworks Auth.*, 15 E.A.D. 437, 450 (EAB 2011) (stating that "a petitioner may not simply reiterate comments made during the public comment period, but must substantively confront the permit issuer's explanations in its response to comments document"); *In re Peabody W. Coal Co.*, 12 E.A.D. 22, 33 (EAB 2005) (same).

SR 1200

D. *REDOIL Petitioners Have Not Demonstrated That the Region Clearly Erred in Its Ambient Air Exemption Determination*

REDOIL Petitioners allege that the Region clearly erred in exempting the area within a 500 meter radius from the *Kulluk* from the definition of "ambient air."[50] REDOIL Petition at 15. This area is also referred to throughout the record as the United States Coast Guard ("USCG") "safety zone." *See*, *e.g.*, RTC at 52-54. REDOIL Petitioners claim that the Region's decision "contravenes both EPA's definition of 'ambient air' as well as EPA's longstanding interpretation of that regulation." REDOIL Petition at 16. In particular, they assert that the Region's 500 meter ambient air boundary fails to meet either of the two criteria the Agency has previously used in evaluating the appropriateness of an exemption. *Id*. at 16-18. According to REDOIL Petitioners, the Region's decision essentially allows Shell to emit more pollution, and possibly with fewer controls, than would otherwise be lawful.[51] *Id*. at 15-16.

The CAA regulations define "ambient air" as "that portion of the atmosphere, external to buildings, to which the general public has access." 40 C.F.R. § 50.1(e). Based on this definition, the Agency has, on occasion, exempted certain areas from the definition of ambient air. *E.g.*, Letter from Steven C. Riva, Chief, Permitting Sec., U.S. EPA Region 2, to Leon Sedefian, Air Pollution Meteorologist, N.Y. State Dep't of Env't Conservation, at 1-2 (Oct. 9, 2007) (A.R. BB-19) [hereinafter Broadwater Letter]; Letter from Douglas M. Costle, Adm'r, U.S. EPA, to Sen. Jennings Randolf, Chairman, Env't & Pub. Works Comm., at 1 (Dec. 19, 1980) (A.R. BB-1) [hereinafter Costle Letter]; *see also* Letter from Nancy Helm, Fed. & Delegated Air Programs, U.S. EPA, to John Kuterbach, Alaska Dep't of Envtl. Quality, at 2 (Sept. 11, 2007) (area exempt if certain conditions met) [hereinafter Helm Letter]. The parties agree that the Agency's "longstanding interpretation" of this exemption is set forth in a letter signed by former EPA Administrator Douglas Costle, which states that "the exemption from ambi-

---

[50] For an area that is not considered within the definition of "ambient air," Shell would not have to demonstrate compliance with the NAAQS. *See* CAA §§ 109(b), 160, 163, 42 U.S.C. §§ 7409(b), 7470,7473 (NAAQS apply to areas meeting the definition of ambient air); 40 C.F.R. § 50.1(e) (definition of "ambient air"); *In re Hibbing Taconite Co.*, 2 E.A.D. 838, 848 & nn.23-24 (Adm'r 1989); RTC at 53.

[51] REDOIL Petitioners additionally argue that, should the Region's response contain a "natural physical feature" argument similar to an argument the Region raised in its response brief in *Shell Discoverer 2012*, the Board should consider such an argument a "*post hoc* rationalization" and should disallow it. REDOIL Petition at 19; *see also Shell Discoverer 2012*, 15 E.A.D. at 510 n.52 (discussing this issue). REDOIL Petitioners also reserve the right to request leave to file a reply brief addressing this issue. REDOIL Petition at 19. Unlike the situation in *Shell Discoverer 2012*, the Board does not find that the Region's response brief contains an explanation that is clearly different than the rationale set forth in the Response to Comments. Moreover, REDOIL Petitioners do not raise this particular issue in their reply brief. Consequently, the Board does not consider REDOIL Petitioners' "post hoc rationalization" argument further.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

ent air is available only for the atmosphere over land owned or controlled by the source and to which the public access is precluded by a fence or other physical barriers." Costle Letter at 1; REDOIL Petition at 16 (quoting same letter); Region Response at 29-30 (referring to same letter); Shell Response at 26-27 & n.27 (same); *see also* RTC at 51 (same). The Costle Letter also indicates that, in determining whether the exemption applies, the Agency reviews "individual situations on a case-by-case basis." Costle Letter at 1; *see also* Approval and Promulgation of State Implementation Plans, 50 Fed. Reg. 7056, 7057 (Feb. 20, 1985) (noting that, in considering ambient air exemptions, "individual variations in the type of land and nature of the limitation on access necessitate a case-by-case evaluation of the facts, and application of the principles involved in this determination").

Here, in its permitting decisions, the Region determined that, as long as certain permit conditions were being met, it was appropriate to set the ambient air boundary at a 500 meter radius from the *Kulluk*, or, in other words, the 500 meter radius "safety zone" was exempt from the ambient air definition. RTC at 51-52; *see also* Statement of Basis at 40. The terms and conditions upon which the Region relied to exempt this area prohibit the operation of vessels and emissions units unless (1) the USCG establishes a safety zone within at least 500 meters from the center of the *Kulluk*, (2) members of the public are precluded from entering the safety zone, and (3) Shell develops and implements a "public access control program."[52] Permit at 42-43. The Region determined that, as long as these safety zone and public access restriction permit conditions are complied with, ex-

---

[52] The precise terms and conditions of the Permit are as follows:

The permit does not authorize operation unless:

> 5.1.1. The Kulluk is subject to a currently effective safety zone established by the [USCG] which encompasses an area within at least 500 meters from the hull of the Kulluk and which prohibits members of the public from entering this area except for attending vessels or vessels authorized by the USCG (such area shall be referred to as the "Safety Zone"); and
>
> 5.1.2. The permittee has developed in writing and is implementing a public access control program to:
>
> 5.1.2.1. Locate, identify, and intercept the general public by radio, physical contact, or other reasonable measures to inform the public that they are prohibited by Coast Guard regulations from entering the Safety Zone; and
>
> 5.1.2.2. Communicate to the North Slope communities on the Beaufort Sea on a periodic basis when exploration activities are expected to begin and end at a drill site, the location of the drill site, and any restrictions on activities in the vicinity of the Kulluk's exploration operations.

Permit at 42-43.

SR 1202

empting the area within the safety zone from the ambient air definition would generally be consistent with previous Agency interpretations. RTC at 51-52. In so finding, the Region noted that "[g]iven that the permitted activities occur over open water in the Arctic, the[] criteria [for exemption included in the Costle Letter] must be adapted to some extent when applied to this environment." *Id*. In specifically considering the applicability of the two exemption criteria, the Region stated:

> Region 10 recognizes that Shell does not "own" the areas of the Beaufort Sea on which the Kulluk will be operating as might be the case for a stationary source on land. Shell has a lease authorizing the company to use these areas for the activities covered by the permits. A Coast Guard safety zone establishes legal authority for excluding the general public from the area inside the zone. EPA has previously recognized a safety zone established by the Coast Guard as evidence of sufficient ownership or control by a source over areas over water so as to qualify as a boundary for defining ambient air where that safety zone is monitored to pose a barrier to public access. Letter from Steven C. Riva, EPA Region 2, to Leon Sedefian, New York State Department of Conservation, re: Ambient Air for the Offshore LNG Broadwater Project, dated October 9, 2007 (Broadwater Letter).
>
> To meet the second of the criteria applied by EPA and ensure the source actually takes steps to preclude public access, Shell proposed and Region 10 required as a condition of operation under the permits that Shell develop in writing and implement a public access control program to locate, identify, and intercept the general public by radio, physical contact, or other reasonable measures to inform the public that they are prohibited by Coast Guard regulations from entering the area within 500 meters of the hull of the Kulluk. Region 10 believes that, for the overwater locations in the arctic environment at issue in these permitting actions, such a program of monitoring and notification is sufficiently similar to a fence or physical barrier on land such that the area within the Coast Guard safety zone qualifies for exclusion from ambient air. *See* Broadwater Letter at 2.

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

RTC at 52.[53]

Upon consideration of the administrative record and the parties' arguments, the Board concludes that Petitioners have not shown that the Region clearly erred in its decision to exempt the area within the USCG safety zone from the definition of "ambient air." The Region, in its Response to Comments, provided a reasonable interpretation of the ambient air regulation and the Agency's "longstanding interpretation" of that regulation as applied in the OCS context.[54] Furthermore, the Region's analysis was entirely consistent with a similar analysis undertaken by Region 2 in which that Region determined that it was appropriate for a permittee to use the USCG safety zone to define an ambient air boundary around a proposed offshore liquefied natural gas facility. *See* Broadwater Letter at 2. The Broadwater Letter, moreover, suggests that Region 2's analysis, as well as Region 10's, is not unique, stating that "*[i]n previous permitting decisions involving * * * drilling operations, EPA Regional offices have used the USCG's safety zone as the boundary for defining ambient air*." *Id*. at 2 (emphasis added). The letter explains that the Agency has found that "[t]he 'safety zone' approach represents a reasonable surrogate for a source's fence or physical barrier and thus could act as an ambient air boundary." *Id*.

Thus, while it is true, as Petitioners allege, that the Agency has generally required the source to own or control access over the area in question for that area to meet the first criterion, REDOIL Petition at 16-17, this requirement has been limited to sources located on land.[55] *See, e.g.,* Helm Letter at 1 (referring to possi-

---

[53] REDOIL Petitioners also seem to suggest that the Region's approach is flawed because it "is based upon an assumption that Shell will request, and the [USCG] will establish, a safety zone restricting the passage of other vessels." REDOIL Petition at 15 & n.45. This argument is unpersuasive because it fails to recognize that, as the permit conditions quoted in note 52 state, operation is prohibited unless these two conditions are met. *See* Permit at 42-43.

[54] As the Region rightly noted, *see* RTC at 51-52, the regulation and the Costle Letter, by their very terms, were clearly written with overland situations in mind. *See* 40 C.F.R. § 50.1(e) (referring to "buildings"); Costle Letter at 1 (referring to "land" and "fences").

[55] In support of their contention, REDOIL Petitioners rely on a previous Agency determination that leased property could not be exempted from the definition of ambient air because the lessee did not have control over access to its leased property (only the landlord did). REDOIL Petition at 17 & n.52 (citing Helm Letter). Petitioners assert that this onshore interpretation must apply equally to an OCS lease BOEMRE issued. *Id*. As the Petitioners themselves note, federal courts have found agency action to be arbitrary when the agency's "explanation 'runs counter to the evidence,'" *id*. at 17 (quoting *Motor Vehicle Mfrs. Ass'n of the U.S., Inc. v. State Farm Mut. Auto Ins. Co.*, 463 U.S. 29, 43 (1983)), and "'the agency offer[s] insufficient reasons for treating similar situations differently,'" *id*. (quoting *Transactive Corp. v. United States*, 91 F.3d 232, 237 (D.C. Cir. 1996)); *see also FCC v. Fox Television Stations, Inc*., 556 U.S. 502, 514-15, 129 S.Ct. 1800, 1810-11 (2009) (discussing standard of review of an agency's policy change). Here, not only are the situations dissimilar enough to arguably not be governed by these cases, but the Agency did offer persuasive reasons for treating the two situations differently.

ble exemption near coal-fired power plant); Memorandum from Steven D. Page, Director, Office of Air Quality Planning & Standards, U.S. EPA, to Reg'l Air Div. Dirs., U.S. EPA, *Interpretation of "Ambient Air" in Situations Involving Leased Land Under the Regulations for the Prevention of Significant Deterioration (PSD)* (June 22, 2007) (A.R. B-26) (discussing the applicability of the exemption where a source is located on "land" leased to them by another source). The Region (and the Agency before it) reasonably determined that application of the regulation and the interpretive letter to an "overwater" situation requires some leeway. REDOIL Petitioners' reliance solely on land-based exemption decisions is thus unpersuasive.[56] Finally, as mentioned above, the Agency has consistently taken the position that ambient air exemption determinations are analyzed on a case-by-case basis.

For all the reasons stated above, REDOIL Petitioners have not shown that the Region clearly erred in its ambient air exemption determination.[57] Consequently, review of the Permit based on this issue is denied.

E. *ICAS and Mr. Lum Have Not Demonstrated That the Region Failed to Satisfy Its Obligation to Comply with Executive Order 12898 and Applicable Board Precedent*

ICAS and Mr. Lum argue that the Region's environmental justice analysis lacked a valid basis on which to conclude that Shell's oil exploration activities in the Beaufort Sea will not have a disproportionately high and adverse effect on the health of the Alaska Native population living on the North Slope. ICAS alleges that the Region's environmental justice analysis fails to account for the impacts of short-term NO_2 and ozone exposures on the Alaska Native population residing on the North Slope, and also asserts that the opportunities for public participation were inadequate. Mr. Lum challenges the lack of analysis regarding the impacts

---

[56] REDOIL Petitioners' arguments that the Region's determination fails to meet the second criteria because the safety zone "fails to effectuate a barrier that 'precludes' public access" are equally unpersuasive. REDOIL Petition at 17. REDOIL Petitioners focus on the fact that the USCG will limit access to the area based on safety concerns rather than for air quality considerations. *Id*. at 17-18. The important fact is that access within the zone will be strictly limited, not the reason behind it. Moreover, REDOIL Petitioners do not address the other condition of the permit that the Region relied upon for its ambient air boundary determination: the public access control program Shell is required to implement. The Board does not find clear error in the Region's conclusion that, based on the USCG limiting access to the safety zone and the permittee implementing a public access control program, the latter of which will include notification to the local residents of the location of the drilling and the fact that the public is restricted from the safety zone, the general public will be denied access to the area inside the safety zone.

[57] The Board came to the same conclusion in *Shell Discoverer 2012*. *See* 15 E.A.D. at 513-14. In that case, the Region had adopted and followed the same or a very similar interpretation as described in the text above. *See id.* 15 E.A.D. at 511-13. Nothing REDOIL Petitioners offer in the present case convinces the Board that anything in the prior analysis – and reiterated here – was in error.

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

emissions from Shell's activities in the Beaufort Sea could have on traditional subsistence food sources and also challenges Shell's oil spill response capabilities. The Region counters that its environmental justice analysis and resulting conclusions comply with Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations" ("Executive Order"). The issue the Board must resolve is: did the Region satisfy its obligation to comply with the Executive Order and applicable Board precedent?

The Executive Order states in relevant part:

> *Agency Responsibilities.* To the greatest extent practicable and permitted by law, and consistent with principles set forth in the report on the National Performance Review, each Federal agency shall make achieving environmental justice a part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations * * * .

Exec. Order 12898, 59 Fed. Reg. 7629, 7629 (Feb. 11, 1994) (A.R. FF-1). Federal agencies are required to implement the Executive Order "consistent with, and to the extent permitted by, existing law." *Id.* at 7632. The Board has held that a permit issuer should exercise its discretion to examine any "superficially plausible" claim that a minority or low-income population[58] may be disproportionately affected by a particular facility seeking a PSD permit. *In re EcoEléctrica, LP*, 7 E.A.D. 56, 69 n.17 (EAB 1997); *accord Shell 2010*, 15 E.A.D. at 148-49 & n.71 (citing PSD cases).

At the outset, the Board notes that both ICAS and Mr. Lum recently challenged the Region's environmental justice analysis in *Shell Discoverer 2012*. *See* 15 E.A.D. at 493-501. In addition, the environmental justice analysis the Region prepared in the current matter is reminiscent of the environmental justice analysis prepared for the *Discoverer* permits that were the subject of the Board's *Shell Discoverer 2012* decision. Moreover, while their petitions for review in *Shell Discoverer 2012* and the current appeal are not identical, both ICAS and Mr. Lum raise substantially similar arguments in their current appeals as they did in their appeals of the *Discoverer* permits.[59] *Compare* Lum Petition *with* Eskimo

[58] Under the Executive Order, the Alaska Native population residing on the North Slope qualifies as a minority population. *See* Statement of Basis at 55; ICAS Petition at 30.

[59] ICAS's remaining challenges to the amount and quality of public participation opportunities available pertaining to the environmental justice analysis appear to mirror its more general arguments
Continued

Whaler Petition for Review, *Shell Discoverer 2012* (Doc. No. 24), *and* ICAS Petition *with* ICAS and AEWC Petition for Review, *Shell Discoverer 2012* (Doc. No. 7).

1. *Region's Environmental Justice Analysis*

The Region included a fifteen-page environmental justice analysis in the administrative record to accompany the Permit and to allow for public comment on the analysis. Environmental Justice Analysis for Proposed OCS Permit No. R10 OCS030000 Kulluk Drilling Unit (undated) ("EJ Analysis") (A.R. F-1). The Region's analysis begins with a discussion of environmental justice in the permitting context and notes that "[t]he Title V operating permit program does not generally impose new substantive air quality control requirements."[60] EJ Analysis at 2. In addition, the analysis includes a discussion of how the national ambient air quality standards ("NAAQS") are crafted by integrating scientific information and evidence from rigorously reviewed studies, and a summary of the Board's case law stating that the Board views compliance with the NAAQS as "emblematic of achieving a level of public health protection that, based on the level of protection afforded by the NAAQS, demonstrates that minority or low-income populations will not experience disproportionately high and adverse human health or environmental effects due to exposure to relevant criteria pollutants." *Id.* (quoting *Shell 2010*, 15 E.A.D. at 156) (citations omitted); *see also* Statement of Basis at 54-55.

(continued)
regarding the public participation process. *See* ICAS Petition at 6-10, 38-39. Accordingly, the Board addresses ICAS's challenges to the adequacy of the public participation process, both generally and with respect to the environmental justice analysis, in Parts VI.F and VI.G below.

[60] The Region further explained that:

> [T]he Title V operating permit program is generally a vehicle for ensuring that existing air quality control requirements are appropriately applied to facility emission units and that compliance with these requirements is assured. Accordingly, the primary means of addressing environmental justice issues in the Title V program is through increased public participation and review by permitting agencies, and conditions to assure compliance with applicable requirements. As discussed above, the Title V permit at issue in this case is unusual in that it requires the source, as a Title V temporary source, to meet the NAAQS and also establishes limits on the potential to emit. Region 10 has considered environmental justice concerns in this permitting action where possible in the context of assuring compliance with applicable requirements for the source, in particular assuring compliance with the NAAQS as a Title V temporary source and establishing PSD avoidance limits.

EJ Analysis at 2; *see also* Statement of Basis at 54.

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

The analysis goes on to catalogue the distances between Inupiat communities on the coast of the North Slope that are closest to Shell's lease blocks in the Beaufort Sea, and discusses the importance of subsistence foods obtained through hunting, fishing, and whaling to the Inupiat diet, and more generally the nexus between subsistence activities and Inupiat culture. EJ Analysis at 3, 5. The Region also included an illustration that juxtaposes the location of Shell's lease blocks, including proposed exploration sites, with onshore and offshore subsistence use areas for the northern Inupiat communities.[61] *Id.* at 4; *see also* Statement of Basis at 56.

The Region then proceeded to analyze demographic, health-related, and air quality data.[62] The demographic analysis indicates that 68% of residents living in the North Slope Borough classify themselves as Alaska Natives. EJ Analysis at 7. In addition, nearly half of North Slope residents speak a language other than English at home. *Id.* at 8. The analysis of health data revealed, among other things, that from 1990 to 2007 there has been a 158% rate of increase in the prevalence of diabetes for Alaska Natives residing on the Arctic Slope, whereas during the same time period there has been a 117% rate of increase in the prevalence in diabetes for Alaska Natives statewide.[63] *Id.* at 9. In addition, there is a higher incidence of outpatient visits for respiratory problems ranging from the common cold to pneumonia in the Arctic Slope than in the rest of Alaska. *Id.*

In the air impacts analysis, the Region first noted that the North Slope Borough is currently designated as attainment/unclassifiable for all of the NAAQS, meaning that the North Slope has sufficient data to determine that the area is meeting the NAAQS or that, due to no data or insufficient data, EPA cannot make a determination. *Id.* at 11 & n.15 (citing CAA § 107(d), 42 U.S.C. § 7407(d)). The

---

[61] The analysis also includes, for some of the northern Inupiat communities, the distances residents have reported traveling offshore to hunt for traditional subsistence food sources. *See* EJ Analysis at 6 (noting that Nuiqsut residents have traveled up to 60 miles offshore to the north and as far east as Camden Bay to hunt for bowhead whale and that Kaktovik residents have traveled as far as 35 miles offshore to hunt for bowhead whale and walrus); Statement of Basis at 55; *see also Shell 2010*, 15 E.A.D. at 155 n.80 (noting that subsistence activities, which can take Inupiat residents living on the North Slope far from their local communities and closer to emissions sources, are a potential environmental justice consideration that may be unique to the OCS PSD permitting context); *Shell Discoverer 2012*, 15 E.A.D. at 496 n.32 (same).

[62] The Region used demographic information gathered from the 2000 U.S. Census to compare the population of the North Slope Borough to the populations of both the State of Alaska and the entire United States, which served as reference populations for the demographic analysis. EJ Analysis at 6-8 & n.6. The North Slope Borough consists of the following eight incorporated villages: Point Hope, Point Lay, Wainwright, Atqasuk, Barrow, Nuiqsut, Kaktovik, and Anaktuvuk Pass. *See* Statement of Basis at 55.

[63] The Region utilized data from the Alaska Native Health Status Report 2009, which the Alaska Native Epidemiology Center and the Alaska Native Tribal Health Consortium had prepared to analyze health conditions in the North Slope Borough. *See* EJ Analysis at 8-10 & n.11.

SR 1208

Region then examined the total modeled concentrations of NO_2, particulate matter with a diameter of 10 micrometers or less ("PM_{10}"), particulate matter with a diameter of 2.5 micrometers or less ("$PM_{2.5}$"), SO_2, and CO,[64] including background concentrations and maximum concentrations from the *Kulluk* and the Associated Fleet.[65] *Id.* at 13-14 & tbl.6. The Region compared the total modeled concentrations for each of the three nearest communities while the source is in operation and found that the total maximum modeled concentrations demonstrate that the NAAQS will be attained at all locations beyond the 500-meter boundary, and that the modeled concentrations in the North Slope communities and in areas where the communities conduct subsistence activities will be below the relevant standard.[66] *Id.* at 14. Finally, the Region noted that a majority of the total impacts result from background concentrations. *Id.*

---

[64] The Board notes that the information included in table 5 of the air quality analysis includes modeled impacts in the nearest onshore communities from operation of the *Kulluk* alone, without impacts from the Associated Fleet or background concentrations. EJ Analysis at 12 & tbl.5. The Region explains that the maximum modeled concentrations in Nuiqsut, Deadhorse, and Kaktovik listed in table 5 are all below the significant impact levels ("SILs") established for each criteria pollutant. *Id.* at 12. In the PSD program, SILs function as threshold levels for ambient concentrations of a given pollutant; for a given pollutant and averaging period, any source that has a measured concentration that is below the SIL is considered too small to cause or contribute to a violation of the NAAQS. *Id.*

The Region made clear earlier in the environmental justice analysis that emissions from the Associated Fleet while operating within 25 miles of the *Kulluk*, together with emissions from the *Kulluk*, are considered in conducting an ambient air quality analysis to determine whether emissions from the project will cause or contribute to a violation of the NAAQS. *Id.* at 4. The Region's analysis repeatedly emphasized that compliance with the NAAQS is "emblematic of achieving a level of public health protection" that demonstrates that minority or low-income populations will not experience disproportionately high and adverse human health or environmental impacts due to exposure to relevant criteria pollutants. *Id.* at 4-5 (quoting *Shell 2010*, 15 E.A.D. at 156). While the inclusion of information on modeled impacts of emissions from the *Kulluk* alone on the nearest onshore communities is illustrative regarding the *Kulluk*'s contribution to the overall emissions profile, it is the information that encompasses both background concentrations and emissions from the *Kulluk* and the Associated Fleet when it is within 25 miles of the *Kulluk* that establishes the Region has satisfied its obligation to comply with the Executive Order.

[65] Monitoring data from Prudhoe Bay, Deadhorse, and Endicott were used for background values. EJ Analysis at 13. The Region also noted that the modeled impacts are based on conservative assumptions, including that all four wells are drilled at the same location to account for overlapping plumes, even though the drilling of four wells at a fixed location and the overlap of plumes will not occur. *Id.*

[66] Specifically, the Region noted that in Kaktovik, located 8 miles from Shell's closest lease block in the Beaufort Sea, the total maximum modeled concentrations, assuming Shell's *Discoverer* is in operation and considering background concentrations, are measured at the following percentages of the NAAQS: 11% for the 1-hour NO_2 NAAQS; 20% for the 24-hour $PM_{2.5}$ NAAQS; 35% for the 24-hour PM_{10} NAAQS, and; 20% for the annual $PM_{2.5}$ NAAQS. EJ Analysis at 13-14 & tbl.6. Similarly, in Nuiqsut, located 33 miles from Shell's closest lease block in the Beaufort Sea, and applying the same assumptions, the total maximum modeled concentrations are measured at the following percentages of the NAAQS: 50% for the 1-hour NO_2 NAAQS; 48% for the 24-hour $PM_{2.5}$ NAAQS, 35% for the 24-hour PM_{10} NAAQS, and 26% for the annual $PM_{2.5}$ NAAQS. *Id.*

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

Overall, the Region concluded that Shell's proposed OCS activities in the Beaufort Sea will not result in disproportionately high and adverse human health or environmental effects with respect to Alaska Natives residing on the North Slope, and further, in reaching this conclusion the Region considered the impact on these communities while engaging in subsistence activities in the areas where such activities are regularly conducted. *Id.* at 15. With this background in mind, the Board now turns to the specific assertions both ICAS and Mr. Lum make in support of their arguments that the Region has not complied with its obligation under the Executive Order.

2. *One-Hour NO_2 NAAQS Analysis*

ICAS challenges the Region's consideration of 1-hour NO_2 NAAQS[67] compliance in the environmental justice analysis on several grounds, arguing that it is "insufficient and ignores salient record evidence." ICAS Petition at 34. ICAS asserts that in addition to NO_2 emissions from the *Kulluk* when it is an OCS source and from the Associated Fleet when it is within 25 miles of the *Kulluk*, the Region must also account for mobile source NO_2 emissions that remain unregulated by the Permit when assessing potentially adverse health impacts of NO_2 emissions on North Slope communities. *Id*. at 35-38. In addition, ICAS challenges the Region's "fatal flaw of the environmental justice analysis," namely the failure to *analyze* the impacts of Shell's emissions on residents of the North Slope conducting subsistence activities offshore. *Id.* at 36-37 (emphasis in original). Finally, ICAS challenges the Region's analysis of Shell's 1-hour NO_2 NAAQS compliance based on several technical decisions the Region made. *Id.* at 37-38.

ICAS asserts that the Region's environmental justice analysis is inadequate because it does not account for emissions from mobile sources that are not included in the air quality impact analysis conducted to determine whether emissions from the project will cause or contribute to a violation of the NAAQS. *See id*. at 34 & n.30; EJ Analysis at 4. The Board disagrees.

The Region appropriately determined that it was not required to analyze these mobile source emissions where, as here, the Title V permit did not address mobile source emissions, and the record lacked sufficient data for such an analy-

[67] NAAQS are health based-standards, designed to protect public health with an adequate margin of safety, including sensitive populations such as children, the elderly, and asthmatics. *See In re AES Puerto Rico, L.P.*, 8 E.A.D. 324, 351 (EAB 1999), *aff'd sub nom. Sur Contra La Contaminación v. EPA*, 202 F.3d 443 (1st Cir. 2000), *cited in Shell 2010*, 15 E.A.D. at 149 n.72. The Administrator is required to carry out periodic reviews of the air quality criteria published under section 108 of the CAA, 42 U.S.C. § 7408, as well as the NAAQS, and to revise the criteria and standards as appropriate. CAA § 109(d)(1), 42 U.S.C. § 7409(d)(1). The Board outlined the history of the NO_2 NAAQS reviews in its December 2010 remand order. *See Shell 2010*, 15 E.A.D at 150 nn.73-74.

SR 1210

sis.[68] RTC at 114; Statement of Basis at 54; *see also* EJ Analysis at 2; Region Response at 36 n.34. The Region acknowledged that the Title V permit at issue in this case is unusual in that it requires a temporary Title V source to meet the NAAQS, and the permit also establishes limits on PTE. EJ Analysis at 2; Statement of Basis at 54; RTC at 114. However, the Title V permit does not regulate mobile source emissions.[69]

---

[68] ICAS asserts that the Board should remand the *Kulluk* permit so that the Region can assess mobile source emissions included in Shell's emissions inventory submitted to BOEMRE as part of Shell's Exploration Plan, both because it "shows that the additional emissions estimates are not as hard to obtain as Region 10 implies," and because once the Region assesses the accuracy of the inventory it can "use the information to conduct an EJ analysis that accounts *for all* of Shell's emissions." ICAS Petition at 35 (emphasis in original).

Nowhere in its petition does ICAS acknowledge the Region's statement, in the Response to Comments, that "[t]he Exploration Plan * * * does not include estimates of air emissions from these other vessels during the time they are more than 25 miles from the Kulluk or before the Kulluk becomes an OCS source." RTC at 15. The Board has consistently stated that, in order to sustain its burden of demonstrating that review is warranted, the petitioner must address the permit issuer's responses to relevant comments made during the permit proceeding. *See, e.g.*, *Peabody*, 12 E.A.D. at 33 ("[T]he petitioner may not simply reiterate comments made during the public comment period, but must substantively confront the permit issuer's subsequent explanations.").

Furthermore, ICAS's suggestion that the Region should "compile rough estimates" of these mobile source emissions because "[s]ome additional steps are particularly necessary here" is similarly unavailing. ICAS Petition at 36. ICAS has acknowledged its ongoing concern regarding emissions that are not included in the PTE analysis, along with its efforts to compel Region 10 to consider non-PTE emissions as OCS source emissions in prior appeals to this Board. ICAS Petition at 34. Despite its concerns, ICAS cannot demonstrate that review is warranted where, as here, ICAS offers a generalized objection to the Region's consideration of mobile sources in the environmental justice analysis, and the Region has demonstrated that it lacks sufficient data to reach a determinative conclusion regarding these mobile source emissions in the environmental justice context. *See Avenal*, 15 E.A.D. at 401-02; *see also In re Cape Wind Assocs., LLC*, 15 E.A.D. 327, 330 (EAB 2011) (noting that petitioners "must raise specific objections to the permit"); *In re BP Cherry Point*, 12 E.A.D. 209, 217 (EAB 2005) (same).

[69] In a memorandum addressing environmental justice in the permitting context, the Agency stated:

> Unlike PSD/[New Source Review] permitting, Title V generally does not impose substantive emission control requirements, but rather requires all applicable requirements to be included in a Title V operating permit. * * * Because Title V does not directly impose substantive emissions control requirements, it is not clear whether or how EPA could take environmental justice issues into account in Title V permitting – other than to allow public participation to serve as a motivating factor for applying closer scrutiny to a Title V permit's compliance with applicable CAA requirements.

Memorandum from Gary Guzy, General Counsel, U.S. EPA, to Assistant Administrators, U.S. EPA, *EPA Statutory and Regulatory Authorities Under Which Environmental Justice Issues May Be Addressed in Permitting* 13 (Dec. 1, 2000) (A.R. FF-7).

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

Despite the fact that mobile source emissions are not regulated under the Title V permit, the Region did go beyond its required review to consider mobile source emissions with respect to environmental justice in the Response to Comments. *See* RTC at 114-15. The Region was unable to reach a determinative conclusion with respect to these emissions due to insufficient information.

ICAS's attempt to construe the Executive Order and Board precedent to *require* in this instance the analysis of emissions from mobile sources that the Region may not have accurate or sufficient data to complete in the context of a Title V permit is unpersuasive. Notably, the Board has held that it will decline to review a permit issuer's environmental justice analysis that cannot reach a determinative conclusion due to the insufficiency of available valid data. *See* RTC at 115; *Avenal*, 15 E.A.D. at 401-02 (stating that where a permit issuer conducts a substantive environmental justice analysis that endeavors to include and analyze data that is germane to the environmental justice issue raised during the comment period, and the permit issuer demonstrated it exercised its considered judgment when determining that it cannot reach a determinative conclusion due to the insufficiency of available data, the Board will decline to grant review of the environmental justice analysis). Moreover, "[t]he plain language of the Executive Order imparts considerable leeway to federal agencies in determining how to comply with the spirit and letter of the Executive Order." *Avenal*, 15 E.A.D. at 401. ICAS overreads *Avenal* when it suggests that *Avenal* compels the analysis of these mobile source emissions in the context of this permit. *See* ICAS Petition at 35 ("The Agency has considered mobile emissions previously in its EJ analyses and should be required to do so here." (citing *Avenal*, 15 E.A.D. at 399)).[70]

ICAS's challenge also fails because ICAS never responded to the Region's stated rationale in the administrative record that Title V permits generally do not impose new substantive air quality control requirements. A petitioner cannot sim-

[70] ICAS includes a citation to *Avenal* for the proposition that "motor vehicle emissions are by far the greatest concern," in support of its contention that mobile source emissions should be included in the short-term NO_2 NAAQS assessment included in the environmental justice analysis, but the quote is taken out of context and does not support ICAS's position. *See* ICAS Petition at 35. The circumstances in *Avenal* are markedly different than those in the present case. In *Avenal*, the Agency conducted an environmental justice analysis that focused in particular on short-term NO_2 impacts in support of a PSD permit to build a 600-megawatt power plant. 15 E.A.D. at 399. The Agency noted that in the area surrounding the proposed site for the new source, motor vehicles accounted for 91% of NO_2 emissions locally, as compared to 61% of NO_2 emissions nationwide. *Id*. In addition, the environmental justice analysis in *Avenal* noted that the area surrounding the proposed facility was designated as extreme nonattainment for ozone, and NO_2 is a precursor emission. *Id.* Finally, the Agency further explained that NO_2 concentrations on or near major *roadways* have appreciably higher emissions than those measured at monitors in the Agency-approved network. *Id.* ICAS has not demonstrated that the need to assess NO_2 impacts from mobile sources in *Avenal*, where NO_2 emissions near roadways were known to be much higher, translates into a requirement that the Agency account for these mobile emissions on the Arctic OCS to demonstrate that its environmental justice analysis is sufficient.

SR 1212

ply repeat comments made during the comment period, but must substantively confront the permit issuer's substantive explanations in order to demonstrate that review of a particular issue is warranted. *Peabody*, 12 E.A.D. at 33.

Further, ICAS's assertion that the Region failed "to *analyze* the impacts of Shell's emissions on subsistence hunters and fishers while offshore," is unsupported by the record. ICAS Petition at 36-37 (emphasis in original); *see also Shell Discoverer 2012*, 15 E.A.D. at 500. The environmental justice analysis stated that mobile source emissions will dissipate while vessels are in transit, RTC at 115, and the environmental justice analysis analyzed how the subsistence areas located in close proximity to Shell's lease blocks might be affected by Shell's OCS activities. EJ Analysis at 5; *id.* at 6 (discussing distances subsistence hunters, whalers, and fishermen have traveled offshore in search of subsistence foods); *id.* at 4 (depicting subsistence use areas mapped over Shell exploration plan well sites). In addition to demonstrating compliance with the applicable NAAQS, the Region conducted an environmental justice analysis that included and analyzed data that is germane to the environmental justice issues raised during the comment period. *See Shell 2010*, 15 E.A.D. at 160-61 n.87. Although ICAS may disagree with the contents or conclusions of the Region's environmental justice analysis, ICAS has not demonstrated that this difference in opinion equates to an insufficient effort on the Region's part regarding environmental justice, or that the Region failed to analyze impacts. *See Shell Discoverer 2012*, 15 E.A.D. at 500.

Finally, ICAS enumerates several problems with the Region's environmental justice analysis that amount to challenges to the Region's technical expertise. *See* ICAS Petition at 37; Region Response at 43-44; *see also Shell 2012*, 15 E.A.D. at 500-01. Without elaborating any further, ICAS expresses "significant concerns" with, among other things, installed NO_2 controls and their ability to function properly in cold weather, the use of generic NO_x/NO_2 ratios in lieu of actual source tests, the use of "diurnal pairing" of NO_2 data, and the need for additional "tracer experiments" to supply data for the AERMOD model. ICAS Petition at 37. It is axiomatic that a challenge to the fundamental technical expertise of a permit issuer requires a petitioner to overcome a particularly heavy burden, and that a successful challenge to a permit issuer's technical expertise must consist of more than just a difference of opinion. *Shell 2012*, 15 E.A.D. at 501; *accord In re NE Hub Partners, L.P.*, 7 E.A.D. 561, 567 (EAB 1998), *review denied sub nom. Penn Fuel Gas, Inc. v. EPA*, 185 F.3d 862 (3rd Cir. 1999). Here, ICAS has failed to overcome this particularly heavy burden because it does nothing more than list its broad objections to the Region's environmental justice analysis.

3. *Ozone NAAQS Analysis*

ICAS also challenges the Region's compliance with its obligation under the Executive Order based on the Region's alleged failure to adequately address both the latest scientific findings regarding ozone and the potential impacts of ozone on

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

local communities. ICAS Petition at 31. ICAS's assertions focus in large part on the Region's decision to demonstrate compliance with the current 8-hour ozone NAAQS, which is set at 0.75 parts per million ("ppm"), as opposed to the range of 0.60 to 0.70 ppm for the 8-hour ozone NAAQS that EPA's Administrator proposed in January 2010 but never finalized. *See id*. at 30-34; Region Response at 40-42; RTC at 96-98, 119-20. On September 2, 2011, four days before the close of the public comment period and prior to the Region issuing the Permit, the President requested that the Administrator withdraw the proposed 8-hour ozone NAAQS standard and instead enforce the current 8-hour ozone standard of 0.75 ppm until the ozone standard is reconsidered again in 2013. Statement on the Ozone National Ambient Air Quality Standards, 2011 Daily Comp. Pres. Doc. 607, at 1 (Sept. 2, 2011), *available at* http://www.gpo.gov/fdsys/ (click on Compilation of Presidential Documents). ICAS also asserts that the Region's conclusion not to model emissions from ozone precursors based on available background data that does not account for the cumulative impacts of proposed activities on the Arctic OCS was in error, and that the Region's response to its comments regarding ozone were inadequate. ICAS Petition at 33.

The Region responds that ICAS's petition raises issues that are largely technical, and that the Region appropriately relied on the Agency's current legal standard of 0.75 ppm when assessing Shell's compliance with the 8-hour ozone NAAQS. Region Response at 40. The Region further asserts that it exercised its technical expertise to determine that ozone levels in the area were not expected to exceed even the lowest level of 0.60 ppm that EPA included in its proposed 8-hour ozone NAAQS. *Id.* at 42. Finally, the Region asserts that it appropriately responded to comments received, including comments specifically raising concerns about the cumulative impacts of proposed OCS operations with respect to attaining the ozone NAAQS. *Id.*

Although ICAS argues to the contrary, the current, enforceable 8-hour ozone NAAQS that Shell must demonstrate compliance with is 0.75 ppm. As this Board has stated previously, "[a] permit issuer must apply the statutes and implementing regulations in effect at the time the final permit decision is made." *Russell City II*, 15 E.A.D. at 81 n.98 (quoting *In re Phelps Dodge Corp.*, 10 E.A.D. 460, 478 n.10 (EAB 2002)). The Region's decision to require Shell to comply with the 0.75 ppm 8-hour ozone NAAQS is consistent with applicable law and the corresponding regulations in effect at the time the Region issued the Permit.

In addition, ICAS does not demonstrate that the Region's analysis of the impacts the 8-hour ozone NAAQS may have on Alaska Natives residing on the North Slope would result in a disproportionately high or adverse impact on the

health of Alaska Natives.[71] In the Response to Comments supporting the Permit, the Region stated that it "stands by its decision" to forego regional photochemical modeling and further explained that "Region 10 reviewed ozone monitoring data along with existing precursor emissions that will impact ozone formation. Based on this review, Region 10 determined further analysis of ozone was not warranted." RTC at 97. In addition, the Region explained that the most recent ozone data indicates that current ozone levels in the Beaufort Sea are well below 0.60 ppm, which represents the low end of the range of the proposed 8-hour ozone NAAQS.[72] *Id.* at 97-98, 120.

Finally, ICAS's assertion that the Region failed to consider the cumulative impacts of emissions from proposed Arctic OCS operations is unavailing. *See* ICAS Petition at 33. ICAS's petition for review not only lacks any further support for this statement, it also fails to substantively confront the Region's explanation in the Response to Comments. *See Peabody*, 12 E.A.D. at 33 (petitioner must

---

[71] ICAS's assertion that in the context of an environmental justice analysis the Region's treatment of the 8-hour ozone standard in the current appeal is analogous to the Region's treatment of the newly promulgated 1-hour NO_2 NAAQS in *Shell 2010* must also fail. *See* ICAS Petition at 32. As the Board recently explained, the context of the challenge to the environmental justice analysis in *Shell 2010* was unusual in that the OCS PSD permits at issue were finalized in the interim between the Administrator's publication of the final rule establishing the hourly NO_2 NAAQS in the Federal Register on February 9, 2010, and the effective date of the new hourly NO_2 standard, April 12, 2010. *Avenal*, 15 E.A.D. at 401. The Board emphasized that the environmental justice aspect of the *Shell 2010* remand order turned on the Region's scant environmental justice analysis, which provided no examination or analysis of short-term NO_2 impacts whatsoever. *Id.*

Here, the Region not only analyzed impacts from ozone emissions, *see* RTC at 96-98, 119-20, it further explained that current levels of ozone in the area are well below the low end of the range EPA had requested comment on in the proposed ozone NAAQS, and that emissions of ozone precursors would also not lead to an exceedance of the low range of the proposed ozone NAAQS. *Id.* at 120; *see also* Region Response at 41 n.37 (noting that the discussion of ozone in the Region's environmental justice analysis was brief, but that both the Response to Comments and the technical support document contained in the administrative record provide more detailed discussions of the Region's determination regarding ozone). Of equal importance, and unlike the events leading up to the Board's remand order in *Shell 2010*, in this instance the Agency has not made a final determination or issued a final rule stating that the current 8-hour ozone standard is inadequate. *See* Region Response at 41. ICAS has not demonstrated that the Region's consideration of the ozone NAAQS in the current appeal warrants Board review based on similarities to the Region's treatment of the hourly NO_2 NAAQS in *Shell 2010*.

[72] ICAS challenges the Region's conclusion not to model emissions of ozone and ozone precursors, and alleges that the "limited background data" that exists does not demonstrate that current ozone levels are well below the proposed ozone NAAQS. ICAS Petition at 33. ICAS does not provide any citation or reference as support for this statement, which amounts to a challenge to the Region's technical expertise. This Board recently stated that "it is axiomatic that a challenge to the fundamental technical expertise of a permit issuer requires a petitioner to overcome a particularly heavy burden, and that a successful challenge to a permit issuer's technical expertise must consist of more than just a difference of opinion." *Shell Discoverer 2012*, 15 E.A.D. at 501 (citing *Shell 2011*, 15 E.A.D. at 203, and *NE Hub*, 7 E.A.D. at 567). ICAS's bald assertion that background ozone data was limited and does not support the Region's conclusions cannot overcome this particularly heavy burden.

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

demonstrate why a permitting authority's response to objections made during the public comment period warrants review). In this instance, the Region explained:

> [T]he Clean Air Act permitting programs are essentially 'first come, first served' programs and each subsequent permitting action needs to account for all of those that went before but not any actions that will occur subsequent to that action. The permits for the Discoverer drill ship in the Chukchi Sea and Beaufort Sea are the first permits in their respective vicinities and they only need to assess their impacts on the existing air quality situation.
>
> The Kulluk drill rig in the Beaufort Sea is the second permit and EPA has addressed cumulative impacts by including conditions in the permit that prevent Shell from operating the Kulluk drill rig and the Discoverer drill ship in the Beaufort Sea during the same drilling season. Permit Condition D.4.8. As such, only one of the two drill rigs can operate in the Beaufort in any year so there will be no overlapping impacts with respect to compliance with short[]term NAAQS. * * *
>
> As discussed above, ConocoPhillips has withdrawn its permit application for operation of a jack-up drill rig in the Chukchi Sea.

RTC at 101; *see also* EJ Analysis at 14 (reporting total maximum modeled concentrations for criteria pollutants in Kaktovik and Nuiqsut, which account for both the *Discoverer*'s operation and background concentrations); Region Response at 42 n.39 (noting that "[p]otential OCS operations in the Chukchi Sea and the Beaufort Sea are over 200 miles apart at the closest point"). Aside from its plain statement that the Region did not consider the emissions from all proposed OCS operations, ICAS does not address the Region's response to its comment, and thus cannot demonstrate that this issue warrants Board review. *Peabody*, 12 E.A.D. at 33.

4. *Oil Spill Response Capabilities*

Mr. Lum asserts that EPA has failed to require Shell to demonstrate its oil spill response capabilities in "clear, windy, broken ice and sheet ice conditions." Lum Petition at 1-2. The Region responds that this issue is outside the scope of these permit proceedings and thus is not properly subject to review. Region Response at 47.

The Board has previously emphasized that "[t]he PSD review process is not an open forum for consideration of every environmental aspect of a proposed project, or even every issue that bears on air quality."[73] *In re Knauf Fiber Glass GmbH*, 8 E.A.D. 121, 127 (EAB 1999) ("*Knauf I*"), *quoted in In re Sutter Power Plant*, 8 E.A.D. 680, 688 (EAB 1999); *see also In re Encogen Cogeneration Facility*, 8 E.A.D. 244, 259-60 (EAB 1999). The Board has jurisdiction "to review issues directly related to permit conditions that implement the federal PSD program," *Sutter*, 8 E.A.D. at 688, but will deny review of issues not governed by the PSD regulations because it lacks jurisdiction over them. *Id.*; *see also Encogen*, 8 E.A.D. at 259 (noting that petitioners had not shown how the issues they requested the Board to review fell within the Board's PSD jurisdiction). Moreover, there are often other regulatory programs in place that may address environmental concerns that fall outside the Board's scope of review. *Knauf I*, 8 E.A.D. at 162; *see also Shell 2007*, 13 E.A.D. at 405 n.66.

EPA's jurisdiction over portions of the OCS applies to air emissions subject to the CAA and its implementing regulations. In this instance, BOEMRE[74] is responsible for implementing regulations that address oil spill and response capabilities.[75] The Board does not have jurisdiction to consider Shell's oil spill and re-

---

[73] As noted above, see Part VI.A.1.a, the OCS air regulations require that OCS permit proceedings follow the procedures used to issue PSD permits contained in 40 C.F.R. part 124. 40 C.F.R. § 55.6(a)(3).

[74] As the Board has noted in previous *Shell* decisions, in May 2010 the Secretary of the Department of the Interior ("DOI") signed a Secretarial Order reorganizing the former Minerals Management Service ("MMS") into three independent entities to better carry out its three missions of: (1) improving the management, oversight, and accountability of activities on the OCS; (2) ensuring a fair return to the taxpayer from offshore royalty and revenue collection and disbursement activities; and (3) providing independent safety and environmental oversight and enforcement of offshore activities. *Shell 2012*, 15 E.A.D. at 492 n.29; *see also Shell 2010*, 15 E.A.D. at 112 n.7; U.S. DOI, Departmental Manual, pts. 118 & 119, ch. 1 (Sept. 30, 2011), *available at* http://elips.doi.gov/app_dm/dm.cfm ("Departmental Manual") (establishing the creation, authorities, objectives, and reporting relationships for the Bureau of Ocean Energy Management ("BOEM") and Bureau of Safety and Environmental Enforcement ("BSEE")). BOEMRE assumed all of MMS's responsibilities in the interim until the full implementation of the reorganization into the three separate entities was complete. *Shell 2012*, 15 E.A.D. at 492 n.29; *see Shell 2010*, 15 E.A.D. at 112 n.7. The transfer of the revenue collection function to the Office of Natural Resources Revenue was completed on October 1, 2010. *See* Secretary of the Interior, U.S. DOI, Order No. 3306, *Organizational Changes Under the Assistant Secretary – Policy, Management and Budget* (Sept. 20, 2010), *available at* http://elips.doi.gov/app_SO/so.cfm; Departmental Manual, pt. 112, ch. 34 (Apr. 15, 2011). One year later, on October 1, 2011, the reorganization was completed when BOEMRE was replaced by BOEM and BSEE. *See* Departmental Manual, pts. 118 & 119. For consistency the Board refers to BOEMRE because the Permit and the supporting documentation refer exclusively to BOEMRE.

[75] On August 4, 2011, BOEMRE (now BOEM, see note 74 above) conditionally approved Shell's exploration plan for the Beaufort Sea. Letter from Jeff Walker, Regional Supervisor, Field Operations, Alaska OCS Region, BOEMRE, U.S. DOI, to Susan Childs, Shell Offshore, Inc. (Aug. 4,
Continued

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

sponse capabilities in the Arctic OCS, and thus, the Board denies Mr. Lum's petition for review on these grounds.

5. *Impacts of Air Emissions on Traditional Subsistence Food Sources*

Mr. Lum asserts that the *Kulluk*'s operations in the Beaufort Sea will introduce toxins into the ocean "via the exhaust [from the *Kulluk*] that settles down into it," and contaminate the marine mammals and fish the coastal Inupiat consume as part of their indigenous diet. Lum Petition at 2-3. Mr. Lum continues that this will not only contaminate the food supply but also alter traditional Inupiat culture. *Id.* The Region responds that this issue is outside the scope of these permit proceedings and thus is not properly subject to Board review. Region Response at 47. The Board construes Mr. Lum's assertions as a challenge to the adequacy of the Region's compliance with the Executive Order.

Mr. Lum also raised this issue in the appeals that led to the Board's *Shell Discoverer 2012* decision. *See* 15 E.A.D. at 502. In *Shell Discoverer 2012*, the Board denied review on procedural grounds because the impacts of air emissions on traditional subsistence food sources was not raised at the time of the first appeals.[76] *Id*. In the current appeal, Mr. Lum timely submitted comments on this issue and thus his petition for review is procedurally sound. *See* Lum Comments at 1. The Board, however, has previously held that "[i]mpacts on subsistence hunting and fishing are outside the scope of the PSD program and therefore the Board's jurisdiction." *Shell 2007*, 13 E.A.D. at 405 n.66 (citing *Knauf I*, 8 E.A.D. at 161-62), *quoted in* RTC at 125. The Board does not have jurisdiction to consider the impacts of air emissions on traditional subsistence food sources and Inupiat culture, and thus, the Board denies Mr. Lum's petition for review on these grounds.

(continued)
2011) [hereinafter Beaufort EP Letter]. The approval of the Beaufort Sea exploration plan was conditioned, among other things, on Shell submitting to BOEMRE prior to the commencement of exploratory drilling operations documentation regarding the subsea well capping and containment system Shell has committed to have at its disposal. *Id.* at 3. Specifically, Shell must "submit documentation on the procedures for deployment, installation, and operation of the system under anticipated environmental conditions, including the potential presence of sea ice for approval by BOEMRE. Shell will also be required to conduct a field exercise to demonstrate Shell's ability to deploy the system." *Id.*

[76] As mentioned above, the Board remanded to the Region two OCS PSD permits in December 2010. *See generally Shell 2010*, 15 E.A.D. at 161-62. In the subsequent appeals of the permits issued upon completion of remand proceedings, the Board unequivocally stated that "in the current appeals, '[n]o new issues may be raised that could have been raised, but were not raised,' in the previous appeals." *Shell Discoverer 2012*, 15 E.A.D. at 477 (quoting *Shell 2010*, 15 E.A.D. at 162).

SR 1218

For all of the foregoing reasons, the Board declines to review the Region's compliance with the Executive Order and applicable Board precedent.

F. *ICAS Has Failed to Demonstrate That the Region Clearly Erred or Abused Its Discretion in Providing 46 Days for Comment on the Draft Permit and in Denying ICAS's Request for Nonoverlapping Comment Periods*

ICAS claims that the Region "committed clear legal error by failing to provide the public an adequate opportunity to comment on" the draft permit.[77] ICAS Petition at 6. More specifically, ICAS alleges that the Region failed to meet the parts 71 and 124 procedural requirements that require permit issuers to "allow *at least* 30 days for public comment" on draft permits. *Id*. at 7 (citing 40 C.F.R. §§ 71.11(d)(2)(i), 124.1) (emphasis added by Petitioners). Although ICAS acknowledges that the comment periods for the Permit ran from July 22, 2011, to September 6, 2011, an interval of 46 days, ICAS contends that, because the Region issued the draft *Kulluk* permit for comment at the same time it issued another draft minor source air permit for comment and in the middle of comment periods for two major source air permits for another Shell drillship,[78] in reality, ICAS only "had 16 days to comment on each of the[] permits," rather than the required minimum of 30. *Id*. at 7. This is because, according to ICAS, it "does not have the resources to comment on more than one air permit at a time." *Id*. ICAS further claims that "the short and overlapping comment periods * * * deprived [them] of a meaningful opportunity to comment on Shell's new air modeling results." *Id*. at 8.

In a related argument, ICAS asserts that the Region clearly erred in denying its request that the Region "hold nonoverlapping comment periods on the OCS permits and [] provide 45 days to comment on each permit." *Id*. at 8-9. ICAS claims that it met the regulatory standard for demonstrating the need for additional time to prepare comments. *Id*. (referring to the standard at 40 C.F.R. § 71.11(g)); *see also id*. attach. 8 (Letter from Harry Brower, Chairman, Alaska Eskimo Whaling Commission ("AEWC"), et al., to Doug Hardesty, Air Permits Project Manager, U.S. EPA Region 10 (June 15, 2011) (A.R. C-487)) (AEWC and ICAS request for nonoverlapping comment periods) [hereinafter ICAS Let-

---

[77] The Board also considers ICAS's claim under an abuse of discretion standard. *See infra* note 80.

[78] The Region had issued two draft permits for Shell's *Discoverer* drillship earlier in July of 2011. *See Shell Discoverer 2012*, 15 E.A.D. at 480. The comment period for those two permits ran from July 6 to August 5, 2011. *Id*.; ICAS Petition at 7. In addition, on the same date the Region had issued the *Kulluk* draft permit, it had also issued a draft permit for ConocoPhillips to operate a jackup drill rig in the Chukchi Sea. ICAS Petition at 7. The comment period for this permit originally ended at the same time as the *Kulluk* draft permit, but was later extended to September 21, 2011. ICAS Petition at 8-9; RTC at 7.

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

ter]; *id*. attach. 9 (Letter from Richard Albright, Director, Office of Air, Waste, & Toxics, U.S. EPA Region 10, to Harry Brower, AEWC Chairman, et al. (July 21, 2011) (A.R. C-532)) (EPA response).

The part 71 procedural regulation governing public notices and public comment periods specifically provides that "[p]ublic notice of the preparation of a draft permit * * * shall allow at least 30 days for public comment." 40 C.F.R. § 71.11(d)(2)(i). The part 124 procedural regulations, which also apply to the Permit,[79] contain the same language. *See* 40 C.F.R. § 124.10(b). The Board has traditionally read these regulations to establish a minimum comment period length of 30 days, recognizing that the regulations clearly allow the permit issuer, in its discretion, to grant a longer comment period. *Shell Discoverer 2012*, 15 E.A.D. at 520-21 (discussing the applicable part 124 regulation); *see also In re Genesee Power Station*, 4 E.A.D. 832, 841 (EAB 1993) (noting that the part 124 regulation governing public comment periods "only require[s them] to last 30 days"). In addition, as ICAS points out, part 71 contains a separate provision specifically authorizing a permit issuer to grant additional time. It states that "[a] comment period longer than 30 days may be necessary to give commenters a reasonable opportunity to comply with the requirements of this section. Additional time shall be granted to the extent that a commenter who requests additional time demonstrates the need for such time."[80] 40 C.F.R. § 71.11(g)).

---

[79] As the Region explained, the Permit is subject to the procedural requirements of both part 55 (and consequently part 124) as well as part 71:

> The portion of this permit that is a Part 71 permit (e.g., the portion of the permit that applies on the Outer OCS) is issued under 40 CFR Part 55 and 40 CFR Part 71 and subject to the procedural requirements of 40 CFR Part 71 as provided in 40 CFR § 71.4(d). The portion of this permit that is a COA Title V permit and a COA minor source permit (e.g., the portion of the permit that applies on the Inner OCS) is issued under 40 CFR Part 55 and, in the absence of other applicable procedures, subject to the permit issuance procedures for PSD permits under 40 CFR Part 124, Subpart A and C. *See* 40 CFR §§ 55.6(a) (3) and 124.1.

RTC at 6 n.3.

[80] Because the regulations authorize the permit issuer to grant a longer comment period upon an adequate showing of need, the Board also considers ICAS's challenge under an abuse of discretion even though ICAS did not clearly present its challenge as such, alleging instead only "clear error." *See Shell Discoverer 2012*, 15 E.A.D. at 521 (considering similar argument as raising an abuse of discretion claim); *In re Guam Waterworks Auth.*, 15 E.A.D. 437, 443 n.7 (EAB 2011) (explaining Board's standard in reviewing claims involving a permit issuer's exercise of discretion); *In re Desert Rock Energy Co.*, 14 E.A.D. 484, 530 (EAB 2009) (using an abuse of discretion standard where the permit issuer had "broad discretion" in making the challenged determination). The Board similarly reads ICAS's challenge to the Region's denial of nonoverlapping comment periods as raising an abuse of discretion claim.

SR 1220

In the present case, the Region provided a 46 day public comment period for the *Kulluk* draft permit, albeit a comment period that partially overlapped with several other comment periods. The Region, in its Response to Comments, provided a lengthy, well-reasoned explanation for its establishment of a 46 day comment period for the *Kulluk* permit and for its denial of ICAS's request for nonconcurrent comment periods. *See* RTC at 5-8. In addressing comments on these topics, the Region pointed out that it had granted a period longer than the regulatory minimum for this permit and had also extended the comment period for one of the other permits, the ConocoPhillips permit. *Id*. at 6; *accord id*. at 7. The Region further noted that the ConocoPhillips permit, for which it had extended the comment period to 60 days, was for a proposed 2013 operation, whereas Shell "intends to begin its exploratory drill operations with the Kulluk in July 2012." *Id*. at 7. The Region also enumerated the many steps it had taken before and during the public comment period "to promote meaningful public involvement." *Id*. at 6.

In addition, the Region observed that, while "it agree[d] with the commenters that some aspects of the Draft Permit are technically and legally complex," on the other hand, "[t]he comments submitted * * * demonstrate[d] that the public was able to review, evaluate, and comment on many complex issues during the comment period provided." RTC at 8. The Region noted that among the more than 14,500 public comments it had received, a number of them had contained "substantive comments on, among other issues, the definition of OCS Source, limits on the source's potential to emit, choice of model, modeling data, ambient air boundary, source testing, emission factors, air quality analysis, applicability of increments and visibility, and cumulative impacts." *Id*. Accordingly, the Region believed that "[t]he volume of comments received and the substantive issues addressing technically and legally complex issues demonstrate[d] that the public was able to meaningfully review and comment on the Draft Permit." *Id*.

The Region also explained that "40 CFR § 71.7(a)(2) requires that it take a final action on a Title V permit application within 18 months of receiving a complete application. In conducting the permitting process, Region 10 must strike a balance between its obligation to provide for meaningful public participation and its responsibility to make a final permitting decision in a timely manner." *Id*. Based on all these factors, the Region had determined that "the commenters have not demonstrated that a period of more than 46 days is necessary to give the public a reasonable opportunity to comment." *Id*. at 7 (citing 40 C.F.R. §§ 71.11(g) and 124.13).

In its petition, ICAS does not explain why the Region's response to these comments is clearly erroneous or an abuse of discretion. In fact, ICAS does not even address the Region's response. ICAS's failure to address the Region's response is, in and of itself, sufficient to deny its claims of procedural error con-

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

cerning the comment period.[81]

Nevertheless, even if the Board considered ICAS's claim of procedural error, the Board would deny review of this claim for several reasons. First, the length of time the Region provided for comment on this permit – 46 days – is 16 days more than the regulatory minimum required by 40 C.F.R. §§ 71.11(d)(2)(i) and 124.10(b). It is also one day more than the amount of time ICAS had specifically requested for each permit in its letter.[82] *See* ICAS Letter at 2 (requesting nonconcurrent comment periods of 45 days). ICAS's attempt to recalculate the length of the comment period as "16 days" based on an unexplained mathematical formula involving the number and lengths of other comment periods is unconvincing and does not demonstrate clear error. *See Shell Discoverer 2012*, 15 E.A.D. at 521; *see also Russell City II*, 15 E.A.D. at 95-98 (denying review of a procedural error claim where petitioners fail to point to a part 124 procedural regulation that was violated); *Knauf II*, 9 E.A.D. at 17 (denying review where the permit issuer fulfilled the applicable regulatory obligations, but did not go beyond those requirements).

Furthermore, while it is true that the Region did not grant ICAS's request for nonoverlapping comment periods, ICAS has not pointed to any regulations that prohibit the Agency from issuing concurrent permits or that require – or even specify – a different comment period length when the Agency does issue concurrent permits. To the contrary, the relevant regulations authorize the Agency to issue a single public notice to "describe more than one permit or permit actions," 40 C.F.R. §§ 71.11(d)(1)(iii), 124.10 (a)(3), without mentioning a different time frame for public comment when concurrent permits are issued. While section 71.11(g) authorizes the Agency to extend a particular comment period on a case-by-case basis where a commenter has demonstrated the need for additional time – which would thereby provide an avenue for commenters to obtain longer comment periods in situations where comment periods overlap[83] – the provision does not prohibit, or even mention, overlapping comment periods.

---

[81] As the Board discussed above in Part III, a petitioner must explain why the permit issuer's previous response to those objections is clearly erroneous or otherwise warrants review. "[A] petitioner's failure to address the permit issuer's response is fatal to its request for review." *In re Indeck-Elwood LLC*, 13 E.A.D. 126, 143, 170 (EAB 2006); *accord Russell City II*, 15 E.A.D. at 10.

[82] Notably, therefore, for this permit, by providing a longer comment period, the Region did in essence partially grant ICAS's request.

[83] And, in this case, the Region did, provide additional time for comment on two of the permits whose comment period overlapped. The Region increased the comment period for the Shell *Kulluk* permit to 46 days and the comment period for the ConocoPhillips permit to 60 days. *See supra* note 78.

SR 1222

Finally, it is clear from the administrative record that the Region appropriately balanced conflicting considerations in deciding on the length of the comment period for this permit and in denying the request for nonoverlapping periods. ICAS has not demonstrated otherwise[84] and has therefore failed to show that the Region clearly erred or abused its discretion in either selecting a 46 day comment period or in denying ICAS's request for nonconcurrent comment periods. *See Shell Discoverer 2012*, 15 E.A.D. at 523 (denying review of a similar claim based on similar facts). Review of the Permit is therefore denied on this issue.

G. *ICAS Has Failed to Demonstrate That the Region Clearly Erred in Its Public Hearing Procedures or That Any of the Alleged Procedural Deficiencies Otherwise Warrant Review*

As noted above in Part V, the Region held two public hearings on the draft permit, one in Barrow, and a second in Anchorage. The Region also held an informational meeting prior to the Barrow public hearing. *See* Statement of Basis at 11 (scheduling informational hearing from 5:00-6:30 pm, public hearing from 7:00-9:00 pm); RTC at 6-7.

ICAS claims that the Region "committed clear legal error by failing to provide the public an adequate opportunity" to participate in the Barrow public hearing. ICAS Petition at 6; *see also id.* at 9-10. ICAS alleges three procedural problems with the Barrow hearing. *Id*. at 9-10. ICAS first claims that the Region continued with the hearing despite difficulties with the teleconference phone system that allegedly impaired the ability of the Region to hear all comments. *Id*. at 9. ICAS next alleges that, "for a significant portion of the hearing," the Region discussed a PowerPoint presentation that was not made available to the public attending the hearing. *Id*. at 9-10. Finally, ICAS contends that the Region failed to sufficiently inform those attending the public hearing that it had procured an

[84] The Board is unpersuaded by ICAS's argument that it had difficulty locating an expert to review the air modeling. *See* ICAS Petition at 8. As the Region indicated in its Response to Comments, RTC at 8, other commenters provided substantive, technical comments on the air modeling, which suggests that the comment period was sufficient to allow opportunity for meaningful comment. *See Fla. Power & Light Co. v. United States*, 846 F.2d 765, 772 (D.C. Cir. 1988) (upholding a short comment period as sufficient where the agency had received numerous comments, some lengthy, and the comments had had a "measurable impact" on the final rule); *Conference of State Bank Supervisors v. Office of Thrift Supervision*, 792 F. Supp. 837, 844 (D.D.C. 1992) (holding length of comment period not unreasonable especially in light of the comments that plaintiffs and other parties submitted). Furthermore, as the Region points out, it notified ICAS in May that the comment periods would begin in July. *See* Letter from Doug Hardesty, EPA, to North Slope Borough et al. (May 25, 2011) (A.R. HH-1). The Region also conducted three separate informational meetings in Barrow and Kaktovik, Alaska, more than a month prior to the start of the public comment period for the Permit "to inform the North Slope community of the draft permit and to describe opportunities for public participation." RTC at 6.

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

Inupiat interpreter for the hearing.[85] *Id.* at 10. ICAS asserts that making an interpreter "available in this fashion is akin to not having [one] at all." *Id.*

Part 71 and part 124 each contain a provision governing public hearings. *See* 40 C.F.R. §§ 71.11(f), 124.12. Both public hearing regulations require the permitting authority to hold a public hearing when the permitting authority "finds, on the basis of requests, a significant degree of public interest in a draft permit." *Id.* §§ 71.11(f)(1), 124.12(a)(1). The regulations also authorize the permitting authority to hold a public hearing "at its discretion, whenever, for instance, such a hearing might clarify one or more issues involved in the permit decision." *Id.* §§ 71.11(f)(2), 124.12(a)(2); *accord In re Russell City Energy Ctr.* ("*Russell City I*"), 14 E.A.D. 159, 164 n.6 (EAB 2008). The public hearing regulations also prescribe the method of giving public notice of the hearing, 40 C.F.R. §§ 71.11(f)(3), 124.12 (a)(4), the procedure for designating a presiding officer to preside at the hearing, *id.* §§ 71.11(f)(4), 124.12 (b), and the procedures for the public to comment at the hearing, *id.* §§ 71.11(f)(5), 124.12 (c). Finally, both regulations require that a tape recording or written transcript of the hearing be made publically available. *Id.* §§ 71.11(f)(6), 124.12 (d).

Parts 71 and 124 also both require the permit issuer, in making its final decision, to consider all comments it receives during the public comment period and at any public hearings and to issue a "response to comments." *Id.* §§ 71.11(j), 124.17(a); *see also id.* §§ 71.11(e), 124.11. More particularly, these provisions require the permit issuer to "[b]riefly describe and respond to all significant comments on the draft permit * * * raised during the public comment period, or during any hearing" in the response to comments document issued at the same time the final permit decision is issued. *Id.* §§ 77.11(j)(1)(ii), 124.17(a)(1). Importantly, none of the aforementioned regulations refer to, or in any way mention, a requirement to provide an interpreter or a requirement to provide written materials at the hearing.

Upon review of the administrative record and the parties' arguments, the Board concludes that ICAS has not shown that the Region clearly erred in its handling of the Barrow public hearing for any of the three reasons ICAS advances. Not only does ICAS fail to point to any specific regulatory provision that the Region violated, but none of the alleged problems otherwise warrant Board review. The Board addresses each alleged deficiency in more detail below.

ICAS's first contention – that the Region committed clear error because it was allegedly unable to adequately obtain input from the public due to telecom-

[85] According to ICAS, although the Region may have noted that an interpreter was available at the top of the hearing's sign-in sheet, it did not make a public announcement of this fact at the outset of the hearing. ICAS Petition at 10; ICAS Reply at 6; *see also infra* note 89.

SR 1224

munication problems during the hearing – is unpersuasive. The Region addressed this concern in its Response to Comments. *See* RTC at 9. There, the Region explained that, because such telecommunication problems are common on the North Slope, it had "recorded the public hearing in addition to having the hearing transcribed by a court reporter. From these *two* sources, Region 10 was able to capture the comments provided during the public hearing." *Id*. (emphasis added); *see also* Public Hearing Transcript ("Pub. Hrg Tr.") at 3 (explaining that the hearing was recorded on the teleconference line as a "safety net"). In response, ICAS merely asserts that "this does not change the fact that people were not able to be heard via phone." ICAS Petition at 9. Significantly, however, ICAS does not identify any comment that the Region failed to hear or for which the Region failed to provide a response.[86] *See id*. at 9; ICAS Reply at 6. Nor has any commenter come forward alleging that the Region failed to respond to his or her public hearing comments. The fact that the call center experienced some telecommunications problems during the public hearing – which the Region appears to have adequately anticipated and addressed by utilizing two methods of note taking – does not, without more, constitute clear legal error. Speculative claims that a permitting authority may have failed to hear a comment are insufficient to warrant Board review.

ICAS's contention that the Region committed clear procedural error by failing to provide pre-meeting copies of a Powerpoint presentation is inapposite. In its response to the petition, the Region explains that this presentation was given during the informational meeting, not during the public hearing. Region Response at 39; *see also* Statement of Basis at 11 (scheduling informational hearing prior to public hearing); RTC at 6-7 (mentioning informational meeting). ICAS does not dispute this.[87] *See* ICAS Reply at 5-7. Furthermore, nowhere do the regulations require a permitting authority to provide informational handouts at an informational meeting (or at a public hearing).[88] Thus, while it may be useful for a permit

---

[86] As discussed above, the regulatory requirement is for a permit issuer to respond to significant comments. *See* 40 C.F.R. § 77.11(j)(1)(ii), 124.17(a)(1). Thus, had ICAS identified significant comments raised at the public hearing that the Region failed to address, ICAS's arguments would have been more persuasive. *See, e.g., In re Rockgen Energy Ctr.*, 8 E.A.D. 536, 557 (EAB 1999) (remanding so that permit issuer could demonstrate it had given thoughtful and full consideration to public comments); *In re W. Suburban Recycling & Energy Ctr., L.P.*, 6 E.A.D. 692, 710-12 (EAB 1996) (remanding permit and requiring permit issuer to comply with procedures under part 124 including provision requiring a response to all significant comments received); *see also In re N. Mich. Univ.*, 14 E.A.D. 283, 317-18 (EAB 2009) (discussing part 124 requirement to adequately respond to comments).

[87] The Region's explanation makes sense in light of the purpose of the two meetings. While the permitting authority may present its analyses, findings, and conclusions about the draft permit at an informational meeting, the purpose of the public hearing is to obtain comments *from* the public.

[88] The only document the public hearing regulations require a permit issuer make available to the public is the transcript of the hearing. 40 C.F.R. §§ 71.11(f)(6), 124.12 (d).

Electronic Filing: Received, Clerk's Office 08/12/2024 **PCB 2024-077

issuer to provide copies of a presentation to the audience attending an informational meeting, failure to do so at the meeting – or at a subsequent public hearing – does not constitute clear error or otherwise warrant Board review.

ICAS's final contention – that the Region committed clear procedural error by not adequately informing the public that an interpreter was available at the public hearing – is also unconvincing. Importantly, as noted above, there is no regulatory requirement for an interpreter in either part 71 or part 124, nor is there a provision specifying the method a permit issuer should use to inform the public of the availability of an interpreter at the public hearing.[89] ICAS has not pointed to any other requirement, regulatory or otherwise, requiring an interpreter or prescribing the method for announcing one. Accordingly, while it may be preferable for the permit issuer to formally announce the availability of an interpreter at the beginning of the public hearing, and in both languages, failure to do so does not constitute clear error or otherwise warrant Board review.

In sum, ICAS has failed to demonstrate that the public hearing procedures utilized by the Region constituted clear error. ICAS has not shown that the Region violated any part 71 or 124 procedural regulation. Moreover, the alleged problems ICAS has identified do not, even if the Board were to find them to constitute a deficiency in some way, warrant Board review. Consequently, the Board denies review of the Permit on this ground.

VII. *CONCLUSION AND ORDER*

For the foregoing reasons, the Board concludes that none of the petitioners have demonstrated that review of Permit No. R10 OCS030000 is warranted on any of the grounds presented. The Board therefore denies review of the Permit.

So ordered.

---

[89] The parties seemingly dispute the method in which the Region notified the public of the availability of the interpreter. The Region stated in its Response to Comments that, "[p]rior to the Barrow public hearing, Region 10 contacted [ICAS] to arrange for an Iñupiat speaker to be available to provide Iñupiat interpretation at the hearing if requested by any participant. At the beginning of the hearing, participants were provided the opportunity to request Iñupiat interpretation during the hearing. No participant requested translation and therefore an interpreter was not used." RTC at 10-11. In response, ICAS claims that attendees only recall mention of an interpreter on the sign-up sheet, and only in English. ICAS Petition at 10. ICAS further asserts that the transcript of the public hearing does not indicate that an announcement was made. ICAS Reply at 6. In light of the Board's conclusion on this issue, it is unnecessary to determine the precise methodology the Region used to notify the public of the interpreter's availability.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

IN RE TUCSON ELECTRIC POWER

PSD Appeal No. 18-02

ORDER DENYING REVIEW

Decided December 3, 2018

Syllabus

The Sierra Club petitions the Environmental Appeals Board ("Board") to review a decision by the Department of Environmental Quality for Pima County, Arizona ("Pima County") to issue a federal Prevention of Significant Deterioration ("PSD") permit to Tucson Electric Power. The permit authorizes Tucson Electric Power to construct and operate up to ten additional electricity-generating units ("Units") at its Irvington Generating Station facility. Sierra Club challenges Pima County's determination that PSD requirements do not apply to the nitrogen oxide ("NO_x") emissions from the modified facility. Although the permit contains a cap that limits NO_x emissions below the level triggering PSD requirements, Sierra Club argues that the permit's monitoring requirements are not adequate to render the NO_x emissions cap practically enforceable and thus PSD requirements should apply.

The permit imposes several monitoring requirements to verify compliance with the NO_x emissions cap. Those requirements include, among other things: (i) biennial performance (stack) tests to determine how much NO_x each Unit emits; (ii) calculation of monthly and yearly NO_x emissions using information from the required stack tests and monitoring of ongoing operations; and (iii) monitoring of the pollution control devices for the new Units to ensure that the devices are working properly. Pima County concluded that these compliance monitoring requirements were sufficient to make the NO_x emissions cap practically enforceable.

Held: The Board denies Sierra Club's Petition for Review. Sierra Club has not carried its burden of showing that Pima County clearly erred or abused its discretion in determining that the NO_x emissions cap is practically enforceable.

Sierra Club's argument that the NO_x emissions cap is not practically enforceable because the permit's compliance monitoring requirements rely solely on biennial stack tests lacks merit because monitoring of the facility's pollution control devices is also an integral part of the permit's compliance monitoring requirements. Sierra Club's contention that the monitoring of the pollution control devices does not cure the problem with the permit's reliance on biennial stack tests was not preserved for review because that assertion

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

was not raised during the public comment period. In any event, Sierra Club's contention is not responsive to the role of monitoring of the pollution control devices as described by Pima County. Additionally, Sierra Club does not substantiate its argument that Pima County failed to support in the administrative record its conclusion that the method for calculating monthly and yearly NO_x emissions would likely overstate emissions. Lastly, Pima County adequately responded to Sierra Club's comments on the practical enforceability of the NO_x emissions cap. Pima County responded to Sierra Club's generalized claims on the inadequacy of biennial stack testing to monitor compliance throughout the year by providing a description of all the elements of the permit's compliance monitoring requirements. Given the general nature of Sierra Club's comments, more was not required.

Before Environmental Appeals Judges Aaron P. Avila, Mary Kay Lynch, and Mary Beth Ward.

Opinion of the Board by Judge Ward:

I. *STATEMENT OF THE CASE*

This case involves a challenge by the Sierra Club to a determination in a federal Clean Air Act permit that the Act's Prevention of Significant Deterioration ("PSD") requirements do not apply to the emissions of nitrogen oxides – commonly referred to as NO_x – from a facility owned and operated by Tucson Electric Power ("Tucson Electric"). Potential NO_x emissions from the facility are reduced by pollution control devices, and the permit imposes a limit (or cap) on NO_x emissions consistent with the control devices' ability to reduce emissions. In such circumstances, the applicability of PSD requirements is based on the facility's emission rate, as reduced by the control devices, so long as the cap on the reduced emissions is enforceable as a practical matter. The specific issue presented here is whether the challenged permit's compliance monitoring requirements are sufficient to make the NO_x emissions cap practically enforceable.

In August 2018, the Department of Environmental Quality for Pima County, Arizona ("Pima County") issued a federal PSD permit ("Permit") to Tucson Electric authorizing the construction and operation of up to ten additional electricity-generating units ("Units") at Tucson Electric's Irvington Generating Station facility. Although the expanded facility would emit several pollutants above levels that trigger PSD requirements, the Permit imposes certain requirements as to NO_x emissions that bring those emissions below levels that trigger such requirements. Specifically, the Permit requires two existing electricity-generating units at the facility to be shut down, mandates the use of pollution control devices on the new Units that reduce NO_x emissions, and imposes a NO_x emissions cap consistent with that reduction.

SR 1228

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

The Permit further imposes monitoring and recordkeeping requirements to verify compliance with the NO_x emissions cap. Those compliance monitoring requirements include, among other things: (i) biennial performance (stack) tests to determine how much NO_x each Unit emits; (ii) calculation of monthly and yearly NO_x emissions using information from the required stack tests and monitoring of ongoing operations; and (iii) monitoring of pollution control devices to ensure that they are working properly. Finding that these compliance monitoring requirements made the NO_x emissions cap practically enforceable, Pima County concluded that PSD requirements do not apply to the new Units as to their NO_x emissions.

In its Petition for Review, Sierra Club argues that the NO_x emissions cap is not practically enforceable – that is, compliance with the cap cannot be verified – because the stack tests are conducted too infrequently, the monthly and yearly emission calculations rely solely on these infrequent stack tests, and the monitoring of pollution control devices does not cure the problem with the infrequent stack tests. As a consequence, Sierra Club contends that PSD requirements should apply to the facility's increased NO_x emissions resulting from its proposed expansion.

We conclude that Sierra Club has not carried its burden of showing that Pima County clearly erred or abused its discretion in determining that the NO_x emissions cap is practically enforceable. The Petition for Review is therefore denied.

II. *PRINCIPLES GOVERNING BOARD REVIEW*

In considering a petition filed under 40 C.F.R. § 124.19(a), the Board first evaluates whether the petitioner has met threshold procedural requirements such as timeliness, standing, issue preservation, and specificity. *In re Indeck-Elwood, LLC*, 13 E.A.D. 126, 143 (EAB 2006). For example, a petitioner must demonstrate that any issues and arguments it raises on appeal have been preserved for Board review (i.e., were raised during the public comment period or public hearing on the proposed permit), unless the issues or arguments were not reasonably ascertainable at the time. 40 C.F.R. §§ 124.13, .19(a)(4)(ii); *see, e.g.*, *In re City of Attleboro*, 14 E.A.D. 398, 405-06, 444 (EAB 2009); *In re City of Moscow*, 10 E.A.D. 135, 141, 149-50 (EAB 2001).

Under part 124, the petitioner bears the burden of demonstrating that review is warranted. *See* 40 C.F.R. § 124.19(a)(4). Ordinarily, the Board will deny review of a permit decision and thus not remand it unless the petitioner demonstrates that the permit decision is based on a clearly erroneous finding of fact or conclusion of law or involves a matter of policy or exercise of discretion that warrants review. *Id.* § 124.19(a)(4)(i)(A)-(B); *see, e.g.*, *In re La Paloma Energy Ctr., LLC*,

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

16 E.A.D. 267, 269 (EAB 2014). The Board's power to grant review "should be only sparingly exercised," and "most permit conditions should be finally determined at the [permit issuer's] level." Consolidated Permit Regulations, 45 Fed. Reg. 33,290, 33,412 (May 19, 1980); *see also* Revisions to Procedural Rules Applicable in Permit Appeals, 78 Fed. Reg. 5281, 5282 (Jan. 25, 2013).

When evaluating a permit decision for clear error, the Board examines the administrative record that serves as the basis for the permit to determine whether the permit issuer exercised "considered judgment" in rendering its decision. *See, e.g.*, *In re Steel Dynamics, Inc.*, 9 E.A.D. 165, 191, 224-25 (EAB 2000); *In re Ash Grove Cement Co.*, 7 E.A.D. 387, 417-18 (EAB 1997). Similarly, the Board will uphold a permitting authority's exercise of discretion if that decision is cogently explained and supported in the record. *See, e.g.*, *La Paloma Energy Ctr.*, 16 E.A.D. at 270, 284, 292. The Board does not find clear error or an abuse of discretion simply because petitioner presents a difference of opinion or alternative theory regarding a matter. *See In re Town of Ashland Wastewater Treatment Facility*, 9 E.A.D. 661, 667 (EAB 2001); *In re NE Hub Partners, L.P.*, 7 E.A.D. 561, 567-68 (EAB 1998), *review denied sub nom. Penn Fuel Gas, Inc. v. EPA*, 185 F.3d 862 (3d Cir. 1999). And on matters that are fundamentally technical or scientific in nature, the Board typically defers to a permit issuer's technical expertise and experience, as long as the permit issuer has adequately explained its rationale and supported its reasoning in the administrative record. *See, e.g.*, *In re FutureGen Indus. All., Inc.*, 16 E.A.D. 717, 733-35 (EAB 2015), *review dismissed as moot sub nom. DJL Farm LLC v. EPA*, 813 F.3d 1048 (7th Cir. 2016).

III. *STATUTORY AND REGULATORY HISTORY*

The PSD provisions of the Clean Air Act govern air pollution both in "attainment" areas, where the air quality meets or is cleaner than the Environmental Protection Agency's ("EPA") national ambient air quality standards, and in "unclassifiable" areas where EPA has not categorized the air quality as having attainment or nonattainment status. Clean Air Act ("CAA") §§ 160-169, 42 U.S.C. §§ 7470-7479; *see also In re Palmdale Energy, LLC*, PSD Appeal No. 18-01, slip op. at 4-7 (EAB Oct. 23, 2018), 17 E.A.D. ___ (providing in-depth description of the PSD program). In both these areas, the PSD program requires that new "major stationary sources" of air pollutants or "major modifications" to such sources obtain a permit prior to construction.[1] *See* CAA § 165, 42 U.S.C. § 7475; 40 C.F.R.

[1] The actual term in the PSD statutory provisions is "major emitting facility." *See* CAA § 169(1), (2)(C), 42 U.S.C. § 7479(1), (2)(C). The related term "major stationary source" is used elsewhere in the Clean Air Act, s*ee* CAA § 111(a), (f), 40 U.S.C. § 7411(a),

SR 1230

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

§ 52.21. Among other things, an applicant for a PSD permit must show that its facility will achieve emission limits attainable by the "best available control technology" for pollutants emitted from the facility above designated levels. CAA § 165(a)(4), 42 U.S.C. § 7475(a)(4); 40 C.F.R. § 52.21(b)(23), (j)(2)-(3).

Under the regulations implementing the PSD program, a "major stationary source" is, among other things, any source from certain source categories (including fossil fuel-fired steam electric power plants such as the facility here) that have the "potential to emit" 100 tons per year or more of any of several regulated pollutants, including NO_x.[2] 40 C.F.R. § 52.21(b)(1)(i). A "major modification" is "any physical change in or change in the method of operation of a major stationary source" that would result in: (1) a "significant emissions increase" of any of such pollutants; and (2) a "significant net emissions increase" of any of such pollutants. *Id.* § 52.21(b)(2)(i). The regulations define a significant emissions increase and significant net emissions increase on a pollutant-by-pollutant basis. *Id.* § 52.21(b)(23), (40). For NO_x, a significant increase and a significant net increase are both defined as an increase of 40 tons per year. *Id.*

A critical aspect of determining whether a new source or the modification of a source would be a major source or major modification, respectively, is ascertaining the new source or modification's "potential to emit" pollutants and whether that potential meets or exceeds designated levels. "Potential to emit" has been defined by regulation as requiring consideration of "[a]ny physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment." *Id.* § 52.21(b)(4). However, the definition makes clear that a pollution control device's limitation on capacity can only be considered in determining a facility's potential to emit "if the limitation or the effect it would have on emissions is federally enforceable." *Id.*

(f). The Act recognizes the similarity between the two terms by defining "major stationary source" and "major emitting facility" as synonymous "[e]xcept as otherwise expressly provided." CAA § 302(j), 42 U.S.C. § 7602(j); *see Chevron, U.S.A., Inc. v. NRDC, Inc.*, 467 U.S. 837, 860 (1984). In implementing the PSD program, EPA uses the terms "major stationary source" and "major modification," 40 C.F.R. § 52.21(b)(1), (2), and, therefore, the Board will use that terminology as well. *See* U.S. EPA, *New Source Review Workshop Manual*, at A.1 (draft Oct. 1990).

[2] The applicable regulation defines these pollutants as including "[a]ny pollutant for which a national ambient air quality standard has been promulgated." 40 C.F.R. § 50.21(b)(50)(i).

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Whether a physical or operational limitation on a source's emissions is "federally enforceable" has been interpreted by EPA as meaning that the emission limit reflecting the physical or operational limitation is "enforceable as a practical matter," or "practically enforceable." Memorandum from John S. Seitz, Dir., Office of Air Quality Planning & Standards, U.S. EPA, and Robert I. Van Heuvelen, Dir., Office of Regulatory Enf't, U.S. EPA, to EPA Reg'l Air Div. Dirs., Options for Limiting the Potential to Emit (PTE) of a Stationary Source Under Section 112 and Title V of the Clean Air Act 3 & attach. 3, at 1 (Jan. 25, 1995) ("Seitz Memorandum"); *see also In re Peabody W. Coal Co.*, 12 E.A.D. 22, 32 (EAB 2005). To be practically enforceable, a permit must, among other things, specify "the method to determine compliance including appropriate monitoring, recordkeeping, and reporting." Seitz Memorandum at 6; *cf.* 40 C.F.R. § 49.152 (defining "enforceable as a practical matter" in a similar manner for air quality planning and management in Indian country). To be appropriate, such monitoring, recordkeeping, and reporting must be sufficient to allow a permitting agency to verify a source's compliance with the permit's emission limit. *See In re Shell Offshore, Inc.*, 15 E.A.D. 536, 557, 559 n.25 (EAB 2012) (holding that the permit issuer did not clearly err in concluding that emission limits were practically enforceable because the permit's monitoring requirements provided "the ability to assess and verify compliance"); *Peabody*, 12 E.A.D. at 39-41 (finding no clear error by the permit issuer in determining that the permittee's proposed monitoring requirements were insufficient to make an emission limit practically enforceable because the requirements did not provide "a reliable method of determining compliance"); *In re Pencor-Masada Oxynol, LLC*, Pet. No. II-2001-05, 2002 EPA CAA Title V LEXIS 44, at *16 (Adm'r Apr. 8, 2002) (stating that for an emission limit to be practically enforceable, the permit must contain terms and conditions sufficient "to determine whether the limit has been exceeded").

Pima County's Department of Environmental Quality administers the federal PSD permitting program within Pima County, Arizona pursuant to a delegation from EPA. *See* Agreement for Delegation of Source Review under the Federal Prevention of Significant Deterioration (PSD) Program Set Forth in 40 CFR 52.21 by the United States Environmental Protection Agency, Region 9 to the Pima County Air Quality Control District (June 5, 2018). Accordingly, the Tucson Electric Permit is a federally-issued permit appealable to the Board under section 124.19 of Title 40 of the Code of Federal Regulations. 40 C.F.R. § 124.19(a)(1).

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

IV. *FACTUAL AND PROCEDURAL HISTORY*

A. *Tucson Electric's Proposed Expansion of the Irvington Generating Station Facility*

Tucson Electric is proposing to expand its fossil fuel-fired steam electric power plant, known as the Irvington Generating Station, by building up to ten new internal combustion engine units ("Units"). Pima Cty. Dep't of Envtl. Quality, *Prevention of Significant Deterioration Air Quality Permit, Permit No. 1052*, at 4 (Aug. 8, 2018) (Administrative Record ("A.R.") 23) ("Permit"). Tucson Electric plans to use these new Units to support increased use of wind and solar-generated electrical power sources. The new Units can compensate for the variability of wind and solar power sources by providing "[r]eliable, efficient, grid-balancing resources which can ramp up quickly and provide 100 percent of their [effective load carrying capability] during multiple peak periods of any length." Tucson Elec. Power, *Application for a Prevention of Significant Deterioration (PSD) Authorization and Significant Revision to Class I Air Quality Permit for Irvington Generating Station* 2-2, 2-5 (July 2017) (A.R. 2) ("Permit Application").

The Irvington Generating Station is a major stationary source subject to the Clean Air Act's PSD program and is in an area designated by EPA as in attainment. Permit at 4. Because the proposed addition of ten new Units would significantly increase potential emissions of several regulated pollutants, this expansion of the facility qualifies as a major modification and triggers PSD requirements. *Id*. Accordingly, Tucson Electric applied to Pima County to amend its existing air quality permit (referred to as a Class I permit) and convert it to a combined PSD permit and Class I permit.[3]

The modified facility would have triggered PSD requirements for its NO_x emissions; however, Tucson Electric requested a limit on NO_x emissions – referred to by the parties as a NO_x emissions cap – for the new Units to keep their emissions below the PSD threshold.[4] *See* Letter from Conrad Spencer, Tucson Elec. Power,

---

[3] The Class I permit was required to allow construction and operation of the original facility under the Arizona Administrative Code, *see* Ariz. Admin. Code § R18-2-302, which implements Arizona's operating permits program, authorized by EPA under Title V of the Clean Air Act, 42 U.S.C. §§ 7661-7661f. *See* Clean Air Act Full Approval of the Arizona Operating Permits Program, 66 Fed. Reg. 63,175 (Dec. 5, 2001) (final rule fully approving Arizona's operating permits program).

[4] In the Administrative Record, the limitation on NO_x emissions is described interchangeably as a "cap" and a "limit." *See, e.g.*, Permit at Part B § II.A.1. For clarity

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

to Rupesh Patel, Pima Cty. Dep't of Envtl. Prot. (Feb. 23, 2018) (A.R. 13) (requesting NO_x emissions cap of 170 tons per year). Tucson Electric also identified in its permit application three other aspects of the modified facility that would curtail NO_x emissions from the new Units or the overall facility. First, each new Unit would be equipped with a selective catalytic reduction device that would substantially reduce NO_x emissions. *See* Permit Application at 2-6, 3-3. Second, the Units would be limited to five startups per day. *See id.* at 2-6. Third, two existing steam-generating units at the facility would be permanently shut down offsetting, in part, the increase in NO_x emissions from the addition of the ten new Units. *See id.* at 2-5, 4-9. In combination, these terms of operation would limit the net increase in NO_x emissions from the expansion of the Irvington facility to an amount that is below the "significant" level of 40 tons per year.[5] Permit at 4.

We describe below: (i) the terms of the proposed combined PSD and Class I permit ("Proposed Permit") noticed for public comment with a focus on the compliance monitoring requirements pertaining to the NO_x emissions cap, *see* Part IV.B; and (ii) Sierra Club's comments on the Proposed Permit and Pima County's response to those comments, *see* Part IV.C.

B. *The Proposed Permit's Requirements Concerning the NO_x Emissions Cap*

In February 2018, Pima County issued the Proposed Permit for public comment. The Proposed Permit included the conditions necessary to restrict NO_x emissions below the level triggering PSD requirements – requiring use of selective catalytic reduction devices on each new Unit, limiting startups of the new Units to five per day, retiring two existing steam-generating units, and a 170 tons per year NO_x emissions cap – and imposed requirements to verify compliance with the NO_x

---

and consistency, the Board will use the term "cap" to refer to the limitation on NO_x emissions.

[5] The to-be-eliminated steam units emit approximately 140 tons per year of NO_x. Thus, the replacement of these units with the ten new Units (limited to a combined total of 170 tons per year of NO_x) would result in a net legally-allowed increase of NO_x of approximately 30 tons per year. *See* Pima Cty. Dep't of Envtl. Quality, *Responses to Public Comments* 7 (Aug. 8, 2018) (A.R. 22) ("RTC"). Further, Pima County estimated that the ten Units would emit 152.8 tons per year of NO_x – i.e., less than the 170 tons per year cap – based on the manufacturer's specifications on NO_x emissions from the Units with selective catalytic reduction devices and assuming five startups per day, the maximum allowed under the Permit. Pima Cty. Dep't of Envtl. Quality, *Technical Support Document* attach. B at 2 tbl.B-2 (Aug. 2018) (A.R. 24).

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

emissions cap. Pima Cty. Dep't of Envtl. Quality, *Proposed Prevention of Significant Deterioration Air Quality Permit, Permit No. 1052*, at 4 & Part B § V.E (Feb. 9, 2018) (A.R. 12.1) ("Proposed Permit").

As to the verification of compliance, the Proposed Permit specified that "[c]ompliance with the NO_x emission [cap] shall be demonstrated by performance tests as detailed in Condition II.D, monitoring as detailed in Condition II.B, and recordkeeping as detailed in Condition II.C." *Id.* at Part B § II.A.1.b. The performance tests, monitoring, and recordkeeping required for compliance are described further below.

First, the Proposed Permit called for performance tests – also referred to as "stack tests" – for each of the new Units to be conducted "using the methods and procedures in 40 C.F.R. § 60.4244 and Table 2 of 40 C.F.R. part 60, subpart JJJJ." Proposed Permit at Part B § II.D.2.a. For NO_x emissions, these stack tests measure "the concentration of NO_x in the engine exhaust" during operation of the facility at periods other than at startup (i.e., non-startup operating periods). 40 C.F.R. § 60.4244(b), (d). Because the selective catalytic reduction devices must be operated "at all times while fuel is flowing to the [Unit], excluding periods of startup," stack tests reflect the impact the selective catalytic reduction devices have on NO_x emissions. *See* Proposed Permit at Part B § II.A.c.

In addition to the regulatory procedures for stack tests, the Proposed Permit specified that the tests "shall be performed at 25, 40, 70, and 100 percent of peak load" or at the minimum and peak load levels based on the prior twelve months of operation. *Id.* at Part B § II.D.2.b. As to the frequency of testing, each Unit must be tested "within 60 days after achieving the maximum production rate, but not later than 180 days after initial startup." *Id.* at Part B § II.D.1. Thereafter, each Unit must be subjected to a stack test "no less frequently than once in each period of two consecutive calendar years," but at least five of the Units must be tested each calendar year. *Id*. This means that each Unit will be tested at least once every two years.

Second, the Proposed Permit imposed several monitoring and recordkeeping requirements to verify continuing compliance with the NO_x emissions cap. These monitoring and recordkeeping requirements established a procedure for calculating monthly and yearly NO_x emissions and a program for ensuring that the selective catalytic reduction devices are operated properly at all times. *See id.* at Part B § II.C.

The Proposed Permit required the calculation of NO_x emissions on a monthly and yearly basis for non-startup and startup operating periods. For non-

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

startup operating periods, the Proposed Permit required that monthly NO_x emissions be calculated by combining information on NO_x emission rates measured in required stack tests with monitoring data on the operation of the Units. Specifically, the Proposed Permit required that Tucson Electric calculate a NO_x "emission factor" from the most recent stack test expressed in terms of pounds of NO_x emitted per the heat input measured in British thermal units ("BTUs") of natural gas used to power the Unit. *Id.* at Part B § II.D.2.c. Additionally, the Proposed Permit required Tucson Electric to monitor and record the hours of operation of each Unit and natural gas consumption in BTUs during operation. *Id.* at Part B § II.B.1. The Proposed Permit then directed that Tucson Electric calculate monthly NO_x emissions during non-startup operating periods on a Unit-by-Unit basis by multiplying each Unit's emission factor by the BTUs of heat input used by the Unit over the month during these operating periods. *Id.* at Part B § II.C.9.

For startup operating periods, the Proposed Permit required that monthly NO_x emissions be calculated by multiplying the number of startups per Unit in a month by the manufacturer-supplied NO_x rate of emissions for startup ("startup emission rate") of the Unit. *Id.* at Part B § II.C.9. To implement this requirement, the Proposed Permit specified that Tucson Electric monitor the number of startups for all Units and record the number and duration of all startups. *Id.* at Part B § II.B.2, II.C.1. Emission calculations for startup operating periods are then combined with emission calculations for non-startup operating periods to calculate total monthly emissions and a twelve-month (i.e., yearly) rolling average of NO_x emissions. *Id.* at Part B § II.C.9.

Lastly, the Proposed Permit imposed additional requirements as to the selective catalytic reduction devices to assure proper functioning of these devices. These monitoring and recordkeeping requirements included the following: (i) the devices must be maintained and operated in a manner consistent with good air pollution control practice for minimizing NOx emissions; (ii) the catalyst in the devices must be cleaned and replaced according to the manufacturer's recommendations; (iii) two key operating parameters of the devices – ammonia injection rate and temperature – must be monitored and recorded at least once every fifteen minutes; (iv) if ammonia injection to a device fails and cannot be restored in ten minutes, the Unit must be shut down; (v) records must be kept of any instance in which ammonia injection fails for more than two minutes; and (vi) the selective catalytic reduction devices must have a continuous NO_x process monitor (which measures NO_x concentration and adjusts ammonia injection levels to achieve desired NO_x reduction). Proposed Permit at Part B § II.A.1.c, II.B.3, II.C.4; *see* Hug Eng'g, *Operating Manual: Control Unit SNQ* 1 (v03.00 Mar. 6, 2013) (A.R. 12).

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

C. *Sierra Club's Comments on the Proposed Permit and Pima County's Response*

Sierra Club submitted comments on the Proposed Permit arguing, among other things, that the NO_x emissions cap is not "practically enforceable,"[6] and thus the cap cannot be considered a limitation on the facility's potential to emit NO_x. Sierra Club, *Intent to Approve: Proposed Revision to the existing Air Quality Permit No. 1052 to Tucson Electric Power (TEP) Irvington/H. Wilson Sundt Generating Station (IGS)* 8-9 & attach. at 20 (Mar. 29, 2018) (A.R. 21.2) ("Sierra Club Comments"). Sierra Club contended that absent a practically enforceable limitation on the facility's potential to emit NO_x, Pima County erred in concluding that PSD requirements are not applicable to NO_x emissions. In its comments and in an expert report attached to its comments, Sierra Club advanced three arguments as to why the NO_x emissions cap is not practically enforceable.

First, Sierra Club contended that the Proposed Permit's compliance monitoring for NO_x was inadequate because it relied on stack tests that could be performed as infrequently as every two years. *Id.* at 2, 9. Sierra Club argued that "using stack tests once every two years to determine whether the [Units] are in compliance with the permit is woefully inadequate." *Id.* The expert report attached to Sierra Club's comments asserted that stack tests "may not be representative for emissions during routine operations" because stack tests do not provide data on whether pollution control devices at a facility are functioning at an effective level at times other than when the stack test is performed. *Id.* attach. at 21-22 & n.59 (citing to EPA comment letters on state permits that raise this concern as a reason to require additional compliance monitoring to supplement annual stack tests). The solution, according to the expert report, would be to require Continuous Emissions Monitors. *Id.* attach. at 23. The report argued that without Continuous Emissions Monitors, "community members will not be able to protect themselves against harmful emissions and local, state, and federal regulatory agencies cannot detect and cure violations of permit conditions." *Id.*

Second, Sierra Club argued that the NO_x emissions cap is not practically enforceable because the Permit does not contain an "unambiguous methodology for calculating NO_x emissions from the emission [stack] test." *Id.* attach. at 25; *see*

---

[6] Sierra Club uses the term "practicably enforceable" as well as "practically enforceable" in its Petition. *See, e.g.,* Petition for Review of Prevention of Significant Deterioration Permit 1, 6 (Sept. 7, 2018) ("Pet."). But as we see no difference between the two (and Sierra Club does not assert that there is), the Board will use the term "practically enforceable" for clarity and consistency.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

also id. at 2, 9. Sierra Club requested that the Proposed Permit "be revised to include an equation that lays out the emission calculation in detail." *Id.* attach. at 25.

Third, Sierra Club asserted that there was no record support for a manufacturer-supplied NO_x emission rate during startup, which was to be used to calculate emissions during startup operating periods. *Id.* at 2, 9 & attach. at 25. Although the Proposed Permit referred to the NO_x startup emission rate as "guaranteed," Sierra Club noted that there was no manufacturer guarantee provided for a startup NO_x emission rate included in an attachment to the draft Technical Support Document. *Id.* attach. at 25.

In August 2018, Pima County issued the Permit and its response to the public comments ("Response to Comments") received on the Proposed Permit, including its response to each of Sierra Club's comments on whether the NO_x emissions cap is practically enforceable.

As to Sierra Club's comment about the adequacy of stack tests for determining continuing compliance with the NO_x emissions cap, Pima County acknowledged that "EPA has indicated * * * that annual [stack] tests alone are insufficient to assure compliance with emission limits." Pima Cty. Dep't of Envtl. Quality, *Responses to Public Comments* 10 (Aug. 8, 2018) (A.R. 22) ("RTC"). However, Pima County explained that the Permit does not rely solely on the results of stack tests to determine compliance. *Id.* Pima County detailed how monthly and yearly NO_x emissions would be calculated using conservative non-startup emission factors and a similarly conservative startup emission rate and how monitoring of the selective catalytic reduction devices would assure that these control devices function properly at all times. *Id.* at 10-13.

In response to the request for an unambiguous methodology in calculating NO_x emissions, Pima County revised the Permit to include "a more detailed compliance determination methodology, expressed in the form of an equation." *Id.* at 13. Pima County noted that "[t]his methodology clearly indicates the emission factors and monitored data that will be used when calculating total NO_x emissions from the engines." *Id.*; *compare* Proposed Permit at Part B § II.C.9 *with* Permit at Part B § II.C.9.

Finally, to address the concern with the manufacturer-supplied startup emission rates, Pima County clarified that it had meant to reference the manufacturer-specified, not manufacturer-guaranteed, startup emission rates, and it amended the Permit accordingly. RTC at 12; *see* Permit at Part B § II.C.9. Further, Pima County admitted it had not included the latest manufacturer data in the

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

administrative record and explained that it had corrected this error by obtaining a waiver of the manufacturer's confidentiality claim concerning this information and included the information on its website. RTC at 4, 12.

This appeal followed.

V. *ANALYSIS*

In its Petition for Review, Sierra Club renews its challenge to Pima County's determination that the Permit's inclusion of a NO_x emissions cap prevents the addition of the ten new Units to Tucson Electric's Irvington facility from triggering PSD requirements for NO_x emissions. The sole issue that Sierra Club raises on appeal is whether the NO_x emissions cap is practically enforceable.

Specifically, Sierra Club argues (as it did in its comments) that biennial stack tests – used to develop each Unit's emission factor for calculating non-startup operating period emissions – are too infrequent to verify compliance with the NO_x emissions cap. Petition for Review of Prevention of Significant Deterioration Permit 5, 7 (Sept. 7, 2018) ("Pet."). Sierra Club further contends that reliance on biennial stack testing is not cured by the Permit's compliance monitoring requirements for the selective catalytic reduction devices or by Pima County's assertion that the emission factors for non-startup operating periods are required to be calculated in a conservative fashion. *Id.* at 12, 16 n.37. In a related vein, Sierra Club also asserts that Pima County's response to its comments was inadequate because Pima County did not "show that the permit relies on sufficient monitoring data to assure accurate and continuous monthly compliance with the NO_x cap." *Id.* at 12.

Mirroring its response to Sierra Club's comments, Pima County defends the practical enforceability of the NO_x emissions cap in its Response to the Petition by emphasizing the interconnected relationship of the entire suite of the Permit's compliance monitoring requirements. Pima County's Response to Sierra Club's Petition for Review 15, 17-19 (Oct. 1, 2018) ("Pima County Resp."); *see also* Response of Permittee Tucson Electric Power to Petition for Review 10-15 (Sept. 28, 2018) ("Tucson Electric Resp.").[7] Pima County does not claim that biennial

[7] Additionally, Tucson Electric contends that the Petition should be summarily dismissed because the question of whether a permit's compliance monitoring requirements are sufficient to ensure the practical enforceability of an emissions cap is not a "novel issue," as the Board and the Administrator have upheld substantially similar challenges to the practical enforceability of an emissions cap in *In re Shell Offshore, Inc.*, 15 E.A.D. 536,

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

stack testing is sufficient to make the NO_x emissions cap practically enforceable. Pima County Resp. at 16. Nor do we read Pima County's Response to Comments or its Response to the Petition as contending that biennial stack testing combined with monthly and yearly emission calculations based on that testing would *alone* provide adequate compliance monitoring requirements for the expansion of the Irvington facility. *Id.* Rather, Pima County argues that the NO_x emissions cap is practically enforceable based on how the biennial stack testing and the monthly and yearly emission calculations requirements are complemented by: (i) the requirements pertaining to the use, operation, and monitoring of the selective catalytic reduction devices; and (ii) the Permit's conservative methodology for calculating emission factors. *Id.* at 15-19; *see also* Tucson Electric Resp. at 11-15.

Given the Permit's compliance monitoring requirements and Pima County's justification for the practical enforceability of the NO_x emissions cap, the issues before us are narrower than stated by Sierra Club. Sierra Club's objections to the adequacy of the biennial stack tests and stack test-derived emission factors are not responsive to the actual compliance monitoring requirements in this Permit – which include more than stack tests and stack-test derived emission factors – and Pima County's explanation of how compliance with the Permit's NO_x emissions cap will be verified.[8] Thus, we need not determine whether biennial stack tests and use of

---

546-67 (EAB 2012), and *In re Pope & Talbot, Inc., Lumber Mill*, Pet. No. VIII-2006-04, 2007 EPA CAA Title V LEXIS 3, at *12-13 (Adm'r Mar. 22, 2007). Tucson Electric Resp. at 7. We reject this argument. The Board's two main decisions involving a similar issue, *Shell Offshore* and *Peabody*, 12 E.A.D. at 34-47, as well as the Administrator's decision in *Pope & Talbot*, turned on a fact-based analysis of the permit in question, the nature of the facility, and the claims of the petitioner. They do not stand for the proposition that any permit using emission factors and monitoring of control devices to verify compliance with an emissions cap can be summarily affirmed as sufficient to ensure the practical enforceability of that cap.

[8] At times, several of Sierra Club's statements in its Petition and its comments appear to question the adequacy of the regulatorily-established requirements for conducting performance (stack) tests in subpart JJJJ, 40 C.F.R. § 60.4244, to determine the compliance of internal combustion engines with NO_x emission limitations. *See* Pet. at 11 (arguing that stack tests provide inadequate emissions compliance data due to the shortness of the tests and because they are conducted under ideal, prearranged conditions); Sierra Club Comments attach. at 21-22 & n.59 (same). To the extent Sierra Club intends this Petition to be a challenge to the requirements for tests in subpart JJJJ, 40 C.F.R. § 60.4244, that question is not properly before the Board because challenges to Clean Air Act regulations must be brought in the U.S. Court of Appeals, District of Columbia Circuit, within 60 days of promulgation. 42 U.S.C. § 7607(b). Moreover, the Board does not

emission factors based on those biennial stack tests to project monthly and yearly emissions – standing alone – would be sufficient to verify compliance with the NO_x emissions cap. What remains at issue, however, are Sierra Club's challenges to: (i) Pima County's reliance on two aspects of the Permit's compliance monitoring requirements – monitoring of the selective catalytic reduction devices and the conservative methodology for calculating emission factors for non-startup operating periods – to ensure the NO_x emissions cap is practically enforceable; and (ii) the adequacy of Pima County's response to Sierra Club's comments on the practical enforceability of the NO_x emissions cap. We address these contentions in turn below.

A. *Sierra Club's Challenges to the Permit's Compliance Monitoring Requirements*

1. *Sierra Club Fails to Show Clear Error in Pima County's Reliance on Monitoring of the Selective Catalytic Reduction Devices to Ensure the NO_x Emissions Cap is Practically Enforceable*

As discussed, the Permit's compliance monitoring requirements have two main components in addition to stack tests. The first component involves calculating monthly and yearly NO_x emissions for each Unit during non-startup and startup operating periods. NO_x emissions for non-startup periods are based on NO_x emission factors derived from stack tests conducted every two years and for startup periods are based on manufacturer data. The second component is monitoring of the selective catalytic reduction devices.

In its Petition, Sierra Club contends that the monitoring requirements for the selective catalytic reduction devices do not cure the problem with the Permit's reliance on stack tests and stack test-derived emission factors because the monitoring does not produce data to be "included in the formula to establish the NO_x emission factor." Pet. at 12. To the extent Sierra Club is challenging Pima County's conclusion that the monitoring requirements for the selective catalytic reduction devices are, in combination with the Permit's other monitoring requirements, adequate to ensure the NO_x emissions cap is practically enforceable, this argument is raised for the first time in Sierra Club's Petition. As a result, it has not been preserved for Board review. The regulations governing Board review of

---

review EPA regulations as part of permit appeals. *See In re FutureGen Indus. All., Inc.*, 16 E.A.D. 717, 724 (EAB 2015) (the Board "is not the appropriate forum" for raising dissatisfaction with an EPA regulation); *In re Tondu Energy Co.*, 9 E.A.D. 710, 715-16 (EAB 2001) ("As we have repeatedly stated, permit appeals are not appropriate fora for challenging Agency regulations.").

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

permit appeals, require that the party seeking review establish "that each issue being raised in the petition was raised during the public comment period (including any public hearing)," or demonstrate that the issue was not "reasonably ascertainable" at that time. 40 C.F.R. § 124.13, 19(a)(4)(ii); *see, e.g.*, *In re Seneca Res. Corp.*, 16 E.A.D. 411, 415 (EAD 2014). As the Board has previously explained, "[t]he effective, efficient and predictable administration of the permitting process demands that the permit issuer be given the opportunity to address potential problems with draft permits before they become final." *In re Encogen Cogeneration Facility*, 8 E.A.D. 244, 250 (EAB 1999). This is a particularly important requirement as to technical issues such as the adequacy of the compliance monitoring requirements presented here because "the locus of responsibility for important technical decisionmaking rests primarily with the permitting authority, which has the relevant specialized expertise and experience." *Peabody*, 12 E.A.D. at 33.

Although Sierra Club did challenge the practical enforceability of the NO_x emissions cap in its comments, Sierra Club did not include as part of that challenge any critique of the role that the monitoring requirements for the selective catalytic reduction devices play. In fact, Sierra Club's comments never even mentioned the Permit's monitoring requirements for the selective catalytic reduction devices.

The section in Sierra Club's comments addressing practical enforceability of the NO_x emissions cap contains four paragraphs: (1) two paragraphs describing in general terms the legal requirement for practically enforceable emission limits; (2) one paragraph arguing that the Permit contained nothing more than a "[b]lanket" emission limitation, which was not practically enforceable; and (3) a final paragraph raising the frequency of stack tests and two other unrelated concerns with practical enforceability of the NO_x emissions cap. Sierra Club Comments at 8-9. The two other concerns were described in that final paragraph as follows:

> [Sierra Club's] expert comments detail at length the enforceability issues with the proposed permit. Specifically, using stack tests once every two years to determine whether the [Units] are in compliance with the permit is woefully inadequate. *The permit does not contain an unambiguous methodology for demonstrating compliance with the annual NO_x emission cap, and there is no support for the applicant's "vendor-guaranteed" NO_x rate that is used to demonstrate compliance*.

Id. at 9 (emphasis added) (footnote omitted). While Sierra Club's expert report, which was attached to its comments, expanded on the concerns raised with stack

tests, the methodology issue as to emission factors, and the manufacturer data on NO_x emissions during startup, that report did not raise concerns with or otherwise discuss the Permit's monitoring requirements for the selective catalytic reduction devices. *See Id.* attach. at 20-25.

Sierra Club cannot claim that Pima County did not provide notice of the role that monitoring of the selective catalytic reduction devices plays in verifying compliance with the NO_x emissions cap. On its face, the Proposed Permit expressly stated that its requirements for monitoring of selective catalytic reduction devices are an element bearing on verifying compliance with the NO_x emissions cap. Condition II.A.1.b of the Proposed Permit provided that "[c]ompliance with the NO_x emission limit shall be demonstrated by performance [i.e. stack] tests as detailed in Condition II.D, monitoring as detailed in Condition II.B, and recordkeeping as detailed in Conditions II.C." Proposed Permit at Part B § II.A.1.b. And Conditions II.B and II.C on monitoring and recordkeeping, as well as Condition II.A addressing emission limitations, contain multiple requirements pertaining to monitoring of the selective catalytic reduction devices in addition to requirements as to stack tests and calculation of monthly and yearly emissions. *See id.* at Part B § II.A.1 (setting the 170 tons per year NO_x emission limit, requiring installation of selective catalytic reduction devices with continuous NO_x process monitors, and imposing operating requirements on such devices); *id.* at Part B § II.B (requiring monitoring of fuel consumption and startups of the new Units and monitoring of operating parameters – ammonia injection rate and temperature – for selective catalytic reduction devices); *id.* at Part B § II.C (requiring records be kept of the monitoring of fuel consumption, of startups of the engines, and of the operating parameters of the selective catalytic reduction devices; and specifying that monthly and yearly NO_x emissions must be calculated). Thus, the Permit's reliance on monitoring of the selective catalytic reduction devices as a key part of determining compliance with the NO_x emissions cap was reasonably ascertainable at the time of the comment period. Any challenge to the way in which the monitoring of the selective catalytic reduction devices functioned in verifying compliance with the NO_x emissions cap should have been presented to the permit issuer in the first instance.

In any event, even if Sierra Club's challenge to Pima County's reliance on the monitoring of the selective catalytic reduction devices to verify compliance with the NO_x emissions cap was preserved for Board review, Sierra Club's specific challenge (the monitoring results are not "included in the formula to establish the 'NO_x emission factor'") reflects a misunderstanding of how the Permit works. *See* Pet. at 12. In response to Sierra Club's general argument about the lack of practical enforceability of the NO_x emissions cap through reliance on biennial stack tests,

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Pima County explained that it was not relying solely on stack tests to verify compliance. In addition to the required stack tests, Pima County pointed to the Permit's requirements to calculate monthly and yearly NO_x emissions and the monitoring of the selective catalytic reduction devices. RTC at 10-13. As to the latter, Pima County explained that monitoring of the selective catalytic reduction devices would assure that the devices were functioning properly "at all times." *Id.* at 10. Pima County's intent was not to obtain data from this monitoring to adjust the emission factors. Instead, the data are required to make sure the selective catalytic reduction devices are working properly at all times. Thus, Sierra Club's argument in its Petition is not responsive to the role of monitoring of the selective catalytic reduction devices as described by Pima County.

2. *Sierra Club Fails to Show Clear Error in Pima County's Determination that the Non-Startup Emission Factors Are Conservative*

In a footnote to its Petition, Sierra Club also takes issue with Pima County's assertion that the methodology for calculating emission factors for non-startup operating periods is conservative. Pet. at 16 n.37. Under Board case law, a determination such as this one by Pima County "requires the sort of quintessential technical expertise the permit issuer possesses." *In re Shell Offshore, Inc.*, 15 E.A.D. 536, 558 (EAB 2012) (upholding a permit issuer's choice of emission factors in a challenge to the practical enforceability of an emissions cap limiting a facility's potential to emit). Sierra Club has not met the "particularly heavy burden" it bears on this technical question. *See Peabody*, 12 E.A.D. at 41.

Sierra Club disputes that calculating non-startup emission factors from the highest emission rate produced during required stack tests will, as Pima County claims, result in an emission factor that "over-calculat[es]" NO_x emissions. Pet. at 16, n.37. Sierra Club maintains that there is no support in the record for this conclusion and no specific calculation of the quantitative extent of the over-calculation. We find no merit in Sierra Club's argument.[9]

[9] Sierra Club's argument here also appears for the first time in its Petition. However, neither the Proposed Permit nor draft Technical Support Document explained that the conservative nature of the methodology for calculating non-startup emission factors was a consideration bearing on the practical enforceability of the NO_x emissions cap. That explanation appears for the first time in the Response to Comments, RTC at 13, and thus Sierra Club's challenge to that rationale may be raised on appeal. *See In re Pio Pico Energy Ctr.*, 16 E.A.D.56, 102 (EAB 2013) (allowing consideration of an issue not

First, although Pima County does state at one point that the Permit's methodology for calculating emission factors based on stack tests will overstate actual emissions, the record as a whole suggests that Pima County did not design the procedure for establishing emission factors to overstate emissions by a specific quantitative amount but rather to guard against understating emissions. For example, Pima County introduced its emission factor methodology by explaining that "certain elements [of the methodology] * * * will inherently produce a conservative calculation of emissions (i.e., a tendency to over-calculate, rather than under-calculate, engine NO_x emissions)." RTC at 13. Nor does the record show that Pima County relied upon a specific quantitative degree of over-calculation in the emission factors to justify the practical enforceability of the NO_x emissions cap.

Second, the Permit's description of the methodology for establishing an emission factor for non-startup operating periods provides sufficient record support for Pima County's description of emission factors as conservative (i.e., likely to overstate emissions). The emission factor methodology requires Tucson Electric to identify the maximum NO_x emissions that will be emitted across the full range of load levels during non-startup operating periods. To do this, the Permit requires Tucson Electric to conduct each stack test across the full range of non-startup operating load levels. Permit at Part B § II.D.2.b. The methodology then requires that the emission factor be calculated using the maximum emission rate found in that test as the presumed emission rate whenever the engine is operating in non-startup conditions, irrespective of the load level at which it is operating. *Id.* at Part B § II.D.2.c. Given that the methodology requires that the highest measured emission rate from stack tests be used in the calculation of emission factors, it was reasonable for Pima County to conclude that this approach is a conservative one. Sierra Club's "bare assertion" to the contrary is not adequate to support the opposite conclusion. *See Shell Offshore*, 15 E.A.D. at 561 n.28 (the Board refuses to rely on a petitioner's "bare assertion" that stack tests supporting emission factors were too infrequent).[10]

---

raised in a public comment "where the permit issuer's reasoning on an issue was not clearly ascertainable from the record at the draft permit stage").

[10] Additionally, Sierra Club ignores that the methodology for calculating emissions during startup operating periods is also designed to conservatively calculate emissions. NO_x emissions differ significantly between "cold" or "warm" startups with cold startups generating approximately three times the NO_x emissions as warm startups. Letter from Conrad Spencer, Tucson Elec. Power, to Rupesh Patel, Pima Cty. Dep't of Envtl. Prot. 6 (Sept. 21, 2017) (A.R. 6) (finding that a cold startup emits 10.3 pounds of NO_x compared

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

For all the above reasons, Sierra Club fails to substantiate its claim that the record does not support Pima County's determination that the emission factor methodology is likely to overstate, not understate, actual emissions.

3. *Conclusion*

Sierra Club failed to preserve for Board review its ability to challenge Pima County's reliance on monitoring of the selective catalytic reduction devices as a component of the Permit's compliance monitoring program. Sierra Club further did not substantiate its challenge to either the adequacy of that monitoring or the conservative emission factor methodology. Accordingly, the Board concludes that Sierra Club has not carried its burden to show that Pima County clearly erred in its determination that the Permit's NO_x emissions cap is practically enforceable.

B. *Sierra Club Fails to Show Pima County Clearly Erred in Responding to Sierra Club's Comments*

Sierra Club asserts that Pima County's "responses to Sierra Club's comments were inadequate." Pet. at 12. In support of that contention, Sierra Club argues that Pima County did not "otherwise show that the permit relies on sufficient monitoring data to assure accurate and continuous monthly compliance with the NO_x cap," and "did nothing to address the fact that the NO_x cap remains practically unenforceable." *Id.*

The adequacy of a permit issuer's response to comments must be evaluated in the context of the content, specificity, and precision of the submitted comments. The Board has held that "parties submitting comments on draft permits must present their concerns with sufficient precision and specificity to apprise the permitting authorities of the significant issues so that the permit issuer can make timely and appropriate adjustments to its permit determination, or, if no adjustments are made, can explain why none are necessary in its response to comments." *In re Pio Pico Energy Ctr.*, 16 E.A.D. 56, 85 (EAB 2013). Where a comment lacks specificity and precision, the permit issuer's obligation to respond is similarly tempered. It is well settled that "permit issuers need not guess the meaning behind imprecise comments and are under no obligation to speculate about possible concerns that were not articulated in the comments." *In re Scituate Wastewater*

---

to a warm startup that emits 3.5 pounds). Nonetheless, the methodology for calculating emissions during startup requires Tucson Electric to assume that all startups are cold startups. Permit at Part B II.C.9.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Treatment Plant, 12 E.A.D. 708, 723 (EAB 2006) (quotations and citations omitted).

Sierra Club's comments on practical enforceability of the NO_x emissions cap focused on the adequacy of biennial stack testing as a form of compliance monitoring and were very general in nature.[11] In its comments, Sierra Club merely stated that "using stack tests once every two years to determine whether the [Units] are in compliance with the permit is woefully inadequate." Sierra Club Comments at 9. The expert report attached to Sierra Club's comments added some detail but not much more. *See id.* attach. at 20-25. The report explained that infrequent stack tests may not be representative of "routine operations" and noted that "EPA itself has stated that annual stack tests are not sufficient to assure compliance with emissions limits." *Id.* attach. at 21-22. The information cited to support this assertion showed that EPA was concerned that annual stack tests may not be adequate to demonstrate compliance throughout the remainder of the year, particularly where the proper functioning of pollution control technology is necessary for the source to meet applicable requirements. *Id.* attach. at 21 n.59. Instead of stack testing, Sierra Club's expert report recommended that the Permit require Continuous Emissions Monitors. *Id.* attach. at 23.

Pima County responded to these comments by first acknowledging that annual stack tests "are insufficient to assure compliance with emission limits." RTC at 10. Pima County then provided a detailed explanation of what other requirements it had included in the Permit to assure sufficient compliance monitoring during all periods of operation. That lengthy explanation touched on the requirements for use of stack test-derived emission factors and manufacturer emission rates to calculate monthly and yearly NO_x emissions, the conservative nature of these emission factors and emission rates, and the required monitoring of the selective catalytic reduction devices. *Id.* at 10-13. This level of detail was more than an adequate response to Sierra Club's comment that the Permit's compliance

[11] As described in Part IV.B, Sierra Club also argued in its comments that the NO_x emissions cap was not practically enforceable because the Proposed Permit lacked a clear statement of the methodology for calculating NO_x emissions from emission factors and because Pima County had not included in the record the manufacturer data on startup emission rates that are required for calculating emissions during startup operating periods. Sierra Club Comments at 2, 9. In response, Pima County amended the Permit to include an equation for calculating NO_x emissions and included in the record the manufacturer data on startup emission rates. RTC at 4, 13. Sierra Club has not suggested these comment responses were inadequate.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

monitoring was "woefully inadequate" and the expert report explanation that infrequent stack tests may not be representative of routine operations. As the Board has previously held, if "an issue is raised only generically during the public comment period, the permit issuer is not required to provide more than a generic justification for its decision, and the petitioners cannot raise more specific concerns for the first time on appeal." *Encogen*, 8 E.A.D. at 251 n.12; *see In re Knauf Fiber Glass, GmbH*, 8 E.A.D. 121, 146-47 (EAB 1999) (where commenter submitted comments challenging representativeness of air quality data without supplying reasons, permit issuer's response that the data is conservative was adequate given the generic nature of the comment).

To the extent Sierra Club now raises concerns about any of the specifics of that response, we have addressed those claims in Part V.A, above. Sierra Club provides no further detail to support its claim of an inadequate response to comments. In fact, a substantial portion of Sierra Club's Petition is composed of block quotes from Pima County's explanation in the Response to Comments of its basis for concluding that the NO_x emissions cap is practically enforceable. *See* Pet. at 13-16. But as the Board's regulations make clear, when a permit issuer has addressed a petitioner's comments in the record, the petitioner must do more than insist that the permit issuer's response is incorrect, the petitioner "must * * * explain why the Regional Administrator's response to the comment was clearly erroneous or otherwise warrants review." 40 C.F.R. § 124.19(a)(4)(ii); *see In re Windfall Oil & Gas, Inc.*, 16 E.A.D. 769, 797-98 (EAB 2015) ("Simply disagreeing with the Region and repeating concerns [raised in public comments] in a petition for review * * * does not satisfy the regulatory requirement that petitioners confront the permit issuer's responses and explain why the responses were clearly erroneous."). Accordingly, the Board concludes that Sierra Club has not shown Pima County clearly erred in the manner in which it responded to Sierra Club's comments.

VI. *CONCLUSION*

For the reasons stated above, the Board denies Sierra Club's Petition for Review.

So ordered.

217/785-1705

CONSTRUCTION PERMIT/PSD APPROVAL
REVISED

PERMITTEE

U.S. Steel Granite City
Attn: Bryan Kresak, Environmental Director
Route 203 and 20th Street
Granite City, Illinois 62040

Application/Permit No.: 95010001 I.D. No.: 119813AAI
Applicant's Designation: Date Orig. Issued: January 25, 1996
Subject: Production Increase
Date Revision Request: May 30, 2012
Date Revision Issued: December 17, 2012 (See Finding 1(c))
Location: Southeastern Granite City

Permit is hereby granted to the above-designated Permittee for an increase in the allowable production rate of iron (from 2,372,500 to 3,165,000 net tons per year) and steel (from 2,774,000 to 3,580,000 net tons per year) as described in the above-referenced application. This permit is subject to standard conditions attached hereto and the following special conditions:

FINDINGS

1a. Various changes have been made to the provisions of this permit for the Basic Oxygen Furnaces (BOF's), at the request of the Permittee, so that the permit will accommodate an emission reduction project that is planned for particulate emissions from the BOFs. In particular, the revised permit does not include requirements for the operation of these BOF's and the existing electrostatic precipitator (ESP) control system that would be inconsistent with the use of a separate control system with a baghouse for secondary emissions of the BOFs, as is now planned (see Construction Permit Application 11050006).

b. Prior to issuance of this revised permit, a draft of the revised permit underwent a public comment period, including a public hearing.

c. This revised permit will become effective 33 days after the date of issuance unless a petition for review is filed, in accordance with 40 CFR Part 124, with the USEPA's Environmental Appeals Board (Board), in which case, this revised permit will only take effect when and if the Board declines the petition for review or the Board issues a decision on the merits of the appeal that does not include a remand of the proceeding.

BLAST FURNACE OPERATIONS

2a. Total combined production of hot metal (a.k.a., iron) from blast furnaces A and B shall not exceed 9,849 net tons per day, averaged over any calendar month, and;

b. Total combined production of hot metal from blast furnaces A and B shall not exceed 3,165,000 net tons per year.

3a. Particulate emissions from the blast furnace casthouse baghouse and iron spout baghouse shall not exceed 0.010 gr/dscf, pursuant to 35 Ill. Adm. Code 212.445(b)(1).

b. The opacity of emissions from the blast furnace casthouse baghouse and the iron spout baghouse shall not exceed 10% on a 6 minute rolling average basis, pursuant to 35 Ill. Adm. Code 212.445(b)(1).

4a. Emissions of particulate matter from any opening in the blast furnace casthouse shall not exceed 20% opacity on a 6-minute rolling average basis beginning from initiation of the opening of the tap hole up to the point where iron and slag stops flowing in the troughs, pursuant to 35 Ill. Adm. Code 212.445(a)(2).

5. Emissions from Blast Furnace operations shall not exceed the limits in attached Tables 1 and 5.

BASIC OXYGEN FURNACE SHOP

6a. Total combined production of liquid steel from the Basic Oxygen Furnaces (BOF's) shall not exceed 11,000 net tons per day, averaged over any calendar month; and

b. Total combined production of liquid steel from the BOF's shall not exceed 3,580,000 net tons per year.

7. The emissions of PM-10 from the BOF stack for the total of all BOF processes (i.e., operations from the beginning of the charging process through the end of the tapping process) shall not exceed 60.0 lbs/hour and 0.225 lbs per ton of steel in process, pursuant to 35 Ill. Adm. Code 212.458(b)(23).

8. Opacity of emissions from any opening in the BOF shop (e.g., roof monitor) shall not exceed 20% on a 3 minute rolling average basis, pursuant to 35 IAC 212.446(c).

9. The Permittee shall operate and maintain the BOF’s and associated capture and control systems in accordance with applicable requirements of the National Emission Standards for Hazardous Air Pollutants for Integrated Iron and Steel Manufacturing Facilities, 40 CFR 63 Subpart FFFFF, including requirements for operational monitoring, performance testing for opacity and emissions of particulate matter,* operation of capture and control systems within established limits for operating parameters, implementation of specified operation and maintenance practices, recordkeeping and reporting.

* As related to testing of emissions, if the Permittee is not willing to consider all particulate matter measured by testing to be PM_{10}, as provided for by 35 IAC 212.108(a)(3), performance tests for emissions

of particulate matter shall also include measurements for emissions of PM_{10} in accordance with 35 IAC 212.108(a)(1) or (2).

Note: This condition requires the Permittee to comply with the operating and maintenance requirements of 40 CFR 63 Subpart FFFFF as the means to verify ongoing compliance with the requirements of Conditions 7 and 8 and to address implementation of good air pollution control practice for the BOF's.

(*Former Condition 10 has been removed in this revised permit.*)

11a. Flame suppression shall be used and maintained during the entire tapping process.

b. The above requirement for flame suppression and the various requirements for the BOF's in Condition 12 and 13 shall end after the Permittee begins operation of a capture and control system for secondary emissions from the BOF's that makes these requirements infeasible or unnecessary, as explicitly recognized by Construction Permit 11050006 or other construction permit issued by the Illinois EPA for a capture and control system for secondary emissions.

12a. Except for purposes of emissions testing as related to the set points for the capture system for the BOF's, this capture system shall be operated at the following minimum set points for gas flow rate in the ESP stack until and unless the Illinois EPA approves lower minimum set point(s) based on a demonstration that a better level of particulate matter capture efficiency would now be achieved by the charging hoods and primary hoods.

b. Set points requirements while only a single BOF vessel is in operation:

i. Minimum set point during charging process: 550,000 cfm.

ii. Minimum set point during refining process: 650,000 cfm.

iii. Minimum set point during tapping process: 200,000 cfm (until one minute after completing alloy addition).

c. i. During dual operation of BOF vessels (a.k.a., overlapping BOF operation), the minimum set point shall be 700,000 cfm.

ii. In addition, overlapping operation of the BOF vessels is subject to the following requirements. These requirements shall be part of the Standard Operating Procedure for the BOFs.

A. The hot metal charge of the second vessel shall be initiated and completed during the time between completion of the blow and start of tap on the first vessel while sufficient draft at the ESP capture system is established and maintained for both vessels.

B. The charge and/or blow on one vessel shall not begin until sufficient draft has been established at the associated ESP capture system (a.k.a., doghouse) and the alloy addition at the vessel tapping has been completed for a least 1 minute.

C. Sufficient draft at the ESP capture system of the vessel being tapped shall be maintained for at least 1 minute after alloy addition has been completed. After such period, the capture system draft may be transferred over to the other.

D. Only overlapping of the hot metal charge of the second vessel after the end of blow and prior to onset of tap of the first vessel and overlapping of tapping of the first vessel, after alloy addition, and the hot metal charge and/or blow on the second vessel are allowed.

13a. i. The Permittee shall operate, maintain and calibrate a continuous operational monitor to ESP stack gas flow rate.

ii. The Permittee shall record for each steel production cycle the various stack gas flow rates for each process (i.e., for each charge, each refine, each tap) of each steel production cycle. That is, the Permittee shall be able to distinguish the measured flow rate of stack gas during each production cycle.

b. i. The Permittee shall operate and maintain a continuous operational monitor for waste gas suction, i.e., the static pressure in the main downcomer duct of the ESP.

ii. The Permittee shall record the waste gas suction for each process (i.e., for each charge, each refine, each tap) of each steel production cycle.

c. These monitoring systems shall be calibrated on at least a quarterly basis.

d. These monitoring systems shall be operated at all times that a BOF is in operation and shall be used as mechanisms to ensure sufficient draft is maintained in the emissions capture hoods and transport ducts.

(*Former Conditions 14 through 17 have been removed in this revised permit.*)

18. Emissions from the BOF Shop shall not exceed the limits in attached Tables 2 and 5.

(The note that previously accompanied Condition 18 has been removed in this revised permit.)

CONTINUOUS CASTING OPERATIONS

19. The continuous casting operations shall comply with 35 Ill. Adm. Code 212.450 and 212.458(b)(8).

20. Emissions from the continuous casting operations shall not exceed the limits in Tables 3 and 5.

FUEL COMBUSTION

21. Total fuel usage for blast furnace stoves (A and B), boiler house boilers (1-10), blast furnace boilers (11 and 12), ladle drying preheaters and blast furnace gas flares shall not exceed the following limits:

    a. Natural Gas usage: 225 million ft^3 per month and 1,346 million ft^3 per year;

    b. Blast Furnace Gas (BFG) usage: 30,800 million ft^3 per month and 185,030 million ft^3 per year;

    c. Fuel Oil usage: 60 thousand gallons per month and 365 thousand gallons per year.

22. Emissions from the fuel combustion units listed above shall not exceed the limits in Tables 4 and 5.

ON-SITE FUGITIVE DUST CONTROL

(Refer to Attachment B for a table which summarizes the required on-site fugitive dust roadway control measures and maps indicating the referred to road segments)

23. The Permittee shall immediately initiate and maintain the on-site fugitive dust control measures specified in this permit so as eliminate dust spillage on in-plant and out-of-plant roadways.

24a. The Permittee shall sweep or flush at least every day the paved access area below the BOF ESP where ESP dust collection bags are used, stored and transported.

  b. The Permittee shall implement a housekeeping program for the non-roadway areas below and around the BOF ESP. This program shall, at a minimum, contain the following:

    i. The ground and other accessible areas where dust may gather shall be swept or cleaned at least every day;

    ii. Cleaning shall be performed in such a manner as to minimize the escape of dust into the atmosphere;

    iii. Dust collection bags shall be inspected at least daily for rips, tears, or insecure connection to the discharge chutes of the ESP hoppers;

    iv. Dust collection bags shall be inspected after removal from, and connection to, the discharge chutes of the ESP hoppers;

v. Ripped or torn bags shall be taken out of service and transported as soon as practicable in a covered truck.

25. Fugitive emissions of particulate matter from any roadway or parking area shall not exceed an opacity of 5%, pursuant to 35 Ill. Adm. code 212.316(e)(1).

26a. UNPAVED ROADS: On unpaved roads that are part of normal traffic patterns as identified in attachment B (including roads B, C, E, N, F-F, and CS(2)) the Permittee shall apply a chemical dust suppressant at least three times a month, with the following exceptions:

i. Road segment G-G, which shall be sprayed at least quarterly;

ii. Road segments P, V, Z, D-D, E-E, and H, which shall be sprayed at least 4 times per month until paving is completed. Paving shall be completed on these roads no later than July 31, 1996;

iii. Road segment L, which shall be sprayed at least 4 times per month.

b. All other unpaved roads shall be treated as necessary.

c. Applications of suppressant may be less frequent than specified above if weather conditions, i.e., precipitation or temperature, interfere with the schedule for spraying, provided each such instance shall be recorded in accordance with the daily records for on-site fugitive dust control required by this permit.

27a. PAVED ROADWAYS AND AREAS: Paved roadways and areas shall be maintained in good condition.

b. On paved roadways and other areas, the Permittee shall sweep or flush as follows:

i. Road segments D, K, M, F, G, J, R, and O shall be swept or flushed at least daily;

ii. Road segments P, V, W, X, Z, D-D, E-E, and CS(1) shall be swept or flushed at least five days per week;

iii. Road segments S and T shall be swept or flushed at least every other day;

iv. Road segments A and H shall be swept or flushed at least once per month;

v. All gate areas leading from the Steelworks area shall be swept or flushed at least daily;

vi. All gate areas leading from the iron making area shall be swept or flushed at least five times per week.

28. The above on-site dust control measures shall be conducted to maximize their effectiveness by performing said measures when the roads or areas are not normally obstructed by parked vehicles and by preferentially using filter sweeping (e.g., Enviro-Whirl sweeper) for the gate areas, the roads and areas surrounding the BOF and BOF ESP, and other key areas.

29. The Permittee shall maintain daily records relative to the on-site fugitive dust control program which includes the following information as a minimum:

    a. The date (and time for the gate areas) each road or area was treated;

    b. The manner in which the road or area was treated (i.e., filter sweep, conventional sweep, suppressant spray or flush);

    c. Detailed information for use of dust suppressant, including but not limited to the application rate, dilution ratio, type of suppressant used, and the number of gallons of suppressant applied;

    d. Observations, if any, concerning the condition of the roadway, e.g., presence of parked vehicles, detection of potholes;

    e. The amount of precipitation and temperature recorded for each day, and if determination was made to suspend application of suppressant, include name and title of person who made determination to suspend application and explanation;

    f. Any and all suspensions or deviations from the designated control procedures, with date, description, and explanation for suspension of application.

OFF-SITE FUGITIVE DUST CONTROL

30. The Permittee or the Permittee’s Agent shall sweep or flush the following Granite City street road areas:

    a. At least weekly, the quarter mile segment of Madison Avenue in front of the 16th street gate (i.e., 1/8 of a mile in either direction);

    b. At least weekly, segment of 20th street between Lee and Quincy roads;

    c. At least monthly, segment of 20th street between Madison and Route 203 (a.k.a. Edwardsville Road).

PM_{10} CONTINGENCY MEASURES

31. The Permittee shall comply with the additional control measures (e.g., PM_{10} contingency plan) required by 35 Ill Adm. Code Part 212 Subpart U.

COMPLIANCE DETERMINATIONS

32a. Compliance with the daily limits of this permit shall be determined from a monthly total of the relevant daily data divided by the number of days in the month.

b. Compliance with the monthly limits of this permit (e.g., fuel usage) shall be determined by direct comparison of monthly data to the applicable limit.

c. i. Compliance with the annual limits of this permit shall be determined based on a calendar year.

ii. A. Compliance with the production limits in conditions 2(b) and 6(b) shall also be determined on a month by month basis by showing that the actual production of iron and steel from the plant did not exceed the scheduled rate of production for a month given in the most recent production schedule provided to the Agency that shows compliance with the following requirements.

B. If no production schedule is submitted to the Agency by the Permittee for a particular year, the scheduled monthly production of iron and steel shall be set at one twelfth of the annual production limits in conditions 2(b) and 6(b).

C. 1. The Permittee may submit a schedule for iron and steel production for each month of the calendar year. Such schedule shall provide the scheduled monthly iron and steel production for each month and the total of such scheduled production shall not exceed the annual production limits in conditions 2(b) and 6(b). This schedule shall be submitted each year no later than December 15th of the preceding year.

2. During the course of the year, the Permittee may submit a revised production schedule which accounts for actual production levels which were below that scheduled for the previous months, provided that in no case shall the scheduled production for prior months in such a revised schedule be lowered to less than actual production levels or raised. Such revised schedule shall be submitted to the Agency no later than 15 days after the first day of the month for which scheduled production has been raised. Such schedule shall be accompanied by data on actual production in preceding months.

(Former Condition 33 has been removed from this revised permit.)

34a. Blast furnace hot metal production shall be measured at the BOF hot metal transfer station, and adjusted by documented slag and iron losses.

b. BOF liquid steel production shall be initially measured by a scale equipped crane and adjusted based upon documented steel production analysis of the continuous casters.

c. BFG usage shall be calculated based on the total BFG produced per net ton hot metal (NTHM) derived by the following formula and adjusted per analysis of documented BFG consumptions:

$$\text{mmft}^3 \text{ BFG per month} = \frac{(4.585277 \text{ NTHM/day} + 498.191)}{80} \times \begin{pmatrix} \text{Number of} \\ \text{days in} \\ \text{that month.} \end{pmatrix}$$

d. Natural gas usage shall be determined by metered volumes.

e. Fuel oil usage shall be determined by tank height differentials.

RECORD KEEPING

35. The Permittee shall keep records of the following items and such other items which may be appropriate to allow the Agency to review compliance:

a. Blast Furnace hot metal production (total combined daily, monthly and annual in tons), including documentation on iron and slag losses;

b. BOF liquid steel production (total combined daily, monthly and annual in tons), including documentation on adjustments made due to production analysis and losses;

c. Fuel usage as follows; Usage of natural gas and BFG (total combined million ft^3 per month and year, each) and fuel oil (total combined gallons/month and year) for the blast furnace stoves (A and B), boiler house boilers (1-10), blast furnace boilers (11 and 12), ladle drying preheaters and blast furnace gas flares.

36. All records and logs required by this permit shall be retained at a readily accessible location at the source for at least three years from the date of entry and shall be made available for inspection and copying by the Agency and USEPA upon request. Any records retained in a computer shall be capable of being retrieved and printed on paper during normal source office hours so as to be able to respond to an Agency request for records during the course of a source inspection.

TESTING

37. The special conditions of this permit supplement the special conditions of any existing operating permits for this source as of January 15, 1996 and supersede such conditions in cases where a conflict exists.

38a. The following tests shall be performed by no later than August 6, 1997 to demonstrate compliance with the conditions of this permit.

i. Fuel Combustion Units testing: The emissions of particulate matter from boiler #12 while burning blast furnace gas shall be measured. This test shall be designed to verify compliance with the requirements of this permit and the emission factor used (i.e., 2.9 lbs particulate emitted per mmcf BFG burned);

b. The test shall be performed by an approved independent testing service during conditions which are representative of maximum emissions and at the maximum production rates allowed, or as close to such rates as reasonable if the Permittee demonstrates to the Agency prior to testing that testing at such production rates within the time constraints of an Agency request to test is not practicable.

c. i. The following methods and procedures shall be used for the testing, unless another method is approved by the Agency: Refer to 40 CFR 60, Appendix A for USEPA test methods;

Location of sample points	USEPA Method 1
Gas flow and velocity	USEPA Method 2
Particulate Matter	USEPA Method 5

ii. All particulate measured shall be considered PM-10 unless emissions are tested by an appropriate USEPA test method for measurement of PM-10, as specified in 35 Ill. Adm. Code 212.110(e).

d. At least 30 days prior to the actual date of testing, a written test plan shall be submitted to the Agency for review and approval. This plan shall describe the specific procedures for testing, including as a minimum:

i. The persons who will be performing sampling and analysis and their experience with similar tests;

ii. The specific conditions under which testing will be performed including a discussion of why these conditions will be representative of maximum emissions and the means by which operating parameters for the source and the emissions capture and control system will be determined;

iii. The specific determinations of emissions and operation which are intended to be made, including sampling and monitoring locations;

iv. The test methods which will be used, with the specific analysis methods;

v. Any proposed use of an alternative test method, with detailed justification;

vii. The format and content of the Source Test Report.

e. The Agency shall be notified before these tests to enable the Agency to observe these tests. Notification for the expected date of testing shall be submitted a minimum of thirty (30) days prior to the expected date. Notification of the actual and expected time of testing shall be submitted a minimum of five (5) working days prior to the actual date of the test. The Agency may at its discretion accept notifications with shorter advance notice provided that the Agency will not accept such notifications if it interferes with the Agency's ability to observe testing.

f. The Final Report of these tests shall include as a minimum:

i. A tabular summary of results which includes:

- process weight rate and/or fuel usage rate
- production rate
- allowable emission limit
- measured emission rate
- determined emission factor
- compliance demonstrated - Yes/No
- any other pertinent information

ii. Description of test methods and procedures used, including description of sampling train, analysis equipment, and test schedule;

iii. Detailed description of test conditions, including,

- pertinent process information (e.g. fuel or raw material consumption)
- control equipment information, i.e. equipment condition and operating parameters during testing;

iv. Data and calculations, including copies of all raw data sheets and records of laboratory analyses, sample calculations, and data on equipment calibration;

g. Copies of the Final Report for these tests shall be submitted to the Agency within 14 days after the test results are compiled and finalized.

h. Submittals of information shall be made as follows:

i. Notice of Test - one copy to Source Emission Test Specialist, one copy to Regional Office, and one copy to Permit Section;

ii. Final Report - one copy to Source Emission Test Specialist, one copy to Regional Office, and one copy to Permit Section.

Pertinent Addresses are:

Illinois Environmental Protection Agency
Division of Air Pollution Control
9511 West Harrison
Des Plaines, Illinois 60016

Illinois Environmental Protection Agency
Division of Air Pollution Control
Regional Office
2009 Mall Street
Collinsville, Illinois 62234

Illinois Environmental Protection Agency
Division of Air Pollution Control
Attn: Permit Section
P.O. Box 19506
Springfield, Illinois 62794-9506

(Condition 38 required emission testing following the initial operation of the source with the expansion that has already been conducted by the Permittee. This revised permit does not require that this testing be repeated.)

REPORTING

39. Unless otherwise provided for by the provisions for reporting of deviations in the Clean Air Act Permit Program (CAAPP) permit for the source, if there is a deviation from the requirements of this permit, the Permittee shall submit a report to the Illinois EPA within 30 days after the deviation. The report shall include a description of the deviation, the probable cause of the deviation, the corrective actions that were taken and any preventative measures taken to prevent similar deviations in the future.

40. The Permittee shall submit the following additional information from the prior calendar year with the Annual Emissions Report, due May 1st of each year:

    a. Iron and steel production (tons/month and tons/year, each);

    b. Natural gas and BFG usage ($mmft^3$/month and $mmft^3$/year, each);

    c. Fuel oil usage (thousand gallons/month and thousand gallons/year, for each type of oil).

APPLICABILITY OF MAJOR SOURCE RULES

41a. As a consequence of the above conditions, this permit is issued based upon the following changes in emissions, as further described in Table 6, accompanying increased production as allowed by this permit:

i. The increases in emissions of lead and VOM are not significant under 35 Ill. Adm. Code Part 203 or 40 CFR 52.21 - Prevention of Significant Deterioration;

ii. The increase in emissions of NO_x are being accompanied by contemporaneous emission decreases provided by the shutdown of equipment and operations such that the net emissions change is not significant under 35 Ill. Adm. Code Part 203 or 40 CFR 52.21 - Prevention of Significant Deterioration.

iii. The increase in emissions of PM and PM-10 are being accompanied by contemporaneous emission decreases provided by additional road dust control and BOF capture and control such that the net emissions change is not significant under 35 Ill. Adm. Code Part 203 or 40 CFR 52.21 - Prevention of Significant Deterioration.

Also, the Permittee has agreed to provide further additional dust control consisting of the sweeping of Granite City public streets and housekeeping measures in the area below and surrounding the BOF ESP. Attachment C is a listing of the emission reductions provided by these control measures.

b. The increases in emissions of SO_2 and CO are significant under 40 CFR 52.21 - Prevention of Significant Deterioration (PSD). Accordingly, the project is considered a major modification and must comply with the requirements of PSD. These requirements include a demonstration of best available control requirements for affected SO2 and CO emission units, an analysis of air quality impacts, an analysis of the impacts of the project on visibility, vegetation's and soils, and the application and proposed permit must undergo a public participation. The Agency has determined that these additional requirements have been met.

c. The changes in emissions pertinent to this project are summarized as follows:

Units = tons/year

- Emission increases which could occur from the project:

PM_{10}	PM	NO_x	SO_2	CO	VOM	Lead
51.6	-52.0	238.8	476.0	5,685	59.3	0.54

- Creditable contemporaneous actual emission decreases:

PM_{10}	PM	NO_x	SO_2	CO	VOM	Lead
58.0	58.0	226.5	0.38	23.31	32.8	0.0

- Other contemporaneous emission increases:

PM_{10}	PM	NO_x	SO_2	CO	VOM	Lead
20.7	20.3	26.0	0.25	11.8	1.6	0.0

- Net emission changes:

PM_{10}	PM	NO_x	SO_2	CO	VOM	Lead
+14.3	-89.2	+38.3	+475.9	+5,673	+28.1	+0.54

- Significant Levels:

PM_{10}	PM	NO_x	SO_2	CO	VOM	Lead
15	25	40	40	100	40	0.6

Explanatory Note:

PM	=	particulate matter = particulate;
PM_{10}	=	particulate matter less than or equal to 10 micrometers in size;
SO_2	=	sulfur dioxide;
NO_x	=	nitrogen oxides;
VOM	=	volatile organic material;
CO	=	carbon monoxide;
mm	=	million;
gr/dscf	=	grains per dry standard cubic foot;
acfm	=	actual cubic feet per minute;
mmcf	=	million cubic feet;
Mgal	=	thousands of gallons.

If you have any questions on this permit, please call Kevin Smith at 217/782-7048.

Edwin C. Bakowski, P.E. Date Signed: _____
Manager, Permit Section
Division of Air Pollution Control

DES:KLS:psj

cc: IEPA, FOS Region 3

TABLE 1

BLAST FURNACE OPERATIONS

Maximum Hot Metal Production = 3,165,000 net tons per year

1. Casthouse Baghouse (furnace tapping) - captured emissions ducted to baghouse, uncaptured emissions emitted through roof, other openings, etc.

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Year)
PM	0.0703	111.19
PM_{10}	0.0703	111.19
SO_2	0.2006	422.00
NO_x	0.0144	22.79
VOM	0.0946	149.68

2. Blast Furnace - uncaptured fugitives

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Year)
PM	0.031	49.06
PM_{10}	0.0155	24.53
SO_2	0.0104	21.94
NO_x	0.0007	1.14
VOM	0.0047	7.42

3. Blast Furnace Charging
Maximum pellets charged = 4,308,581 tons/yr

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Year)
PM	0.0024	5.17
PM_{10}	0.0024	5.17

4. Slag Pits

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Year)
PM	0.00417	6.60
PM_{10}	0.00417	6.60
SO_2	0.0100	15.83

TABLE 1 (cont.)

5. Iron Spout Baghouse- captured emissions controlled by iron spout baghouse.

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Year)
PM	0.02548	40.32
PM_{10}	0.02548	40.32
SO_2	0.0073	13.89

6. Iron Pellet Screen
Maximum pellets charged = 4,308,581 tons/yr

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Year)
PM	0.00279	6.01
PM_{10}	0.00279	6.01

TABLE 2

BOF SHOP

Maximum Liquid Steel Production = 3,580,000 net tons per year

1. BOF ESP Stack

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Year)
PM	0.16	262.80
PM_{10}	0.16	262.80
NO_x	0.0389	69.63
VOM	0.0060	10.74
CO	8.993	16,097.47
Lead	0.01934 lbs/hour	1.26 tons/year

2. BOF Roof Monitor

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Year)
PM	0.0987	176.71
PM_{10}	0.06614	118.40
Lead	0.0129 lbs/hour	0.08 tons/year

3. Desulfurization and Reladling - Hot Metal Transfer

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Year)
PM	0.03721	58.88
PM_{10}	0.03721	58.88
VOM	0.0010	1.58
Lead	0.0133 lbs/hour	0.09 tons/year

4. BOF Additive System (i.e., fluxes) with Baghouse, a.k.a., BOF hopper baghouse

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Year)
PM	0.00032	0.57
PM_{10}	0.00032	0.57

TABLE 2 (cont.)

5. Flux conveyor & transfer pits, bin floor

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Year)
PM	0.0016	2.86
PM_{10}	0.0016	2.86

6. Hot metal charging ladle slag skimmer

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Year)
PM	0.0050	7.94
PM_{10}	0.0050	7.94

TABLE 3

CONTINUOUS CASTING OPERATIONS

Maximum Liquid Steel Throughput = 3,580,000 net tons per year

1. Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy)

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Year)
PM	0.00715	12.80
PM_{10}	0.00715	12.80

2. Deslagging Station and Material HS.

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Year)
PM	0.00355	6.35
PM_{10}	0.00355	6.35

3. Caster Molds - Casting

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Year)
PM	0.006	10.74
PM_{10}	0.006	10.74
NO_x	0.050	89.50

4. Casters Spray Chambers

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Year)
PM	0.00852	15.25
PM_{10}	0.00852	15.25

5. Slab Cut-off

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Year)
PM	0.0071	12.71
PM_{10}	0.0071	12.71

TABLE 3 (cont.)

6. Slab Ripping

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Year)
PM	0.00722	12.92
PM_{10}	0.00722	12.92

TABLE 4

CERTAIN FUEL COMBUSTION UNITS

1. 10 boilers (#'s 1 - 10)
2. 2 boilers (#'s 11 - 12)
3. Blast Furnace Stoves A & B.
4. BFG Flares
5. Ladle Drying Preheaters (5 heaters).

Total combined fuel usage from affected units (i.e., Boilers, BF stoves, BF Flares, ladle drying preheaters)

	Maximum Usage ($mmft^3$/Year)
Natural Gas (Total)	1,346
BFG	185,030
Fuel Oil	365 thousand gallons/year

1. Natural Gas

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Year)
PM	5.1	3.43
PM_{10}	5.1	3.43
SO_2	0.6	0.40
NO_x	306.0	205.94
VOM	2.8	1.88
CO	40.0	26.92

2. BFG

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Year)
PM	2.9	268.29
PM_{10}	2.9	268.29
SO_2	6.65	615.22
NO_x	5.28	488.48
CO	13.7	1,267.46

TABLE 4 (cont.)

3. Fuel Oil

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Year)
PM	9.72	1.77
PM_{10}	9.72	1.77
SO_2	141.3	25.79
NO_x	55.0	10.04
VOM	0.28	0.05
CO	5.0	0.91
Lead	0.336	0.06 (waste oil)

TABLE 5

LIMITS ON EMISSIONS FROM MAJOR PROCESSES AND ACTIVITIES

Units = tons/year

	PM	PM_{10}	SO_2	NO_x	VOM	CO	Lead
Blast Furnace Operations	218	194	474	24	157	---	---
BOF Shop	510	451	---	70	12	16,097	1.43
Continuous Casting Operations	71	71	---	90	---	---	---
Certain Fuel Combustion Units[A]	274	274	641	706	2	1,295	0.06
Roadways	27	27	---	---	---	---	---
Material Handling	2	2	---	---	---	---	---
Total	1,102	1,019	1,115	890	171	17.392	1.49

[A] Blast furnace stoves (A and B), boiler house boilers (1-10), blast furnace boilers (11 and 12), ladle drying preheaters and blast furnace gas flares.

TABLE 6

EMISSIONS SUMMARY

Units = tons/year

- Emission increases which could occur from the project:

PM_{10}	PM	NO_x	SO_2	CO	VOM	Lead
51.6	-52.0	238.8	476.0	5,685	59.3	0.54

- Creditable contemporaneous actual emission decreases:

PM_{10}	PM	NO_x	SO_2	CO	VOM	Lead
58.0	58.0	226.5	0.38	23.31	32.8	0.0

- Other contemporaneous emission increases:

PM_{10}	PM	NO_x	SO_2	CO	VOM	Lead
20.7	20.3	26.0	0.25	11.8	1.6	0.0

- Net emission changes:

PM_{10}	PM	NO_x	SO_2	CO	VOM	Lead
+14.3	-89.2	+38.3	+475.9	+5,673	+28.1	+0.54

- Significant Levels:

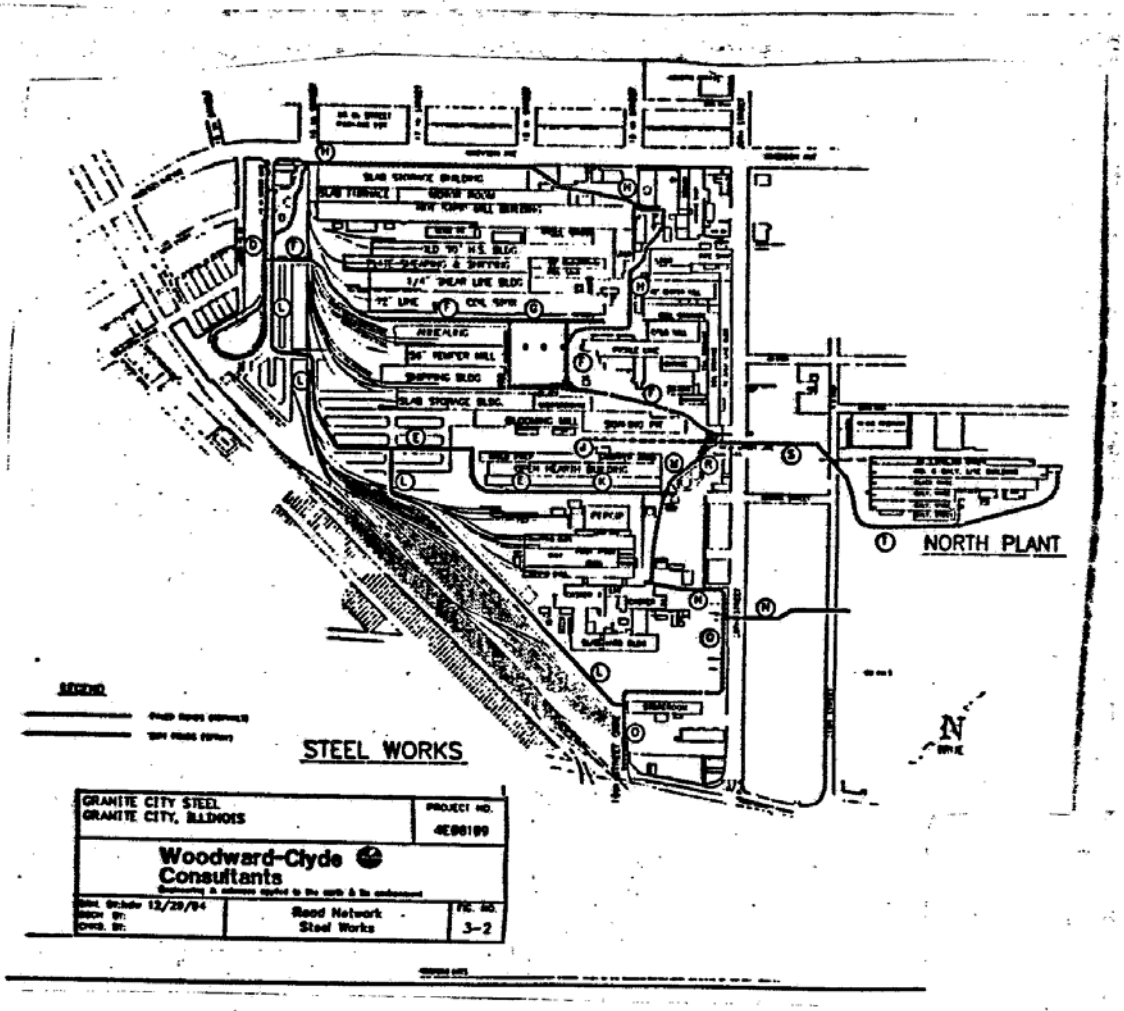
PM_{10}	PM	NO_x	SO_2	CO	VOM	Lead
15	25	40	40	100	40	0.6

ATTACHMENT A

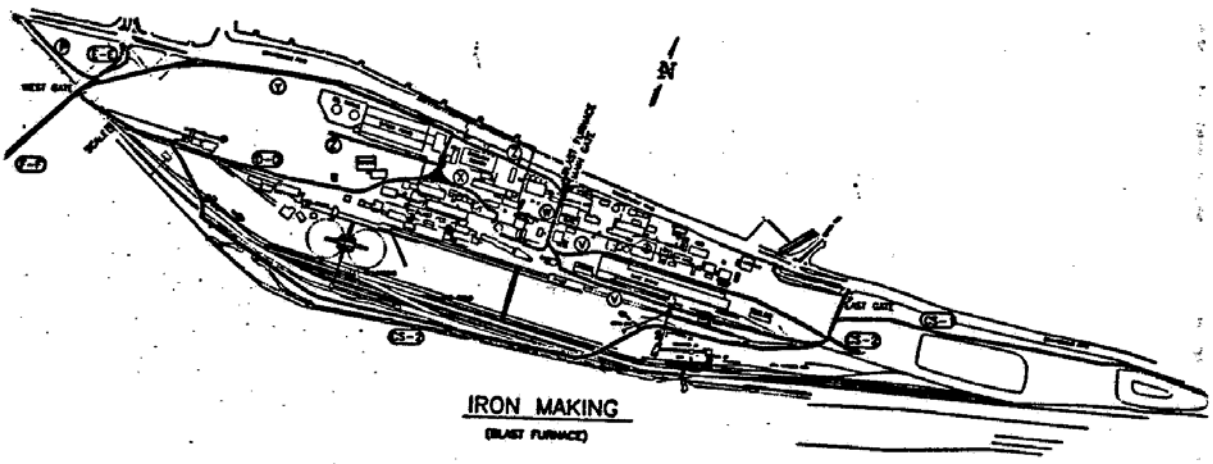
(Former Attachment A has been removed in this revised permit.)

ATTACHMENT B

ON-SITE FUGITIVE DUST ROADWAY CONTROL MEASURES AND MAPS SHOWING THE ROAD SEGMENTS

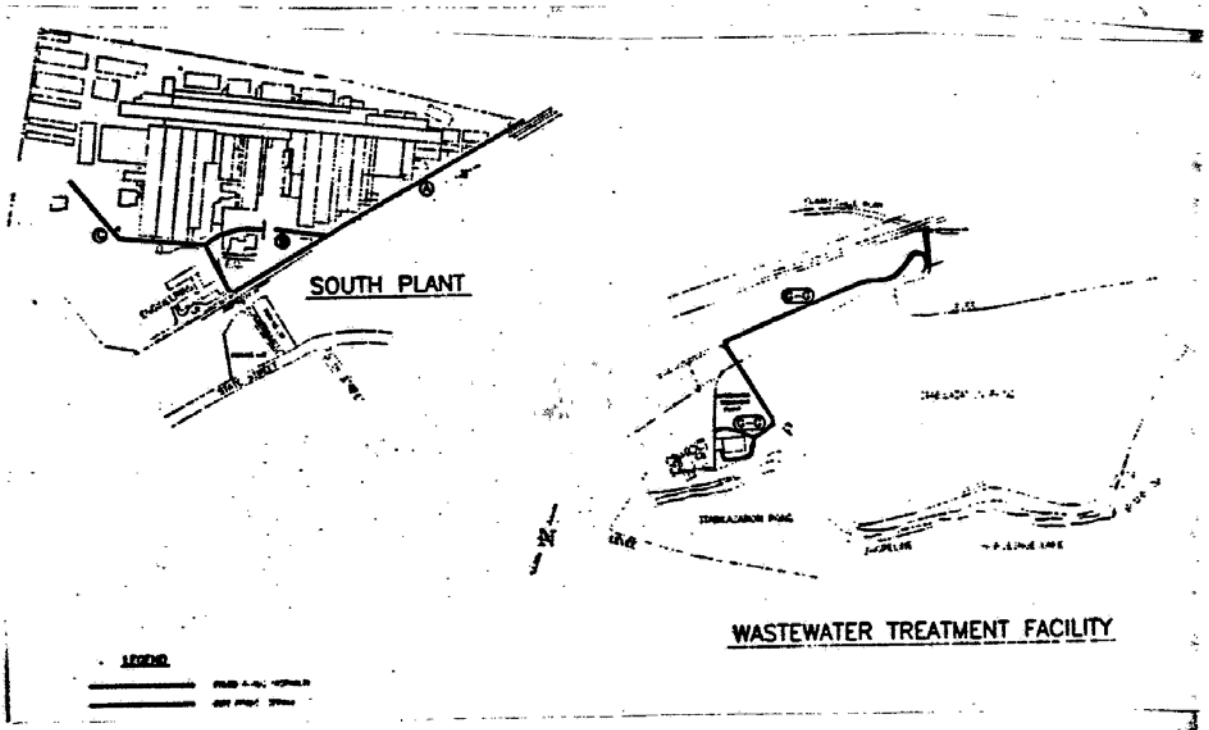


ATTACHMENT B (cont.)



GRANITE CITY STEEL GRANITE CITY, ILLINOIS	PROJECT NO. 4E98189
Woodward-Clyde Consultants	
DRN. BY: bdw 12/29/94 DSGN. BY: CHKD. BY:	Road Network Iron Making Area
	FIG. NO. 3-3

ATTACHMENT B (cont.)



GRANITE CITY STEEL GRANITE CITY, ILLINOIS		PROJECT NO. 4E88199
Woodward-Clyde Consultants		
Date Sketched: 12/29/94 DESIGN BY: CHKD BY:	Road Network South Plant & WWTP	FIG. NO. 3-4

ATTACHMENT C

CONTEMPORANEOUS REDUCTIONS IN THE
EMISSIONS OF PM_{10}

- Historic roadway emissions of 428 tons/year, minus future potential roadway emissions of 27 tons/year, equals a resulting reduction in roadway emissions of 401 tons/year

- Historic material handling emissions of 17 tons/year minus future potential material handling emissions of 2 tons/year, equals a resulting reduction in material handling emissions of 15 tons/year.

- Emission reductions resulting from the sweeping of city streets = 52 tons/year*

- Emission reductions resulting from sweeping and housekeeping of areas below and around BOF ESP = 12 tons/year*

Total reductions in the emissions of PM_{10} as a result of the additional dust control measures required by Illinois' SIP and the special conditions of this permit = 480 tons/year

* These are considered reasonable estimates of reductions and are subject to change upon further investigation of the actual reductions which will occur as a result of the control measures required by this permit.

KLS:psj

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

ATTACHMENT 1

State of Illinois
ENVIRONMENTAL PROTECTION AGENCY

Mary A. Gade, Director
217/782-2113

P. O. Box 19506, Springfield, IL 62794-9506

CONSTRUCTION PERMIT

PERMITTEE

RECEIVED
JAN 31 1996
COLLINSVILLE OFFICE

Granite City Division
of National Steel Corporation
Attn: Joseph S. Kocot
20th and State Street
Granite City, Illinois 62040

Application No.: 95010001
I.D. No.: 119813AAI
Applicant's Designation:
Date Received: January 3, 1995
Subject: Production Increase
Date Issued: January 25, 1996
Location: Southeastern Granite City

Permit is hereby granted to the above-designated Permittee for an increase in the allowable production rate of iron (from 2,372,500 to 3,165,000 net tons per year) and steel (from 2,774,000 to 3,580,000 net tons per year) as described in the above-referenced application. This permit is subject to standard conditions attached hereto and the following special conditions:

1. Prior to issuance of this permit, a draft of this permit has undergone a public notice and comment period, and a public hearing was held.

BLAST FURNACE OPERATIONS

2a. Total combined production of hot metal (a.k.a., iron) from blast furnaces A and B shall not exceed 9,849 net tons per day, averaged over any calendar month, and;

b. Total combined production of hot metal from blast furnaces A and B shall not exceed 3,165,000 net tons per year.

3a. Particulate emissions from the blast furnace casthouse baghouse and iron spout baghouse shall not exceed 0.010 gr/dscf, pursuant to 35 Ill. Adm. Code 212.445(b)(1).

b. The opacity of emissions from the blast furnace casthouse baghouse and the iron spout baghouse shall not exceed 10% on a 6 minute rolling average basis, pursuant to 35 Ill. Adm. Code 212.445(b)(1).

4a. Emissions of particulate matter from any opening in the blast furnace casthouse shall not exceed 20% opacity on a 6-minute rolling average basis beginning from initiation of the opening of the tap hole up to the point where iron and slag stops flowing in the troughs, pursuant to 35 Ill. Adm. Code 212.445(a)(2).

5. Emissions from Blast Furnace operations shall not exceed the limits in attached Tables 1 and 5.

Printed on Recycled Paper

BASIC OXYGEN FURNACE SHOP

6a. Total combined production of liquid steel from the Basic Oxygen Furnaces (BOF's) shall not exceed 11,000 net tons per day, averaged over any calendar month, and;

b. Total combined production of liquid steel from the BOF's shall not exceed 3,580,000 net tons per year.

7. The emissions of PM-10 from the BOF ESP stack for the total of all BOF processes (i.e., operations from the beginning of the charging process through the end of the tapping process) shall not exceed 60.0 lbs/hr and 0.225 lbs per ton of steel in process, pursuant to 35 Ill. Adm. Code 212.458(b)(23).

8. Visible emissions from any opening in the BOF shop (e.g., roof monitor) shall not exceed 20% on a 3 minute rolling average basis.

9a. The Permittee shall determine the opacity from the openings BOF shop on at least a weekly basis. Observations shall be conducted for at least an hour or the entire BOF cycle, whichever is greater.

b. The Permittee shall determine the opacity from the BOF ESP stack for at least one hour on any normal work day (i.e., Monday through Friday) that the continuous opacity monitor on the BOF ESP stack has an outage that exceeds two consecutive hours and is still down. The readings shall commence as soon as possible after the opacity monitor has been down for two consecutive hours. If meteorological conditions or lack of visibility preclude these observations from being conducted, then this shall be noted in the log book.

c. The opacity shall be determined in accordance with the observation procedures set out in 40 CFR Part 60, Appendix A, Method 9 including the requirement that readings be taken by a certified observer.

d. These determinations shall be recorded in a log book, which at a minimum shall include the date and time of observations, name and title of observer, individual opacity readings, calculated opacity so as to determine compliance with Section 212.123, and calculated opacity relative to 20% opacity on a three minute rolling average basis.

10. The Permittee shall follow the BOF operating procedures and requirements specified in attachment A. These requirements are designed to ensure proper operation of the BOF control system. These procedures shall be posted in the BOF pulpit (a.k.a., control room).

11. Flame suppression shall be used and maintained during the entire tapping process.

12a. The stack gas pulpit set point of the BOF ESP control system shall be set in accordance with the following, so as to establish sufficient particulate matter capture efficiency of the charging and primary hoods:

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

i. Set point requirements while only a single BOF vessel is in operation;

A. Minimum set point during charging process: 550,000 cfm;

B. Minimum set point during refining process: 650,000 cfm;

C. Minimum set point during tapping process: 200,000 cfm (until one minute after completing alloy addition);

ii. During dual operation of BOF vessels (a.k.a., overlapping BOF operation) the set point shall be set to establish the total draft necessary to control the corresponding portion of the process which is occurring on each vessel during the overlap. For example, minimum set point while charging at one vessel and tapping at the other would be equal to that necessary to establish a flow of 700,000 cfm (i.e., 550,000 + 150,000).

iii. Overlapping operations of the BOF vessels is allowed only as specified in operating permit application number 72080043.

iv. The BOF capture system shall be operated at the above minimum set points until and unless the Agency approves a lower minimum set point based on a demonstration that a better level of particulate matter control will occur, except for purposes of emissions testing as related to the set point.

b. The Permittee shall calibrate, operate, and maintain a continuous strip chart recorder of the ESP stack gas flow rate as measured by the stack gas flow meter during ESP use.

c. The Permittee shall record for each steel production cycle the various stack gas flow rates for each process (i.e., for each charge, each refine, each tap) of each steel production cycle. That is, the Permittee shall be able to distinguish the measured flow rate of stack gas during each production cycle.

d. The stack gas flow meter shall be calibrated on at least a quarterly basis.

13a. Within 270 days of the date issued of this permit, the Permittee shall install, calibrate, operate, and maintain a monitoring device that continually measures and records for each process (i.e., for each charge, each refine, each tap) of each steel production cycle the various exhaust ventilation rates or levels of exhaust ventilation through the main downcommer duct of the ESP emissions capture and transport system.

b. The monitoring system shall be designed to be used as a mechanism to ensure sufficient draft is maintained in the emissions capture hoods and transport ducts so as to maximize emissions capture and transport and minimize uncaptured emissions and emission leaks.

c. The monitoring system shall be operated, tested and maintained to ensure accurate and useful data.

d. The Agency may allow an equivalent system or method instead of the above monitoring system provided the Permittee demonstrates, and the Agency approves, that such system or method will ensure sufficient draft is maintained in the emissions capture hoods and transport ducts so as to maximize emissions capture and transport and minimize uncaptured emissions and emission leaks in an equivalent manner, and that such system or method can be installed and operated within the time period required for the monitoring system as stated in this permit.

14a. The Permittee shall visually inspect at least monthly all visible BOF vessel enclosures, hooding and ducts used to capture and transport emissions for the BOF ESP control system.

b. A log shall maintained of these inspections which includes observations of the physical appearance of the capture system and any noted deficiencies (e.g., the presence of any holes in ductwork or hoods, flow constrictions caused by dents or accumulated dust in ductwork, and fan erosion).

c. Any leaks or areas otherwise noted to be in need of repair, shall be repaired as soon as practicable.

15a. The Permittee shall operate, maintain, and repair the BOF ESP in a manner that assures compliance with the conditions of this permit.

b. An adequate inventory of spare parts for the BOF ESP shall be maintained.

16. Written operating procedures for the BOF ESP shall be maintained and updated describing proper normal process and equipment operating parameters, monitoring and instrumentation for measuring control equipment operating parameters, control equipment inspection and maintenance practices, and the availability of spare parts from inventory, local suppliers and other sources.

17. The Permittee shall keep operating records, a maintenance log, and inspection log for the BOF ESP and associated control systems which includes the following:

a. Operating time of the BOF;

b. Operating time of the capture systems and performance parameters, including air flow and fan amperage through the fan motors, gas temperature at inlet to ESP, damper settings, and steam injection rate;

c. Operating time of the ESP and performance parameters, including voltage and amperage of each transformer/rectifier set, number of sections in use;

d. All routine and nonroutine maintenance performed, including dates and duration of outages, inspection schedule and findings, leaks detected, repair actions, and replacements.

18. Emissions from the BOF Shop shall not exceed the limits in attached Tables 2 and 5.

Note: For purposes of this permit, a BOF cycle is defined as the period from the beginning of the charging process through the end of the tapping process. The cycle is comprised of three main processes which are charging, refining, and tapping.

CONTINUOUS CASTING OPERATIONS

19. The continuous casting operations shall comply with 35 Ill. Adm. Code 212.450 and 212.458(b)(8).

20. Emissions from the continuous casting operations shall not exceed the limits in Tables 3 and 5.

FUEL COMBUSTION

21. Total fuel usage for blast furnace stoves (A and B), boiler house boilers (1-10), blast furnace boilers (11 and 12), ladle drying preheaters and blast furnace gas flares shall not exceed the following limits:

    a. Natural Gas usage: 190 million ft^3 per month and 1,145 million ft3 per year;

    b. Blast Furnace Gas (BFG) usage: 30,800 million ft3 per month and 185,030 million ft3 per year;

    c. Fuel Oil usage: 60 thousand gallons per month and 365 thousand gallons per year.

22. Emissions from the fuel combustion units listed above shall not exceed the limits in Tables 4 and 5.

ON-SITE FUGITIVE DUST CONTROL

(Refer to Attachment B for a table which summarizes the required on-site fugitive dust roadway control measures and maps indicating the referred to road segments)

23. The Permittee shall immediately initiate and maintain the on-site fugitive dust control measures specified in this permit so as eliminate dust spillage on in-plant and out-of-plant roadways.

24a. The Permittee shall sweep or flush at least every day the paved access area below the BOF ESP where ESP dust collection bags are used, stored and transported.

  b. The Permittee shall implement a housekeeping program for the non-roadway areas below and around the BOF ESP. This program shall, at a minimum, contain the following:

    i. The ground and other accessible areas where dust may gather shall be swept or cleaned at least every day;

ii. Cleaning shall be performed in such a manner as to minimize the escape of dust into the atmosphere;

iii. Dust collection bags shall be inspected at least daily for rips, tears, or insecure connection to the discharge chutes of the ESP hoppers;

iv. Dust collection bags shall be inspected after removal from, and connection to, the discharge chutes of the ESP hoppers;

v. Ripped or torn bags shall be taken out of service and transported as soon as practicable in a covered truck.

25. Fugitive emissions of particulate matter from any roadway or parking area shall not exceed an opacity of 5%, pursuant to 35 Ill. Adm. code 212.316(e)(1).

26a. UNPAVED ROADS: On unpaved roads that are part of normal traffic patterns as identified in attachment B (including roads B, C, E, N, F-F, and CS(2)) the Permittee shall apply a chemical dust suppressant at least three times a month, with the following exceptions:

i. Road segment G-G, which shall be sprayed at least quarterly;

ii. Road segments P, V, Z, D-D, E-E, and H, which shall be sprayed at least 4 times per month until paving is completed. Paving shall be completed on these roads no later than July 31, 1996;

iii. Road segment L, which shall be sprayed at least 4 times per month.

b. All other unpaved roads shall be treated as necessary.

c. Applications of suppressant may be less frequent than specified above if weather conditions, i.e., precipitation or temperature, interfere with the schedule for spraying, provided each such instance shall be recorded in accordance with the daily records for on-site fugitive dust control required by this permit.

27a. PAVED ROADWAYS AND AREAS: Paved roadways and areas shall be maintained in good condition.

b. On paved roadways and other areas, the Permittee shall sweep or flush as follows:

i. Road segments D, K, M, F, G, J, R, and O shall be swept or flushed at least daily;

ii. Road segments P, V, W, X, Z, D-D, E-E, and CS(1) shall be swept or flushed at least five days per week;

iii. Road segments S and T shall be swept or flushed at least every other day;

iv. Road segments A and H shall be swept or flushed at least once per month;

v. All gate areas leading from the Steelworks area shall be swept or flushed at least daily;

vi. All gate areas leading from the iron making area shall be swept or flushed at least five times per week.

28. The above on-site dust control measures shall be conducted to maximize their effectiveness by performing said measures when the roads or areas are not normally obstructed by parked vehicles and by preferentially using filter sweeping (e.g., Enviro-Whirl sweeper) for the gate areas, the roads and areas surrounding the BOF and BOF ESP, and other key areas.

29. The Permittee shall maintain daily records relative to the on-site fugitive dust control program which includes the following information as a minimum:

a. The date (and time for the gate areas) each road or area was treated;

b. The manner in which the road or area was treated (i.e., filter sweep, conventional sweep, suppressant spray or flush);

c. Detailed information for use of dust suppressant, including but not limited to the application rate, dilution ratio, type of suppressant used, and the number of gallons of suppressant applied;

d. Observations, if any, concerning the condition of the roadway, e.g., presence of parked vehicles, detection of potholes;

e. The amount of precipitation and temperature recorded for each day, and if determination was made to suspend application of suppressant, include name and title of person who made determination to suspend application and explanation;

f. Any and all suspensions or deviations from the designated control procedures, with date, description, and explanation for suspension of application.

<u>OFF-SITE FUGITIVE DUST CONTROL</u>

30. The Permittee or the Permittee's Agent shall sweep or flush the following Granite City street road areas:

a. At least weekly, the quarter mile segment of Madison Avenue in front of the 16th street gate (i.e., 1/8 of a mile in either direction);

b. At least weekly, segment of 20th street between Lee and Quincy roads;

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

c. At least monthly, segment of 20th street between Madison and Route 203 (a.k.a. Edwardsville Road).

PM-10 CONTINGENCY MEASURES

31. The Permittee shall comply with the additional control measures (e.g., PM-10 contingency plan) required by 35 Ill Adm. Code Part 212 Subpart U.

COMPLIANCE DETERMINATIONS

32a. Compliance with the daily limits of this permit shall be determined from a monthly total of the relevant daily data divided by the number of days in the month.

b. Compliance with the monthly limits of this permit (e.g., fuel usage) shall be determined by direct comparison of monthly data to the applicable limit.

c. i. Compliance with the annual limits of this permit shall be determined based on a calendar year.

ii. A. Compliance with the production limits in conditions 2(b) and 6(b) shall also be determined on a month by month basis by showing that the actual production of iron and steel from the plant did not exceed the scheduled rate of production for a month given in the most recent production schedule provided to the Agency that shows compliance with the following requirements.

B. If no production schedule is submitted to the Agency by the Permittee for a particular year, the scheduled monthly production of iron and steel shall be set at one twelfth of the annual production limits in conditions 2(b) and 6(b).

C. 1. The Permittee may submit a schedule for iron and steel production for each month of the calendar year. Such schedule shall provide the scheduled monthly iron and steel production for each month and the total of such scheduled production shall not exceed the annual production limits in conditions 2(b) and 6(b). This schedule shall be submitted each year no later than December 15th of the preceding year.

2. During the course of the year, the Permittee may submit a revised production schedule which accounts for actual production levels which were below that scheduled for the previous months, provided that in no case shall the scheduled production for prior months in such a revised schedule be lowered to less than actual production levels or raised. Such revised schedule shall be submitted to the Agency no later than 15 days

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

after the first day of the month for which scheduled production has been raised. Such schedule shall be accompanied by data on actual production in preceding months.

33a. Compliance with opacity limits and measurements of opacity shall be made by opacity readings taken in accordance with the observation procedures set out in 40 CFR Part 60, Appendix A, Method 9.

b. The Permittee shall have at least two employees or agents experienced in making opacity readings to the extent that it is reasonably possible to do so, who shall be able to make the opacity readings required by this permit.

34a. Blast furnace hot metal production shall be measured at the BOF hot metal transfer station, and adjusted by documented slag and iron losses.

b. BOF liquid steel production shall be initially measured by a scale equipped crane and adjusted based upon documented steel production analysis of the continuous casters.

c. BFG usage shall be calculated based on 0.05846 $mmft^3$ BFG generated per net ton of hot metal produced.

d. Natural gas usage shall be determined by metered volumes.

e. Fuel oil usage shall be determined by tank height differentials.

RECORD KEEPING

35. The Permittee shall keep records of the following items and such other items which may be appropriate to allow the Agency to review compliance:

a. Blast Furnace hot metal production (total combined daily, monthly and annual in tons), including documentation on iron and slag losses;

b. BOF liquid steel production (total combined daily, monthly and annual in tons), including documentation on adjustments made due to production analysis and losses;

c. Fuel usage as follows; Usage of natural gas and BFG (total combined million ft^3 per month and year, each) and fuel oil (total combined gallons/month and year) for the blast furnace stoves (A and B), boiler house boilers (1-10), blast furnace boilers (11 and 12), ladle drying preheaters and blast furnace gas flares.

36. All records and logs required by this permit shall be retained at a readily accessible location at the source for at least three years from the date of entry and shall be made available for inspection and copying by the Agency and USEPA upon request. Any records retained in a computer shall be capable of being retrieved and

printed on paper during normal source office hours so as to be able to respond to an Agency request for records during the course of a source inspection.

STARTUP AND TESTING

37. The special conditions of this permit supplement the special conditions of any existing operating permits for this source, and supersede such conditions in cases where a conflict exists.

38. Operation at the increased production rates specified in this permit is allowed for 270 days from the date issued under this construction permit.

39a. The following tests shall be performed to demonstrate compliance with the conditions of this permit within 270 days from the date issued of this permit:

i. Blast Furnace testing: The emissions of particulate matter, volatile organic material, sulfur dioxide, nitrogen oxides, and the opacity from the blast furnace casthouse stack shall be measured. These tests shall be designed to verify compliance with 35 Ill. Adm. Code 212.445 and the requirements of this permit;

ii. Hot Metal Desulfurization testing: The emissions of particulate matter from the desulfurization baghouse shall be measured. These tests shall be designed to verify compliance with the requirements of this permit and 35 Ill. Adm. Code 212.446(b)(2);

iii. BOF testing: The emissions of particulate matter, carbon monoxide, and lead from the BOF ESP stack, and the opacity from both the BOF ESP stack and BOF Shop shall be measured. These tests shall be designed to verify compliance with 35 Ill. Adm. Code 212.446, 212.458 and the requirements of this permit;

iv. Fuel Combustion Units testing: The emissions of particulate matter from a representative boiler while burning blast furnace gas shall be measured. This test shall be designed to verify compliance with the requirements of this permit and the emission factor used (i.e., 2.9 lbs particulate emitted per mmcf BFG burned);

v. BFG generation testing: The amount of blast furnace gas generated ($mmft^3$) per ton of hot metal produced shall be determined. The Agency may waive this requirement for testing providing the Permittee submit a sufficient explanation of how BFG generation is determined with justification that such determination is appropriate for purposes of compliance determinations with this permit.

b. These tests shall be performed by an approved independent testing service during conditions which are representative of maximum emissions and at the maximum production rates allowed, or as close

to such rates as reasonable if the Permittee demonstrates to the Agency prior to testing that testing at such production rates within the time constraints of an Agency request to test is not practicable.

c. i. The following methods and procedures shall be used for the testing, unless another method is approved by the Agency: Refer to 40 CFR 60, Appendix A for USEPA test methods;

Location of sample points	USEPA Method 1
Gas flow and velocity	USEPA Method 2
Particulate Matter	USEPA Method 5
Sulfur Dioxide	USEPA Method 6
Nitrogen Oxides	USEPA Method 7
Opacity	USEPA Method 9
Carbon Monoxide	USEPA Method 10
Lead	USEPA Method 12

ii. All particulate measured shall be considered PM-10 unless emissions are tested by an appropriate USEPA test method for measurement of PM-10, as specified in 35 Ill. Adm. Code 212.110(e).

d. At least 60 days prior to the actual date of testing of the BOF, a written test plan shall be submitted to the Agency for review and approval. This plan shall be describe the specific procedures for testing the BOF, including as a minimum:

i. The persons who will be performing sampling and analysis and their experience with similar tests;

ii. The specific conditions under which testing will be performed including a discussion of why these conditions will be representative of maximum emissions and the means by which operating parameters for the source and the emissions capture and control system will be determined;

iii. The specific determinations of emissions and operation which are intended to be made, including sampling and monitoring locations;

iv. The test methods which will be used, with the specific analysis methods;

v. Any proposed use of an alternative test method, with detailed justification;

vii. The format and content of the Source Test Report.

e. The Agency shall be notified before these tests to enable the Agency to observe these tests. Notification for the expected date of testing shall be submitted a minimum of thirty (30) days prior to the expected date. Notification of the actual and expected time of testing shall be submitted a minimum of five (5) working days prior to the actual date of the test. The Agency may at its discretion

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

accept notifications with shorter advance notice provided that the Agency will not accept such notifications if it interferes with the Agency's ability to observe testing.

f. The Final Report of these tests shall include as a minimum:

i. A tabular summary of results which includes:

- process weight rate and/or fuel usage rate
- production rate
- allowable emission limit
- measured emission rate
- determined emission factor
- compliance demonstrated - Yes/No
- other pertinent information (e.g., for the BOF, pulpit set point for each process of the BOF cycle - charging, refining, and tapping);

ii. Description of test methods and procedures used, including description of sampling train, analysis equipment, and test schedule;

iii. Detailed description of test conditions, including,

- pertinent process information (e.g. fuel or raw material consumption)
- control equipment information, i.e. equipment condition and operating parameters during testing;

iv. Data and calculations, including copies of all raw data sheets and records of laboratory analyses, sample calculations, and data on equipment calibration;

g. Copies of the Final Report for these tests shall be submitted to the Agency within 14 days after the test results are compiled and finalized and in no case later than upon the submittal of the operating permit application for this production increase.

h. Submittals of information shall be made as follows:

i. Notice of Test - one copy to Source Emission Test Specialist, one copy to Regional Office, and one copy to Permit Section;

ii. Final Report - one copy to Source Emission Test Specialist, one copy to Regional Office, and one copy to Permit Section.

Pertinent Addresses are:

Illinois Environmental Protection Agency
Division of Air Pollution Control
Attn: Source Emission Test Specialist
Intercontinental Center
1701 1st Avenue
Maywood, Illinois 60153

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Illinois Environmental Protection Agency
Division of Air Pollution Control
Regional Office
2009 Mall Street
Collinsville, Illinois 62234

Illinois Environmental Protection Agency
Division of Air Pollution Control
Attn: Permit Section
P.O. Box 19506
Springfield, Illinois 62794-9506

REPORTING

40. If there is an exceedance of the requirements of this permit as determined by the records required by this permit, the Permittee shall submit a report to the Agency's Compliance Unit in Springfield, Illinois within 30 days after the exceedance. The report shall include the emissions released in accordance with the record keeping requirements, a copy of the relevant records, and a description of the exceedance or violation, cause of the exceedance, and efforts to reduce emissions and future occurrences. This report shall be sent to:

Illinois EPA
Bureau of Air
Compliance Unit (#39)
P.O. Box 19276
Springfield, Illinois 62794-9276

41. The Permittee shall submit the following additional information from the prior calendar year with the Annual Emissions Report, due May 1st of each year:

a. Iron and steel production (tons/month and tons/yr, each);

b. Natural gas and BFG usage (mmft3/month and mmft3/yr, each);

c. Fuel oil usage (thousand gallons/month and thousand gallons/yr, for each type of oil).

APPLICABILITY OF MAJOR SOURCE RULES

42a. As a consequence of the above conditions, this permit is issued based upon the following changes in emissions, as further described in Table 6, accompanying increased production as allowed by this permit:

i. The increases in emissions of lead and VOM are not significant under 35 Ill. Adm. Code Part 203 or 40 CFR 52.21 - Prevention of Significant Deterioration;

ii. The increase in emissions of NO_x are being accompanied by contemporaneous emission decreases provided by the shutdown of equipment and operations such that the net emissions change is

not significant under 35 Ill. Adm. Code Part 203 or 40 CFR 52.21 - Prevention of Significant Deterioration.

iii. The increase in emissions of PM and PM-10 are being accompanied by contemporaneous emission decreases provided by additional road dust control and BOF capture and control such that the net emissions change is not significant under 35 Ill. Adm. Code Part 203 or 40 CFR 52.21 - Prevention of Significant Deterioration.

Also, the Permittee has agreed to provide further additional dust control consisting of the sweeping of Granite City public streets and housekeeping measures in the area below and surrounding the BOF ESP. Attachment C is a listing of the emission reductions provided by these control measures.

b. The increases in emissions of SO_2 and CO are significant under 40 CFR 52.21 - Prevention of Significant Deterioration (PSD). Accordingly, the project is considered a major modification and must comply with the requirements of PSD. These requirements include a demonstration of best available control requirements for affected SO2 and CO emission units, an analysis of air quality impacts, an analysis of the impacts of the project on visibility, vegetation's and soils, and the application and proposed permit must undergo a public participation. The Agency has determined that these additional requirements have been met.

c. The changes in emissions pertinent to this project are summarized as follows:

Units = tons/year

- Emission increases which could occur from the project:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
51.6	- 52.0	238.8	476.0	5,685	59.3	0.54

- Creditable contemporaneous actual emission decreases:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
58.0	58.0	226.5	0.38	23.31	32.8	0.0

- Other contemporaneous emission increases:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
20.7	20.3	26.0	0.25	11.8	1.6	0.0

- Net emission changes:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
+14.3	-89.2	+38.3	+475.9	+5,673	+28.1	+0.54

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

- Significant Levels:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
15	25	40	40	100	40	0.6

Explanatory Note:

PM	=	particulate matter = particulate;
PM-10	=	particulate matter less than or equal to 10 micrometers in size;
SO_2	=	sulfur dioxide;
NO_x	=	nitrogen oxides;
VOM	=	volatile organic material;
CO	=	carbon monoxide;
mm	=	million;
gr/dscf	=	grains per dry standard cubic foot;
acfm	=	actual cubic feet per minute;
mmcf	=	million cubic feet;
Mgal	=	thousands of gallons.

If you have any questions on this permit, please call Jim Ross at 217/782-2113.

Donald E. Sutton, P.E.
Manager, Permit Section
Division of Air Pollution Control

DES:JRR:jar

cc: IEPA, FOS Region 3

COPY
Original Signed by
Donald E. Sutton, P.E.

Permit Application #95010001

TABLE 1

BLAST FURNACE OPERATIONS

Maximum Hot Metal Production = 3,165,000 net tons per year

1. Casthouse Baghouse (furnace tapping)- captured emissions ducted to baghouse, uncaptured emissions emitted through roof, other openings, etc.

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.0703	111.19
PM-10	0.0703	111.19
SO_2	0.2006	422.0
NO_x	0.0144	22.79
VOM	0.0946	149.68

2. Blast Furnace - uncaptured fugitives

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.031	49.06
PM-10	0.0155	24.53
SO_2	0.0104	21.94
NO_x	0.0007	1.14
VOM	0.0047	7.42

3. Blast Furnace Charging
Maximum pellets charged = 4,308,581 tons/yr

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.0024	5.17
PM-10	0.0024	5.17

4. Slag Pits

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00417	6.60
PM-10	0.00417	6.60
SO_2	0.0100	15.83

Permit Application #95010001

TABLE 1 (cont.)

5. Iron Spout Baghouse- captured emissions controlled by iron spout baghouse.

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.02548	40.32
PM-10	0.02548	40.32
SO_2	0.0073	13.89

6. Iron Pellet Screen
Maximum pellets charged = 4,308,581 tons/yr

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00279	6.01
PM-10	0.00279	6.01

Permit Application #95010001

TABLE 2

BOF SHOP

Maximum Liquid Steel Production = 3,580,000 net tons per year

1. BOF ESP Stack (charge, refine, tap)

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.16	262.80
PM-10	0.16	262.80
NO_x	0.0389	69.63
VOM	0.0060	10.74
CO	8.993	16,097.47
Lead	0.1934 lbs/hr	1.26 tons/yr

2. BOF Roof Monitor

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.0987	176.71
PM-10	0.06614	118.40
Lead	0.0129 lbs/hr	0.08 tons/yr

3. Desulfurization and Reladling - Hot Metal Transfer

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.03721	58.88
PM-10	0.03721	58.88
VOM	0.0010	1.58
Lead	0.0133 lbs/hr	0.09 tons/yr

4. BOF Additive System (i.e., fluxes) with Baghouse, a.k.a., BOF hopper baghouse

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00032	0.57
PM-10	0.00032	0.57

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Permit Application #95010001

TABLE 2 (cont.)

5. Flux conveyor & transfer pits, bin floor

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.0016	2.86
PM-10	0.0016	2.86

6. Hot metal charging ladle slag skimmer

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.0050	7.94
PM-10	0.0050	7.94

Permit Application #95010001

TABLE 3

CONTINUOUS CASTING OPERATIONS

Maximum Liquid Steel Throughput = 3,580,000 net tons per year

1. Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy)

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00715	12.80
PM-10	0.00715	12.80

2. Deslagging Station and Material HS.

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00355	6.35
PM-10	0.00355	6.35

3. Caster Molds - Casting

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.006	10.74
PM-10	0.006	10.74
NO_x	0.050	89.50

4. Casters Spray Chambers

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00852	15.25
PM-10	0.00852	15.25

5. Slab Cut-off

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.0071	12.71
PM-10	0.0071	12.71

Permit Application #95010001

TABLE 3 (cont.)

6. Slab Ripping

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00722	12.92
PM-10	0.00722	12.92

Permit Application #95010001

TABLE 4

CERTAIN FUEL COMBUSTION UNITS

1. 10 boilers (#'s 1 - 10)
2. 2 boilers (#'s 11 - 12)
3. Blast Furnace Stoves A & B.
4. BFG Flares
5. Ladle Drying Preheaters (5 heaters).

Total combined fuel usage from affected units (i.e., Boilers, BF stoves, BF Flares, ladle drying preheaters)

	Maximum Usage ($mmft^3/Yr$)
NATURAL Gas (Total)	1,145
BFG	185,030
Fuel Oil	365 thousand gallons/yr

1. Natural Gas

Pollutant	Emission Factor (Lbs/mmcf)	Maximum Emissions (Tons/Yr)
PM	5.1	2.92
PM-10	5.1	2.92
SO_2	0.6	0.34
NO_x	306	175.19
VOM	2.8	1.60
CO	40	22.90

2. BFG

Pollutant	Emission Factor (Lbs/mmcf)	Maximum Emissions (Tons/Yr)
PM	2.9	268.29
PM-10	2.9	268.29
SO_2	6.65	615.22
NO_x	5.28	488.48
CO	13.7	1,267.46

Permit Application #95010001

TABLE 4 (cont.)

3. Fuel Oil

Pollutant	Emission Factor (Lbs/Mgal)	Maximum Emissions (Tons/Yr)
PM	9.72	1.77
PM-10	9.72	1.77
SO_2	141.3	25.79
NO_x	55	10.04
VOM	0.28	0.05
CO	5.0	0.91
Lead	0.336	0.06 (waste oil)

Permit Application #95010001

TABLE 5

LIMITS ON EMISSIONS FROM MAJOR PROCESSES AND ACTIVITIES

Units = tons/year

	PM	PM-10	SO_2	NO_x	VOM	CO	Lead
Blast Furnace Operations	218	194	474	24	157	--	--
BOF Shop	510	451	--	70	12	16,097	1.43
Continuous Casting Operations	71	71	--	90	--	--	--
Certain Fuel Combustion Units[A]	273	273	641	674	2	1,291	0.06
Roadways	27	27	--	--	--	--	--
Material Handling	2	2	--	--	--	--	--
	PM	PM-10	SO_2	NO_x	VOM	CO	Lead
TOTAL	1,101	1,018	1,115	858	171	17,388	1.49

[A] Blast furnace stoves (A and B), boiler house boilers (1-10), blast furnace boilers (11 and 12), ladle drying preheaters and blast furnace gas flares.

Permit Application #95010001

TABLE 6

EMISSIONS SUMMARY

Units = tons/year

- Emission increases which could occur from the project:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
51.6	-52.0	238.8	476.0	5,685	59.3	0.54

- Creditable contemporaneous actual emission decreases:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
58.0	58.0	226.5	0.38	23.31	32.8	0.0

- Other contemporaneous emission increases:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
20.7	20.3	26.0	0.25	11.8	1.6	0.0

- Net emission changes:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
+14.3	-89.2	+38.3	+475.9	+5,673	+28.1	+0.54

- Significant Levels:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
15	25	40	40	100	40	0.6

Permit Application #95010001

ATTACHMENT A

PROCEDURES TO ENSURE PROPER OPERATION
OF BOF ESP CONTROL SYSTEM

1. The emissions control operator shall:

   a. Check on a regular basis and report to the emissions control foreman or melter:

      i. Any ESP fields down;

      ii. Any ESP fields in which the meter readings are showing no current or a fault;

   b. Check on a regular basis that doors on all hopper screws are closed;

   c. Inspect on a regular basis the fans and motors for unusual sounds and/or visual problems. Any abnormalities will be immediately reported to the melter or maintenance foreman for investigation.

2. The melter shall:

   a. Check on a regular basis and report to the emissions control foreman or the area electrician any fields which the pulpit precipitator field short indicators shows as having a short and is able to reset;

   b. Check on a regular basis and report to the emissions control foreman or the maintenance foreman any draft or fan problems;

   c. Check the ESP stack opacity monitor on a regular basis and initiate the following in the event that the stack opacity level, as determined by the opacity monitor, exceeds 30% opacity on a six minute average:

      i. Check the pulpit indicators for proper operation of the steam and spray water system. Report any problems to emission control foreman or maintenance foreman;

      ii. Check the stack gas pulpit set point for proper setting;

      iii. Call the emissions control operator who shall perform the following steps;

         A. Check the AVC operation and power level. Report any problems to electrical maintenance foreman or area electrician;

         B. Check to ensure that doors on all hopper screws are closed;

   d. Check oxygen blow rates and adjust, if necessary;

   e. Check hot metal chemistry;

Permit Application #95010001

ATTACHMENT A (cont.)

f. A log shall be maintained of the above checks and any actions taken as a result.

3. The emission control foreman shall:

   a. Check on a regular basis the opacity monitor exceedances and trends. The control specialist shall be contacted to correct any problems;

   b. Check on a regular basis the draft rate set points;

   c. Check on a regular basis primary and secondary damper settings;

   d. Check on a regular basis ESP operation, including the following:

      i. Fields down;

      ii. Fields indicating shorts and unable to reset;

      iii. Hopper screw doors are closed;

   e. Check on a regular basis blow rates;

   f. Check on a regular basis spray water system operation;

   g. Check on a regular basis steam injection rate;

   h. Contact the area manager regarding electrical maintenance and to schedule the ESP repair work;

   i. Contact the area manger for mechanical maintenance to schedule the isolation of the ESP channel by closing the inlet and outlet gates of that chamber and opening the top hatches for entry into the chamber;

   j. Notify the emissions control operator and melter when isolation work begins;

   k. A log shall be maintained of the above checks and any actions taken as a result.

4. The crane operator shall use the following procedures, as appropriate, to minimize emissions and maximize emissions capture by the hoods:

   a. Use controlled pouring of the hot metal into the BOF vessel;

   b. Use careful positioning of the hot metal ladle with respect to the hood face and furnace mouth;

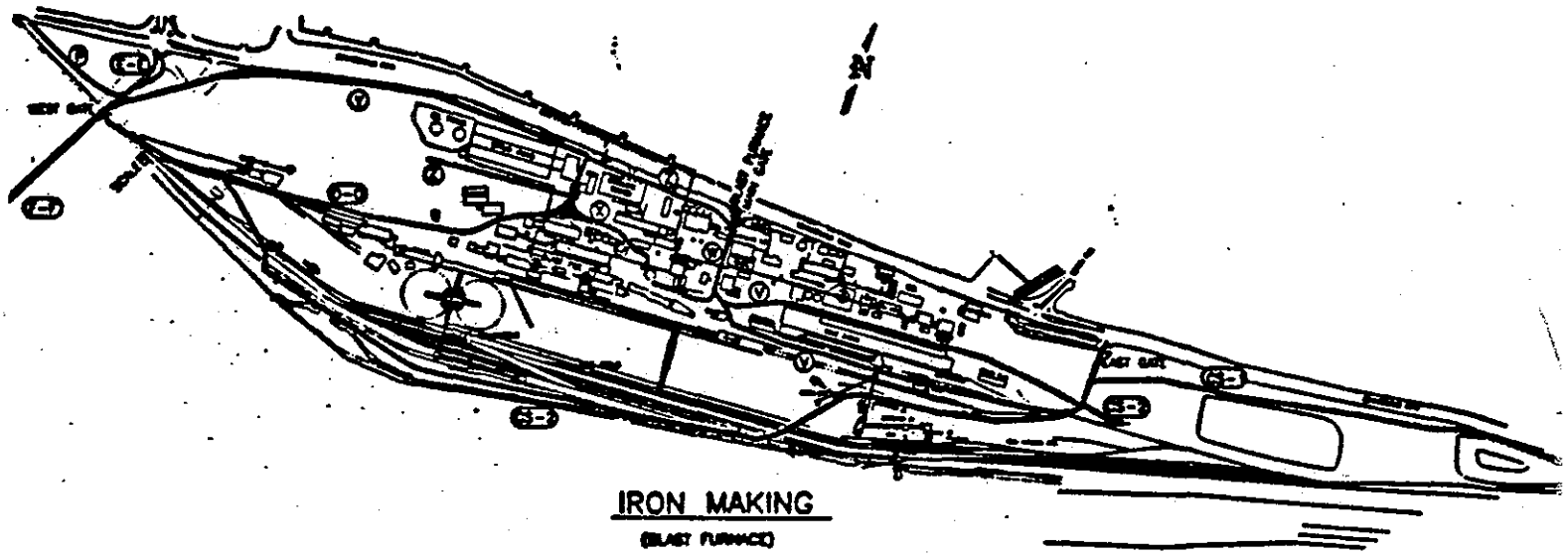
   c. Use the most beneficial furnace tilt angle;

   d. These procedures shall be posted in the crane operator booth.

Permit Application #95010001

ATTACHMENT B

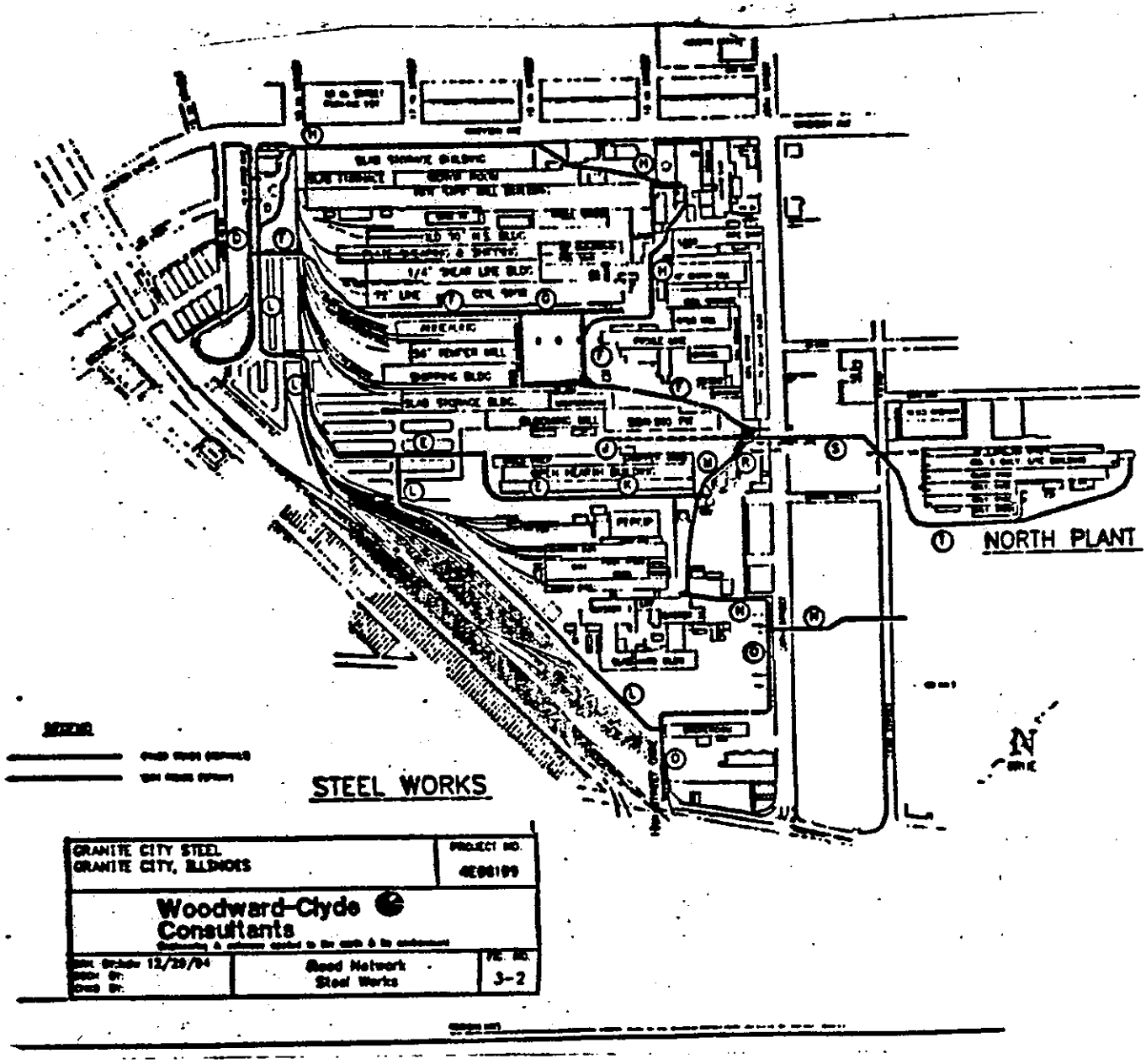
ON-SITE FUGITIVE DUST ROADWAY CONTROL MEASURES AND
MAPS SHOWING THE ROAD SEGMENTS



GRANITE CITY STEEL GRANITE CITY, ILLINOIS		PROJECT NO. 4E98109
Woodward-Clyde Consultants		
DRWN. BY: bdw 12/29/94 DESIGN. BY: CHKD. BY:	Road Network Iron Making Area	FIG. NO. 3-3

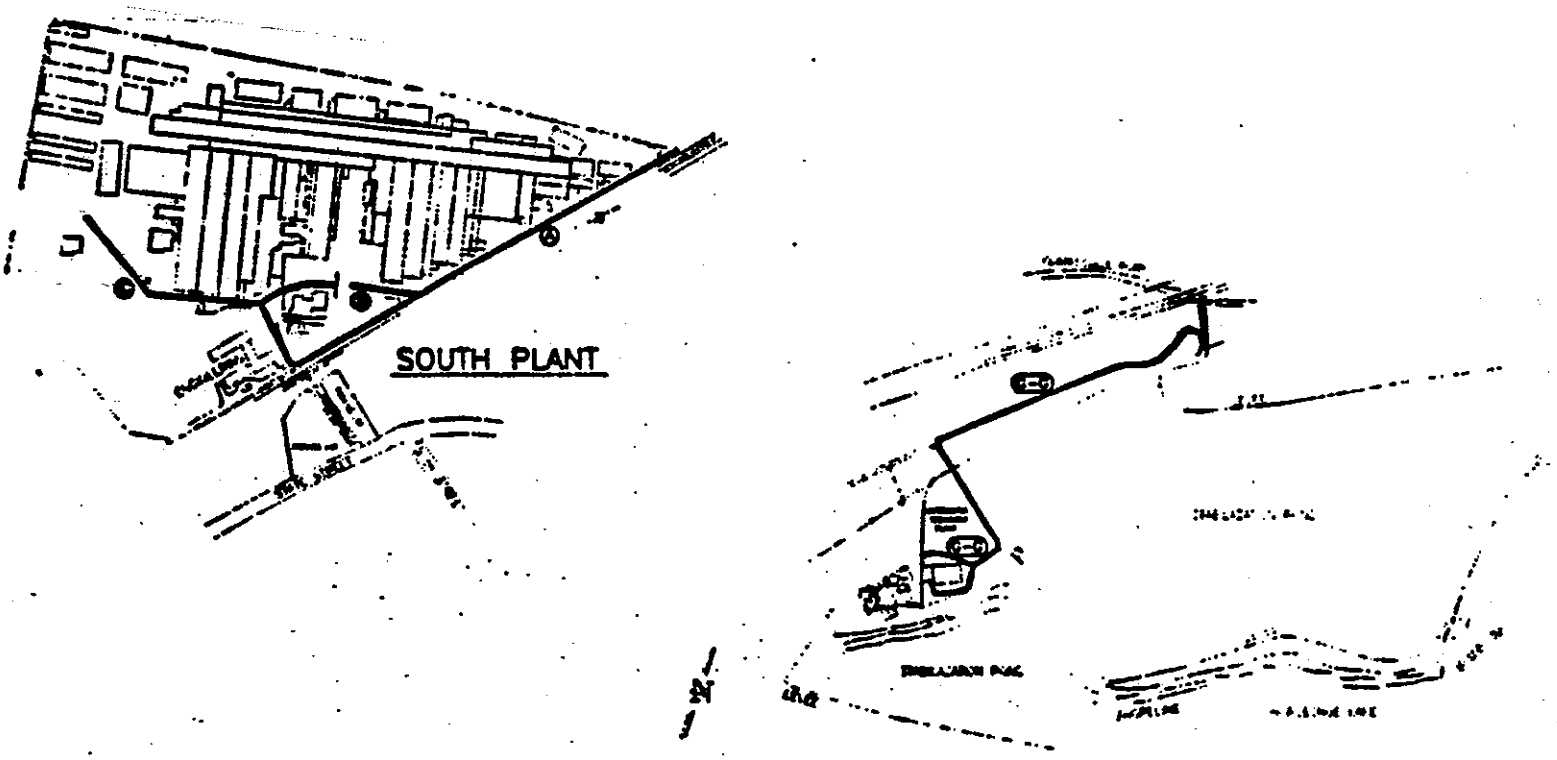
Permit Application #95010001

ATTACHMENT B (cont.)



Permit Application #95010001

ATTACHMENT B (cont.)



GRANITE CITY STEEL GRANITE CITY, ILLINOIS	PROJECT NO. 4E88109
Woodward-Clyde Consultants	
Date Printed: 12/29/94 DRAWN BY: CHKD BY:	Road Network South Plant & WWTP
	FIG. NO. 3-4

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Permit Application #95010001

ATTACHMENT C

CONTEMPORANEOUS REDUCTIONS IN THE
EMISSIONS OF PM-10

- Historic roadway emissions of 428 tons/yr, minus future potential roadway emissions of 27 tons/yr, equals a resulting reduction in roadway emissions of 401 tons/yr
- Historic material handling emissions of 17 tons/yr minus future potential material handling emissions of 2 tons/yr, equals a resulting reduction in material handling emissions of 15 tons/yr.
- Emission reductions resulting from the sweeping of city streets = 52 tons/yr*
- Emission reductions resulting from sweeping and housekeeping of areas below and around BOF ESP = 12 tons/yr*

Total reductions in the emissions of PM-10 as a result of the additional dust control measures required by Illinois' SIP and the special conditions of this permit = 480 tons/yr

* These are considered reasonable estimates of reductions and are subject to change upon further investigation of the actual reductions which will occur as a result of the control measures required by this permit.

JRR:jar

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

ENTERED APR 21 2003

IN THE UNITED STATES BANKRUPTCY COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION

In re:	)	Case No. 02-08697
	)	through 02-08738
	)	(Jointly Administered)
NATIONAL STEEL CORPORATION	)	Chapter 11
et al.,	)	Hon. John H. Squires
	)	
Debtors.	)	

ORDER AUTHORIZING AND APPROVING (I) THE SALE OF CERTAIN OF THE DEBTORS' ASSETS FREE AND CLEAR OF LIENS, CLAIMS AND ENCUMBRANCES, (II) THE ASSUMPTION AND ASSIGNMENT OF CERTAIN EXECUTORY CONTRACTS AND UNEXPIRED LEASES, AND (III) THE ASSUMPTION OF CERTAIN LIABILITIES

Upon the motion, dated January 9, 2003 (the "Motion")[1] of the above-captioned debtors and debtors-in-possession (the "Debtors"), for, *inter alia,* entry of an order under 11 U.S.C. §§ 105(a), 363, 365, and 1146(c) and Fed. R. Bankr. P. 2002, 6004, 6006, and 9014 authorizing and approving (i) the sale (the "Sale") of certain of the Debtors' Assets free and clear of liens, claims and encumbrances, pursuant to the terms of that certain Asset Purchase Agreement dated as of April 21, 2003 among United States Steel Corporation (the "Buyer") and National Steel Corporation and certain of its Subsidiaries (the "Agreement")[2], (ii) the assumption and assignment of certain executory contracts and unexpired leases, as described in the Agreement, and (iii) the assumption of

---

[1] Unless otherwise defined, capitalized terms used herein shall have the meanings ascribed to them in the Motion or the Agreement, as the case may be; as to any conflicts with respect to such terms, the meanings contained in the Agreement shall control over the meanings contained in the Motion.

[2] The Agreement is attached hereto as Exhibit A.

certain liabilities, as described in the Agreement; and the Court having entered an order on January 30, 2003 (the "Sale Procedures Order") approving the Motion; and a hearing on the Motion having been held on April 21, 2003 (the "Sale Hearing"), at which time all interested parties were offered an opportunity to be heard with respect to the Motion; and the Court having reviewed and considered (i) the Motion, (ii) the objections thereto, and (iii) the arguments of counsel made, and the evidence proffered or adduced, at the Sale Hearing; and it appearing that the relief requested in the Motion is in the best interests of the Debtors, their estate and creditors and other parties in interest; and upon the record of the Sale Hearing and these cases; and after due deliberation thereon; and good cause appearing therefor, it is hereby

FOUND AND DETERMINED THAT:[3]

A. The Court has jurisdiction over this Motion and the transactions contemplated by the Agreement pursuant to 28 U.S.C. §§ 157 and 1334, and this matter is a core proceeding pursuant to 28 U.S.C. § 157(b)(2)(A) and (N). Venue of these cases and the Motion in this district is proper under 28 U.S.C. §§ 1408 and 1409.

B. The statutory predicates for the relief sought in the Motion are sections 105, 363, 365, and 1146(c) of 11 U.S.C. §§ 101 et seq. (the "Bankruptcy Code"), and Fed. R. Bankr. P. 2002, 6004, 6006 and 9014.

---

[3] Findings of fact shall be construed as conclusions of law and conclusions of law shall be construed as findings of fact when appropriate. See Fed. R. Bankr. P. 7052.

C. As evidenced by the affidavits of service and publication previously filed with the Court, and based on the representations of counsel at the Hearing, (i) proper, timely, adequate and sufficient notice of the Motion, the Sale Hearing, the Sale, and the assumption and assignment of the Assumed Contracts has been provided in accordance with 11 U.S.C. §§ 102(l), 363 and 365 and Fed. R. Bankr. P. 2002, 6004 and 9014 and in compliance with the Sale Procedures Order, (ii) such notice was good and sufficient, and appropriate under the particular circumstances, and (iii) no other or further notice of the Motion, the Sale Hearing, the Sale, or the assumption and assignment of the Assumed Contracts is or shall be required.

D. As demonstrated by (i) the testimony and other evidence proffered or adduced at the Sale Hearing and (ii) the representations of counsel made on the record at the Sale Hearing, the Debtors have marketed the Business and conducted the sale process in compliance with the Sale Procedures Order and the Auction was duly noticed and conducted in a non-collusive, fair and good faith manner.

E. Each Debtor (i) has full corporate power and authority to execute the Agreement and all other documents contemplated thereby, and the sale of the Business by the Debtors has been duly and validly authorized by all necessary corporate action of each of the Debtors, (ii) has all of the corporate power and authority necessary to consummate the transactions contemplated by the Agreement, (iii) has taken all corporate action necessary to authorize and approve the Agreement and the consummation by such Debtors of the transactions contemplated thereby, and (iv) no consents or approvals, other

than those expressly provided for in the Agreement, are required for the Debtors to consummate such transactions.

F. Approval of the Agreement and consummation of the Sale at this time are in the best interests of the Debtors, their creditors, their estates, and other parties in interest.

G. The Debtors have demonstrated both (i) good, sufficient, and sound business purpose and justification and (ii) compelling circumstances for the Sale pursuant to 11 U.S.C. § 363(b) prior to, and outside of, a plan of reorganization in that, among other things, absent the Sale the value of the Acquired Assets and the Business will be harmed.

H. A reasonable opportunity to object or be heard with respect to the Motion and the relief requested therein has been afforded to all interested persons and entities, including: (i) the Office of the United States Trustee; (ii) counsel for the Buyer; (iii) counsel for the Creditors' Committee; (iv) counsel for the United Steelworkers of America; (v) counsel to the trustee of the First Mortgage Bonds; (vi) counsel for Mitsubishi Corporation; (vii) counsel to Marubeni Corporation; (viii) all entities known to have expressed an interest in a transaction with respect to the Acquired Assets during the past six months; (ix) all entities known to have asserted any Interests in or upon the Acquired Assets; (x) all federal, state, and local regulatory or taxing authorities or recording offices which have a reasonably known interest in the relief requested by the Motion; (xi) all parties to Assumed Contracts; (xii) the United States Attorney's office;

(xiii) the Securities and Exchange Commission; (xiv) the Internal Revenue Service; (xv) the Department of Justice; and (xvi) all entities on the 2002 Service List.

I. The Agreement was negotiated, proposed and entered into by the Debtors and the Buyer without collusion, in good faith, and from arm's-length bargaining positions. Neither the Debtors nor the Buyer have engaged in any conduct that would cause or permit the Agreement to be avoided under 11 U.S.C. § 363(n).

J. The Buyer is a good faith purchaser under 11 U.S.C. § 363(m) and, as such, is entitled to all of the protections afforded thereby.

K. The Buyer is not an "insider" of any of the Debtors, as that term is defined in 11 U.S.C. § 101.

L. The consideration provided by the Buyer for the Business pursuant to the Agreement (i) is fair and reasonable, (ii) is the highest or otherwise best offer for the Business, (iii) will provide a greater recovery for the Debtors' creditors than would be provided by any other practical available alternative, and (iv) constitutes reasonably equivalent value and fair consideration under the Bankruptcy Code and under the laws of the United States, any state, territory, possession, or the District of Columbia.

M. The Sale must be approved and consummated promptly in order to preserve the viability of the Debtors' Business as a going concern.

N. The transfer of the Acquired Assets to the Buyer will be a legal, valid, and effective transfer of the Acquired Assets, authorized pursuant to the Bankruptcy Code, and will vest the Buyer with all right, title, and interest of the Debtors to the

Acquired Assets free and clear of all Interests (as defined below), including, but not limited to those (A) that purport to give to any party a right or option to effect any forfeiture, modification, right of first refusal, or termination of the Debtors' or the Buyer's interest in the Acquired Assets, or any similar rights, (B) relating to taxes arising under or out of, in connection with, or in any way relating to the operation of the Business prior to the Closing Date, and (C) (i) all mortgages, deeds of trust, security interests, conditional sale or other title retention agreements, pledges, liens, judgments, demands, encumbrances, rights of first refusal or charges of any kind or nature, if any, including, but not limited to, any restriction on the use, voting, transfer, receipt of income or other exercise of any attributes of ownership and (ii) all debts arising in any way in connection with any agreements, acts, or failures to act, of any of the Debtors or any of the Debtors' predecessors or affiliates, claims (as that term is defined in the Bankruptcy Code), obligations, liabilities, demands, guaranties, options, rights, contractual or other commitments, restrictions, interests and matters of any kind and nature, whether known or unknown, contingent or otherwise, whether arising prior to or subsequent to the commencement of these bankruptcy cases, and whether imposed by agreement, understanding, law, equity or otherwise, including but not limited to claims otherwise arising under doctrines of successor liability to the extent permitted by law (collectively, "Interests").

O. The Buyer would not have entered into the Agreement and would not consummate the transactions contemplated thereby, thus adversely affecting the Debtors, their estates, and their creditors, if the sale of the Acquired Assets to the Buyer and the

assignment of the Assumed Contracts and Assumed Liabilities to the Buyer was not free and clear of all Interests or any kind or nature whatsoever, or if the Buyer would, or in the future could, be liable for any of the interests, including, without limitation, the Excluded Liabilities.

P. Except as expressly set forth in the Agreement, the Buyer shall have no liability for any liability, claim (as that term is defined in section 101(5) of the Bankruptcy Code) or other obligation of or against the Sellers related to the Acquired Assets by reason of the transfer of the Acquired Assets to the Buyer. The Buyer shall not be deemed, as a result of any action taken in connection with the purchase of the Acquired Assets, to: (1) be a successor to the Sellers (other than with respect to the Assumed Liabilities and any obligations arising under the Assumed Contracts (as such term is defined below) from and after the Closing Date); or (2) have, *de facto* or otherwise, merged with or into the Sellers. The Buyer is not acquiring or assuming any liability, warranty or other obligation of the Sellers, except as set forth in the Agreement or in any of the Assumed Contracts.

Q. The Debtors may sell the Acquired Assets free and clear of all Interests of any kind or nature whatsoever because, in each case, one or more of the standards set forth in 11 U.S.C. § 363(f)(1)-(5) has been satisfied. Subject to the rights of Mitsubishi and Marubeni with respect to the Great Lakes Caster Lease (as defined in the Intercreditor Settlement Term Sheet (attached as Exhibit B hereto)) contained in the Intercreditor Settlement Term Sheet, which rights of Mitsubishi and Marubeni do not affect, diminish,

or impair the right, title, or interest acquired by the Buyer in the Acquired Assets, those (i) holders of Interests and (ii) non-debtor parties to Assumed Contracts who did not object, or who withdrew their objections, to the Sale or the Motion are deemed to have consented pursuant to 11 U.S.C. § 363(f)(2). Those (i) holders of Interests and (ii) non-debtor parties to Assumed Contracts who did object fall within one or more of the other subsections of 11 U.S.C. § 363(f) and are adequately protected by having their Interests, if any, attach to the cash proceeds of the Sale ultimately attributable to the property against or in which they claim an Interest.

R. The sale of the Business to the Buyer is a prerequisite to the Debtors' ability to confirm and consummate a plan or plans of reorganization. The Sale is a sale in contemplation of a plan and, accordingly, a transfer pursuant to 11 U.S.C. § 1146(c), which shall not be taxed under any law imposing a stamp tax or similar tax.

S. The Debtors have demonstrated that it is an exercise of their sound business judgment to assume and assign the Assumed Contracts to the Buyer in connection with the consummation of the Sale, and the assumption and assignment of the Assumed Contracts is in the best interests of the Debtors, their estates, and their creditors. The Assumed Contracts being assigned to, and the liabilities being assumed by, the Buyer are an integral part of Business being purchased by the Buyer and, accordingly, such assumption and assignment of Assumed Contracts and liabilities are reasonable, enhance the value of the Debtors' estates, and do not constitute unfair discrimination.

T. Subject to the rights of Mitsubishi and Marubeni with respect to the Great Lakes Caster Lease (as defined in the Intercreditor Settlement Term Sheet (attached as Exhibit B hereto)) contained in the Intercreditor Settlement Term Sheet, which rights of Mitsubishi and Marubeni do not affect, diminish, or impair the right, title, or interest acquired by the Buyer in the Acquired Assets, the Debtors have (i) cured, or have provided adequate assurance of cure, of any default existing prior to the date hereof under any of the Assumed Contracts, within the meaning of 11 U.S.C. § 365(b)(1)(A) and (ii) provided compensation or adequate assurance of compensation to any party for any actual pecuniary loss to such party resulting from a default prior to the date hereof under any of the Assumed Contracts, within the meaning of 11 U.S.C. § 365(b)(1)(B), and the Buyer has provided adequate assurance of their future performance of and under the Assumed Contracts, within the meaning of 11 U.S.C. § 365(b)(1)(C).

U. Those non-debtor parties to Assumed Contracts who did not object to the assumption and assignment of their Assumed Contract are deemed to have consented to the assumption and assignment of their Assumed Contract to the Buyer.

V. Approval of the Agreement and assumption and assignment of the Assumed Contracts and consummation of the Sale of the Acquired Assets at this time are in the best interests of the Debtors, their creditors, their estates and other parties in interest.

NOW THEREFORE, IT IS HEREBY ORDERED, ADJUDGED, AND DECREED THAT,

General Provisions

1. The Motion is granted, as further described herein.

2. All objections to the Motion or the relief requested therein that have not been withdrawn, waived, or settled, and all reservations of rights, except as expressly provided herein (including, without limitation, those in the Intercreditor Settlement Term Sheet and it being understood that any such objection of Mitsubishi and Marubeni does not affect, diminish, or impair the right, title, or interest acquired by the Buyer in the Acquired Assets), hereby are overruled on the merits.[4]

Approval of the Agreement

3. The Agreement, and all of the terms and conditions thereof, are hereby approved.

4. Pursuant to 11 U.S.C. § 363(b), the Debtors are authorized to perform their obligations under and comply with the terms of the Agreement, and consummate the Sale, pursuant to and in accordance with the terms and conditions of the Agreement.

---

[4] The Intercreditor Settlement Term Sheet attached hereto as Exhibit B is incorporated herein in its entirety as part of this Order and is approved and authorized in all respects by the Court as if fully set forth herein in its entirety. Nothing in this Order shall affect, diminish, or impair the rights granted to Mitsubishi and Marubeni in sections II.D, II.E and II.F of the Intercreditor Settlement Term Sheet.

5. The Debtors are authorized and directed to execute and deliver, and empowered to perform under, consummate and implement, the Agreement, together with all additional instruments and documents that may be reasonably necessary or desirable to implement the Agreement, including but not limited to the Assignment and Assumption Agreement, Deposit Escrow Agreement, Headquarters Lease, Trademark License Agreement, and Transition Services Agreement and to take all further actions as may be requested by the Buyer for the purpose of assigning, transferring, granting, conveying and conferring to the Buyer or reducing to possession, the Acquired Assets, or as may be necessary or appropriate to the performance of the obligations as contemplated by the Agreement, including the payment by Debtors to Buyer of the Working Capital Adjustment, if any, on the Working Capital Payment Date, which obligation shall be an allowed administrative claim pursuant to 11 U.S.C. § § 503(b) and 507(a)(1), and be payable by the Debtors in accordance with the Agreement without further order.

6. This Order and the Agreement shall be binding in all respects upon all creditors (whether known or unknown) of any Debtor, all non-debtor parties to the Assumed Contracts, all successors and assigns of the Buyer, the Debtors and their affiliates and subsidiaries, the Business, and any subsequent trustees appointed in the Debtors' chapter 11 cases or upon a conversion to chapter 7 under the Bankruptcy Code and shall not be subject to rejection. Nothing contained in any chapter 11 plan confirmed in these bankruptcy cases or the confirmation order confirming any such chapter 11 plan shall conflict with or derogate from the provisions of the Agreement or this Order.

7. The Agreement and any related agreements, documents, or other instruments may be modified, amended or supplemented by the parties thereto in accordance with the terms thereof without further order of the Court; provided that any such modification, amendment, or supplement is not material.

Transfer of Assets

8. Except as expressly permitted or otherwise specifically provided for in the Agreement or this Order, pursuant to 11 U.S.C. §§ 105(a) and 363(f), the Acquired Assets shall be transferred to the Buyer, and upon consummation of the Agreement (the "Closing") shall be, free and clear of all Interests of any kind or nature whatsoever with all such Interests of any kind or nature whatsoever to attach to the net proceeds of the Sale in the order of their priority, with the same validity, force and effect which they now have as against the Acquired Assets, subject to any claims and defenses the Debtors may possess with respect thereto.

9. Except as expressly permitted or otherwise specifically provided by the Agreement or this Order, all persons and entities, including, but not limited to, all debt security holders, equity security holders, governmental, tax, and regulatory authorities, lenders, trade and other creditors, holding Interests of any kind or nature whatsoever against or in the Debtors or the Acquired Assets (whether legal or equitable, secured or unsecured, matured or unmatured, contingent or non-contingent, senior or subordinated), arising under or out of, in connection with, or in any way relating to, the Debtors, the Acquired Assets, the operation of the Business prior to the Closing Date, or the transfer

of the Acquired Assets to the Buyer, hereby are forever barred, estopped, and permanently enjoined from asserting against the Buyer, its successors or assigns, its property, or the Acquired Assets, such persons' or entities' Interests.

10. Nothing in the Order or the Agreement releases or nullifies any liability to a governmental entity under police or regulatory statutes or regulations that any entity would be subject to as the owner or operator of property after the date of entry of this Order.

11. The transfer of the Acquired Assets to the Buyer pursuant to the Agreement constitutes a legal, valid, and effective transfer of the Acquired Assets, and shall vest the Buyer with all right, title, and interest of the Debtors in and to the Acquired Assets free and clear of all Interests of any kind or nature whatsoever.

12. If any person or entity that has filed financing statements, mortgages, mechanic's liens, lis pendens, or other documents or agreements evidencing interests in the Debtors or the Acquired Assets shall not have delivered to the Debtors prior to the Closing Date, in proper form for filing and executed by the appropriate parties, termination statements, instruments of satisfaction, releases of all Interests which the person or entity has with respect to the Debtors or the Acquired Assets or otherwise, then (a) the Debtors are hereby authorized and directed to execute and file such statements, instruments, releases and other documents on behalf of the person or entity with respect to the Acquired Assets and (b) the Buyer is hereby authorized to file, register, or otherwise record a certified copy of this Order, which, once filed, registered or otherwise recorded,

shall constitute conclusive evidence of the release of all Interests in the Acquired Assets of any kind or nature whatsoever.

Assumption and Assignment
to Buyer of Assumed Contracts

13. Pursuant to 11 U.S.C. §§ 105(a) and 365, and subject to and conditioned upon the Closing of the Sale, the Debtors' assumption and assignment to the Buyer, and the Buyer's assumption on the terms set forth in the Agreement, of the Assumed Contracts is hereby approved, and the requirements of 11 U.S.C. § 365(b)(1) with respect thereto are hereby deemed satisfied.

14. The Debtors are hereby authorized and directed in accordance with 11 U.S.C. §§ 105(a) and 365 to (a) assume and assign to the Buyer, effective upon the Closing of the Sale, the Assumed Contracts free and clear of all Interests of any kind or nature whatsoever and (b) execute and deliver to the Buyer such documents or other instruments as may be necessary to assign and transfer the Assumed Contracts and Assumed Liabilities to the Buyer.

15. With respect to the Assumed Contracts: (a) the Assumed Contracts shall be transferred and assigned to, and following the closing of the Sale remain in full force and effect for the benefit of, the Buyer in accordance with their respective terms, notwithstanding any provision in any such Assumed Contract (including those of the type described in sections 365(b)(2) and (f) of the Bankruptcy Code) that prohibits, restricts, or conditions such assignment or transfer and, pursuant to 11 U.S.C. § 365(k), the Debtors

shall be relieved from any further liability with respect to the Assumed Contracts after such assignment to and assumption by the Buyer; (b) each Assumed Contract is an executory contract of the Debtors under Section 365 of the Bankruptcy Code; (c) the Debtors may assume each Assumed Contract in accordance with Section 365 of the Bankruptcy Code; (d) the Debtors may assign each Assumed Contract in accordance with Sections 363 and 365 of the Bankruptcy Code, and any provisions in any Assumed Contract that prohibit or condition the assignment of such Assumed Contract or allow the party to such Assumed Contract to terminate, recapture, impose any penalty, condition renewal or extension, or modify any term or condition upon the assignment of such Assumed Contract, constitute unenforceable anti-assignment provisions which are void and of no force and effect; (e) all other requirements and conditions under Section 363 and 365 of the Bankruptcy Code for the assumption by the Seller and assignment to the Buyer of each Assumed Contract have been satisfied; (f) upon Closing, in accordance with Sections 363 and 365 of the Bankruptcy Code, the Buyer shall be fully and irrevocably vested in all right, title and interest of each contract; and (g) each non-Debtor party to an Assumed Contract that has not objected to the assumption and assignment of such Assumed Contract to Buyer is deemed to have consented to the assumption and assignment of such Assumed Contract to Buyer and is forever barred from arguing otherwise.

16. All defaults or other obligations of the Debtors under any Assumed Contract arising or accruing prior to the Closing Date (without giving effect to any acceleration clauses or any default provisions of the kind specified in section 365(b)(2) of

the Bankruptcy Code) shall be cured by the Debtors by the payment of the Cure Amount associated with such Assumed Contract at the Closing of the Sale or as soon thereafter as practicable, and the Buyer shall have no liability or obligation arising or accruing prior to the date of the Closing of the Sale, except as otherwise expressly provided in the Agreement.

17. Each non-Debtor party to an Assumed Contract hereby is forever barred, estopped, and permanently enjoined from asserting against the Debtors or the Buyer, or the property of either of them, any default existing as of the Closing Date of the Sale.

18. Except as provided in the Agreement or this Order, after the Closing, the Debtors and their estates shall have no further liabilities or obligations with respect to any assumed liabilities and all holders of such claims are forever barred and estopped from asserting such claims against the Debtors, their successors or assigns, their property or their assets or estates.

Additional Provisions

19. The consideration provided by the Buyer for the Business under the Agreement shall be deemed to constitute reasonably equivalent value and fair consideration under the Bankruptcy Code and under the laws of the United States, any state, territory, possession, or the District of Columbia.

20. The consideration provided by the Buyer for the Business under the Agreement is fair and reasonable and may not be avoided under section 363(n) of the Bankruptcy Code.

21. On the Closing Date of the Sale, each of the Debtors' creditors is authorized and directed to execute such documents and take all other actions as may be necessary to release its Interests in the Acquired Assets, if any, as such Interests may have been recorded or may otherwise exist.

22. This Order (a) shall be effective as a determination that, on the Closing Date, all Interests of any kind or nature whatsoever existing as to the Debtors or the Acquired Assets prior to the Closing have been unconditionally released, discharged and terminated, and that the conveyances described herein have been effected and (b) shall be binding upon and shall govern the acts of all entities including without limitation, all filing agents, filing officers, title agents, title companies, recorders of mortgages, recorders of deeds, registrars of deeds, administrative agencies, governmental departments, secretaries of state, federal, state, and local officials, and all other persons and entities who may be required by operation of law, the duties of their office, or contract, to accept, file, register or otherwise record or release any documents or instruments, or who may be required to report or insure any title or state of title in or to any of the Acquired Assets.

23. Each and every federal, state, and local governmental agency or department is hereby directed to accept any and all documents and instruments necessary and appropriate to consummate the transactions contemplated by the Agreement.

24. All entities who are presently, or on the Closing Date may be, in possession of some or all of the Acquired Assets are hereby directed to surrender possession of the Acquired Assets to the Buyer on the Closing Date.

25. This Court retains jurisdiction to enforce and implement the terms and provisions of the Agreement, all amendments thereto, any waivers and consents thereunder, and of each of the agreements executed in connection therewith in all respects, including, but not limited to, retaining jurisdiction to (a) compel delivery of the Acquired Assets to the Buyer, (b) compel delivery of the purchase price or performance of other obligations owed to the Debtors, (c) resolve any disputes arising under or related to the Agreement, and (d) interpret, implement, and enforce the provisions of this Order.

26. The transactions contemplated by the Agreement are undertaken by the Buyer in good faith, as that term is used in section 363(m) of the Bankruptcy Code, and accordingly, the reversal or modification on appeal of the authorization provided herein to consummate the Sale shall not affect the validity of the Sale to the Buyer (including the assumption and assignment of any of the Assumed Contracts), unless such authorization is duly stayed pending such appeal. The Buyer is a Buyer in good faith of the Acquired Assets, and is entitled to all of the protections afforded by section 363(m) of the Bankruptcy Code.

27. The terms and provisions of the Agreement and this Order shall be binding in all respects upon, and shall inure to the benefit of, the Debtors, their estates, and their creditors, the Buyer, and its respective affiliates, successors and assigns, and any affected third parties including, but not limited to, all persons asserting an Interest in the Acquired Assets to be sold to the Buyer pursuant to the Agreement, notwithstanding any subsequent appointment of any trustee(s) under any chapter of the Bankruptcy Code, as to which trustee(s) such terms and provisions likewise shall be binding.

28. The failure specifically to include any particular provisions of the Agreement in this Order shall not diminish or impair the effectiveness of such provision, it being the intent of the Court that the Agreement be authorized and approved in its entirety.

29. The Agreement and any related agreements, documents or other instruments may be modified, amended or supplemented by the parties thereto, in a writing signed by both parties, and in accordance with the terms thereof, without further order of the Court, provided that any such modification, amendment or supplement does not have a material adverse effect on the Debtors' estates. In the event that there is a conflict between the terms of this Order and the Agreement, the terms of the Agreement shall control, except in the case of paragraph ten of this Order which shall control in the event that paragraph ten of this Order and the Agreement are in conflict.

30. The transfer of the Acquired Assets pursuant to the Sale is a transfer pursuant to section 1146(c) of the Bankruptcy Code, and accordingly the sale, transfer, assignment and conveyance of the Acquired Assets shall be entitled to exemption from taxation as provided in Section 1146(c) of the Bankruptcy Code. Each and every federal, state and local government agency or department is hereby directed to accept any and all documents and instruments necessary and appropriate to consummate the transfer of any of the Acquired Assets, all without imposition or payment of any stamp tax or similar tax.

31. This Court retains jurisdiction to enforce and implement the terms and provisions of this Order, including the provisions of paragraph 30 above.

32. To the extent that the Debtors do not dispute the amount, validity, or priority of the known claims of (i) taxing authorities for real and personal property taxes, and (ii) mechanics' lien claimants (the "Tax/Mechanics Lien Claims"), the Debtors shall pay in cash at closing such Tax/Mechanics Lien Claims. To the extent that the Debtors have previously instituted an action in any court, tribunal, or other administrative body disputing the amount, priority, or validity of any Tax/Mechanics Lien Claim and/or dispute, in good faith, the amount, priority, or validity of any Tax/Mechanics Lien Claim, the Debtors shall escrow the disputed amount of such Tax/Mechanics Lien Claim pending resolution of such Tax/Mechanics Lien Claim.

33. On the Closing Date, the Debtors shall be authorized and directed to (x) make the payments described in the Intercreditor Settlement Term Sheet attached hereto as Exhibit B and (y) (i) terminate all obligations and commitments of the agents,

lenders and other secured parties under the $450,000,000 Secured Super Priority Debtor in Possession Credit Agreement, dated as of March 6, 2002, among National Steel Corporation, as borrower, and the Subsidiaries of the Borrower Party Thereto, as Guarantors, the Lenders and Issuers Party Thereto (the "DIP Facility"), (ii) pay any and all Obligations (as defined in the DIP Facility) including, without limitation, any accrued interest and fees under the DIP Facility, and (iii) cash collateralize all outstanding letters of credit in the amount equal to the sum of 105% of all outstanding Letter of Credit Obligations (as defined in the DIP Facility). Upon payment of the Obligations and the cash collateralization of the Letter of Credit Obligations, any liens or security interests granted, created, or imposed under the DIP Facility (other than the lien in respect of the cash collateral securing the Letter of Credit Obligations) shall be deemed released. The administrative agent under the DIP Facility shall cooperate with the Debtors in executing any documentation necessary to evidence the release of such liens and security interests.

34. As provided by Rules 6004(g) and 6006(d) of the Federal Rules of Bankruptcy Procedure, this Order shall not be stayed for 10 days after the entry of the Order and shall be effective immediately upon entry.

Dated: Chicago, Illinois
April 21, 2003

UNITED STATES BANKRUPTCY JUDGE

21 APR 2003

Exhibit A

ASSET PURCHASE AGREEMENT

ASSET PURCHASE AGREEMENT

dated as of April __, 2003

by and among

UNITED STATES STEEL CORPORATION

and

NATIONAL STEEL CORPORATION

and

THE SUBSIDIARIES OF NATIONAL STEEL CORPORATION
SET FORTH ON THE SIGNATURE PAGES HERETO

ASSET PURCHASE AGREEMENT

This ASSET PURCHASE AGREEMENT is dated as of April __, 2003 (the "Agreement Date") by and among National Steel Corporation, a Delaware corporation (the "Company"), the Subsidiaries of the Company set forth on the signature pages hereto and in Schedule 1 (collectively with the Company, the "Sellers" and each a "Seller") and United States Steel Corporation, a Delaware corporation (together with any designated Subsidiaries, "Buyer").

WITNESSETH:

WHEREAS, Sellers are engaged in, among other things, the production, transportation and sale of coke and steel products;

WHEREAS, Sellers each commenced a case (collectively, the "Chapter 11 Case") on March 6, 2002 under chapter 11 of title 11 of the United States Code, 11 U.S.C. Sections 101 et seq. (the "Bankruptcy Code") in the United States Bankruptcy Court for the Northern District of Illinois, Eastern Division (the "Bankruptcy Court"); and

WHEREAS, Sellers wish to sell to Buyer the assets of the Business as are specified herein, and Buyer wishes to purchase such assets and to assume those liabilities relating to the Business as are specified herein, all in the manner and subject to the terms and conditions set forth in this Agreement and pursuant to, inter alia, Sections 363 and 365 of the Bankruptcy Code.

NOW, THEREFORE, in consideration of the premises, and the representations, warranties, covenants and agreements contained herein, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, and intending to be legally bound hereby, the parties hereto agree as follows:

ARTICLE 1
DEFINITIONS

1.1 Defined Terms. As used herein, the terms below shall have the following respective meanings:

"Accounts Payable" shall mean those trade accounts payable of Sellers relating to the Business or the Acquired Assets, incurred in bona fide business transactions in the ordinary course of business after the commencement of the Chapter 11 Case. Accounts Payable shall not include any Cure Amounts or any Excluded Liabilities.

"Accounts Receivable" shall mean: (i) all of Sellers' trade accounts receivable relating to the Business and other rights to payment from customers of the Business and the full benefit of all security for such accounts or rights to payment, including all trade accounts receivable representing amounts receivable in respect of goods shipped or products sold or services rendered to customers of the Business; (ii) all other accounts or notes receivable of Sellers and the full benefit of all security for such accounts or notes receivable arising in the conduct of the Business; and (iii) any claim, remedy or other right related to any of the foregoing, in each case existing on the Agreement Date or arising in the ordinary course of the conduct of the Business after the Agreement Date and in each case that have not been satisfied or discharged prior to the

close of business on the Business Day immediately preceding the Closing Date or have not been written off or sent to collection prior to the close of business on the Business Day immediately preceding the Closing Date (it being understood that the receipt of a check prior to the close of business on the Business Day immediately preceding the Closing Date shall constitute satisfaction or discharge of the applicable account or note receivable to the extent of the payment represented thereby).

"Acquired Assets" shall have the meaning specified in Section 2.1.

"Acquired Entities" shall have the meaning specified in Section 2.1(o).

"Acquired Facilities" shall mean the following plants and facilities of Sellers: Great Lakes Plant; Midwest Plant; Granite City Plant; Seller headquarters (Mishawaka, IN); ProCoil processing and distribution center (Canton, MI); and National Steel Pellet Company (Mesabi Iron Range, MN).

"Acquired Real Property" shall mean collectively the Owned Real Property and the Leased Real Property.

"Adjustment Payment Date" shall have the meaning specified in Section 3.4(f).

"Affiliate" shall mean, with respect to any Person, any other Person, directly or indirectly, controlling or controlled by or under direct or indirect common control with such Person, including any officer, director or greater than 10% shareholder of such Person. For the purposes of this definition, "control" when used with respect to any Person means the power to direct the management and policies of such Person, directly or indirectly, whether through the ownership of voting securities, by contract or otherwise; and the terms "controlling" and "controlled" have meanings correlative to the foregoing.

"Agreement" shall mean this Asset Purchase Agreement, together with the Exhibits, Schedules and the Disclosure Schedule, in each case as amended, restated, supplemented or otherwise modified from time to time.

"Agreement Date" shall have the meaning specified in the preamble.

"Allocation" shall have the meaning specified in Section 3.5.

"Antitrust Law" shall mean the Sherman Act, as amended, the Clayton Act, as amended, the HSR Act, the Federal Trade Commission Act, as amended, and all other federal, state and foreign Laws or Orders that require notification to a Governmental Entity of mergers and acquisitions or that are designed or intended to prohibit, restrict or regulate mergers and acquisitions and actions having the purpose or effect of monopolization or restraint of trade.

"Assignment and Assumption Agreement" shall mean the assignment and assumption agreement to be entered into by Sellers and Buyer concurrently with the Closing, substantially in the form of Exhibit A.

"Assumed Contracts" shall have the meaning specified in Section 2.1(c).

"Assumed Liabilities" shall have the meaning specified in Section 2.3.

"Bad Debts Reserve" shall mean the Company's provision for doubtful accounts, determined in accordance with GAAP and the Company's accounting policies, attached hereto as Schedule 1.1(a), consistently applied by the Company.

"Bankruptcy Code" shall have the meaning specified in the recitals.

"Bankruptcy Court" shall have the meaning specified in the recitals.

"Bankruptcy Court Approval" shall have the meaning specified in Section 8.1(d).

"Basket Amount" shall have the meaning specified in Section 10.6(a).

"Benefits Plan" shall mean any employee welfare benefit plan (as defined in Section 3(1) of ERISA) sponsored, maintained, contributed to or required to be contributed to at any time by the Company or any of its Subsidiaries for any of their respective present or former employees, retirees or spouses, dependents or other beneficiaries of present or former employees or retirees.

"Business" shall mean the production, sale and transportation of coke and steel products carried on by Sellers, including the mining of ore and the production of iron ore pellets at National Steel Pellet Company, but excluding any other production of iron ore pellets and mining of ore and excluding the mining of coal.

"Business Day" shall mean any day other than a Saturday, Sunday or a legal holiday on which banking institutions in the State of New York are not required to open.

"Buyer" shall have the meaning specified in the preamble.

"Buyer Material Adverse Effect" shall mean any state of facts, events, changes or effects, that, individually or aggregated with other states of facts, events, changes or effects, (a) is materially adverse to or materially impairs the ability of Buyer to perform its obligations under this Agreement, or (b) prevents or materially delays consummation of any of the transactions contemplated by this Agreement.

"Cash Consideration" shall have the meaning specified in Section 3.3.

"Cash Discount Reserve" shall mean the Company's reserve for discounts credited against Accounts Receivable paid in advance of their due date, determined in accordance with GAAP and the Company's accounting policies, attached hereto as Schedule 1.1(a), consistently applied by the Company.

"Chapter 11 Case" shall have the meaning specified in the recitals.

"Claims Reserve" shall mean the Company's reserves, determined in accordance with GAAP and the Company's accounting policies, attached hereto as Schedule 1.1(a), consistently applied by the Company, to satisfy claims made by customers with respect to products of the Company or any of its Subsidiaries.

"Closing" shall have the meaning specified in Section 3.1(a).

"Closing Date" shall have the meaning specified in Section 3.1(a).

"Closing Date Items" shall have the meaning specified in Section 3.4(c).

"Closing Financial Certificate" shall have the meaning specified in Section 7.17.

"Code" shall mean the Internal Revenue Code of 1986, as amended.

"Company" shall have the meaning specified in the preamble.

"Company Financial Statements" shall have the meaning specified in Section 5.17(a).

"Company Reserves" shall mean, collectively, the Bad Debts Reserve, the Cash Discount Reserve and the Claims Reserve.

"Company SEC Documents" shall have the meaning specified in Section 5.17(b).

"Confidentiality Agreement" shall mean that certain Confidentiality Agreement dated as of September 14, 2001 between the Company and Buyer.

"Contract" shall mean any contract, lease, license, purchase order, sales order or other agreement, practice, arrangement, understanding or commitment, whether or not in written form, that is binding upon a Person or its property.

"Cure Amounts" shall have the meaning specified in Section 2.4(n).

"Deposit Escrow" shall have the meaning specified in Section 3.2.

"Deposit Escrow Agreement" shall mean the Deposit Escrow Agreement of even date herewith entered into by and among Buyer, the Company as the representative of Sellers and the Escrow Agent substantially in the form of Exhibit B.

"Disclosure Schedule" shall have the meaning specified in the first paragraph of Article 5.

"Environmental Laws" shall mean all Laws relating to protection of human health and the environment, including the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. §§ 9601 et. seq., the Resource Conservation and Recovery Act, 42 U.S.C. §§ 6901 et. seq., the Toxic Substances Control Act, 15 U.S.C. §§ 2601, et. seq., the Clean Water Act, 33 U.S.C. §§ 1251 et. seq., the Oil Pollution Act, 33 U.S.C. §§ 2701 et. seq., the Clean Air Act, 42 U.S.C. §§ 7401 et. seq. and the Occupational Safety and Health Act, 29 U.S.C. §§ 651 et. seq., and state and local equivalents of all of the foregoing.

"ERISA" means the Employee Retirement Income Security Act of 1974, as amended.

"Escrow Agent" shall mean J.P. Morgan Trust Company, N.A.

"Estimated Inventory Value" shall mean the Inventory Value (excluding the Inventory Value of the Inventory of National Steel Pellet Company) determined as of the close of business on the last day of the month immediately prior to the Closing Date.

"Estimated Net Receivables Amount" shall mean the aggregate amount of Accounts Receivable (excluding the amount of Accounts Receivable of National Steel Pellet Company) minus the aggregate amount of Accounts Payable (excluding the amount of Accounts Payable of National Steel Pellet Company) minus the Company Reserves (excluding the amount of Company Reserves related to National Steel Pellet Company) calculated as of the close of business on the last day of the month immediately prior to the Closing Date.

"Estimated Working Capital Adjustment" shall have the meaning specified in Section 3.4(b).

"Estimated Working Capital Amount" shall have the meaning specified in Section 3.4(b).

"Exchange Act" shall mean the Securities Exchange Act of 1934, as amended, or any successor federal statute, and the rules and regulations of the SEC thereunder or under any successor federal statute.

"Excluded Assets" shall have the meaning specified in Section 2.2.

"Excluded Liabilities" shall have the meaning specified in Section 2.4.

"Final Order" shall mean an order or judgment of the Bankruptcy Court (i) that is not the subject of a pending appeal, petition for certiorari, motion for reconsideration or other proceeding for review, rehearing or reargument, (ii) that has not been reversed, stayed, modified or amended, and (iii) respecting which the time to appeal, to petition for certiorari, to move for reconsideration or to seek review, rehearing or reargument shall have expired, as a result of which such order shall have become final in accordance with Rule 8002 of the Federal Rules of Bankruptcy Procedure and other applicable Laws.

"Financing" shall mean the financing provided pursuant to any credit agreement or other Contract evidencing indebtedness entered into by any Seller after the commencement of the Chapter 11 Case.

"GAAP" shall mean generally accepted accounting principles as in effect from time to time in the United States.

"Governmental Entity" shall mean any (i) federal, state, local, municipal, foreign or other government; (ii) governmental or quasi-governmental authority of any nature (including any governmental agency, branch, department, official, or entity and any court or other tribunal); or (iii) body exercising, or entitled to exercise, any administrative, executive, judicial, legislative, police, regulatory, or taxing authority or power of any nature, including any arbitration tribunal.

"Hazardous Substance" shall have the meaning specified in Section 5.20.

"Headquarters Lease" shall mean the lease for a portion of the building located at 4100 Edison Lakes Parkway, Mishawaka, Indiana, to be entered into by and between Buyer and the Company concurrently with the Closing, substantially in the form of Exhibit C.

"Hired Non-CB Employee" shall have the meaning specified in Section 7.7.

"HSR Act" shall mean the Hart-Scott-Rodino Antitrust Improvements Act of 1976, as amended, and any successor law and the rules and regulations thereunder or under any successor law.

"Identified Employee" shall mean those Non-CB Employees identified by Buyer prior to the Closing Date to whom Buyer shall offer employment effective as of the Closing Date.

"Indemnified Party" shall have the meaning specified in Section 10.3(a).

"Indemnifying Party" shall have the meaning specified in Section 10.3(a).

"Indemnity Termination Date" shall have the meaning specified in Section 10.5.

"Independent Accounting Firm" shall have the meaning specified in Section 3.4(d).

"Intellectual Property" shall have the meaning specified in Section 2.1(k).

"Inventory" shall have the meaning specified in Section 2.1(e).

"Inventory Value" shall mean the value of all Inventory included in the Acquired Assets determined in accordance with GAAP and the Company's inventory policies, attached hereto as Schedule 1.1(a), consistently applied by Sellers.

"Knowledge", with respect to Sellers or the Company and its Subsidiaries, shall mean the knowledge of those individuals listed on Schedule 1.1(b) attached hereto, together with any other successor individuals who hold the positions with the Company listed on Schedule 1.1(b), in each case, including facts of which such individuals should be aware in the reasonably prudent exercise of their duties.

"Law" shall mean any federal, state, provincial, local or foreign statute, law, ordinance, regulation, rule, code, order, principle of common law, judgment or decree enacted, promulgated, issued, enforced or entered by any Governmental Entity, or court of competent jurisdiction, or other requirement or rule of law.

"Leased Machinery and Equipment" shall have the meaning specified in Section 2.1(b).

"Leased Real Property" shall have the meaning specified in Section 2.1(a).

"Letter of Agreement" shall have the meaning specified in Section 7.16.

"Liabilities" shall mean, as to any Person, all debts, adverse claims, liabilities, commitments, responsibilities, and obligations of any kind or nature whatsoever, direct or indirect, absolute or contingent, including liabilities for compliance, investigation, remediation,

removal and response under Environmental Laws, of such Person, whether accrued, vested or otherwise, whether known or unknown and whether or not actually reflected, or required to be reflected, in such Person's balance sheet or other books and records.

"Lien" shall mean any claim, pledge, option, charge, hypothecation, easement, security interest, right-of-way, encroachment, mortgage, deed of trust, defect of title, restriction on transferability, restriction on use or other encumbrance.

"Losses" shall have the meaning specified in Section 10.2.

"Machinery and Equipment" shall have the meaning specified in Section 2.1(b).

"Material Adverse Effect" shall mean any state of facts, events, changes or effects that, individually or aggregated with other states of facts, events, changes or effects, (a) is materially adverse to or materially impairs, (i) the value, condition or use of the Acquired Assets taken as a whole or the value or condition, financial or otherwise, of the Business taken as a whole, other than (x) changes in economic or business conditions generally or in the steel industry specifically (provided that the Business is not materially disproportionately affected), (y) changes in laws and regulations impacting the steel industry generally (except as otherwise provided in Section 8.1(g)(i) hereof), or (z) changes or effects resulting from the execution or announcement of this Agreement, provided, however, the Company shall have the burden of proving that the execution or announcement of the Agreement caused such changes or effects, or (ii) the ability of any party hereto to perform its obligations under this Agreement, or (b) prevents or materially delays consummation of any of the transactions contemplated by this Agreement.

"Material Contract" shall mean any Contract with respect to the Business to which the Company or any of its Subsidiaries is a party or by which any of the Acquired Assets are bound and (i) which is outside of the ordinary course of business; (ii) to which any Significant Customer is a party; (iii) to which any Significant Supplier is a party; (iv) pursuant to which the Sellers would be required to make payments in excess of $10 million from and after the Agreement Date; (v) master agreements, blanket purchase orders or other Contracts, which relate to the transportation or disposal of Hazardous Substances, other than receipts, bills of lading, trip tickets and purchase orders issued pursuant to such master agreements, purchase agreements or other Contracts related to the transportation or disposal of Hazardous Substances; (vi) which is an employment agreement or severance agreement or is a collective bargaining agreement with any labor union; (vii) which creates a joint venture or partnership or which otherwise involves the sharing of profits, losses, costs or Liabilities with any other Person; (viii) which is a lease for any real property or any material Machinery and Equipment used or held for use in the Business; (ix) which is an Assumed Contract, other than an Ordinary Course Contract; or (x) to which any officer or director of the Company or any of its Subsidiaries, or any Affiliate of any such officer or director is a party.

"Net Receivables Amount" shall have the meaning specified in Section 3.4(e).

"Non-CB Employees" shall mean employees of any Seller not represented by a labor union for collective bargaining.

"Notices" shall have the meaning specified in Section 11.4.

"Objection Notice" shall have the meaning specified in Section 3.4(d).

"Order" shall mean any judgment, order, injunction, writ, ruling, decree, stipulation or award of any Governmental Entity or private arbitration tribunal.

"Ordinary Course Contract" shall mean any Contract related to the Business and the Acquired Assets entered into by any Seller after January 9, 2003 and prior to the Closing Date in the ordinary course of business, for the provision of goods or services to or by any Seller in a bona fide business transaction, and which (i) is for a term that does not exceed 12 months following the Closing or that is terminable by such Seller, without Liability, at will or upon advance notice not to exceed 30 days, and (ii) the performance of which does not involve consideration in excess of (A) $1 million in any twelve-month period following the Closing, (B) with the consent of Buyer, which consent shall not be unreasonably withheld, $10 million in any twelve-month period following the Closing, or (C) prevailing market terms, solely with respect to purchases of goods on spot markets for a term not to exceed 30 days; provided, however, in no event shall a Contract be deemed an Ordinary Course Contract if (v) such Contract is a Material Contract, (w) such Contract is with any current or former employee of the Company or any of its Subsidiaries, (x) such Contract is with respect to any Financing, (y) the counterparty to such Contract is also party to a Contract with a Seller entered into prior to the commencement of the Chapter 11 Case as to which such Seller has not satisfied all Liabilities thereunder, other than any such Contract that is on prevailing market terms or (z) the execution, delivery and performance of such Contract by any Seller would violate any provision of this Agreement, including the covenants set forth in Section 7.1.

"Owned Machinery and Equipment" shall have the meaning specified in Section 2.1(b).

"Owned Real Property" shall have the meaning specified in Section 2.1(a).

"Pension Plan" shall mean any employee benefit pension plan (as defined in Section 3(2) of ERISA) sponsored, maintained, contributed to or required to be contributed to at any time by the Company or any of its Subsidiaries for any of their respective present or former employees or retirees or spouses, dependents or other beneficiaries of present or former employees or retirees.

"Permits" shall mean permits, licenses, registrations, certificates of occupancy, approvals, consents, clearances and other authorizations issued by any Governmental Entity.

"Permitted Liens" shall mean: (i) Liens for Taxes not yet due and payable; (ii) easements, licenses or similar non-monetary liens or non-monetary matters of record on Acquired Real Property or any zoning and other restrictions imposed by a Governmental Entity that do not, individually or in the aggregate, adversely impact the operation of the Business or the use of the Acquired Assets; (iii) encumbrances arising under leases or subleases of Acquired Real Property, which do not materially detract from the value of such Acquired Real Property or interfere with the use of or conduct of business on the Acquired Real Property; or (iv) such other Liens or title exceptions as Buyer may approve in writing in its sole discretion.

"Person" shall mean an individual, a partnership, a joint venture, a corporation, a business trust, a limited liability company, a trust, an unincorporated organization, a joint stock company, a labor union, an estate, a Governmental Entity or any other entity.

"Plans" shall mean all Benefits Plans and all Pension Plans and each other plan, program, policy, practice or arrangement (written or oral, formal or informal, whether done on an individual ad hoc basis or as part of a consistent pattern or practice of providing benefits to similarly situated individuals) relating to deferred compensation, bonus, performance compensation, stock purchase, stock option, stock appreciation, severance, vacation, sick leave, holiday pay, fringe benefits, personnel policy, reimbursement program, incentive, insurance, welfare or similar plan, program, policy, practice or arrangement, in each case sponsored, maintained or contributed to, or required to be maintained or contributed to, by the Company or any of its Subsidiaries or any other Person or entity that, together with any of the Company or its Subsidiaries, is treated as a single employer within the meaning of Section 4001 of ERISA for the benefit of any present or former officer, employee or director, retiree or spouses, dependents or other beneficiaries of any of the foregoing.

"Proceeding" shall mean any action, arbitration, audit, hearing, investigation, litigation or suit (whether civil, criminal, administrative, investigative, or informal), other than the Chapter 11 Case, commenced, brought, conducted or heard by or before or otherwise involving, any Governmental Entity or arbitrator.

"Purchase Price" shall have the meaning specified in Section 3.3.

"Railroad Assets" shall mean any Acquired Assets or any Subsidiaries of the Company as to which a change of control is regulated by the Surface Transportation Board.

"Release" shall have the meaning specified in Section 5.20.

"Representative" shall mean, with respect to any Person, such Person's officers, directors, employees, agents, representatives and financing sources (including any investment banker, financial advisor, accountant, legal counsel, agent, representative or expert retained by or acting on behalf of such Person or its Subsidiaries).

"SEC" shall mean the United States Securities and Exchange Commission and any successor Governmental Entity.

"Securities Act" shall mean the Securities Act of 1933, as amended, or any successor federal statute, and the rules and regulations of the SEC thereunder, all as the same shall be in effect at the time. Reference to a particular section of the Securities Act shall include reference to the comparable section, if any, of such successor federal statute.

"Seller" shall have the meaning specified in the preamble.

"Seller Credit Support Arrangements" shall have the meaning specified in Section 7.19.

"Seller Indemnitees" shall have the meaning specified in Section 10.2.

"Significant Customers" shall have the meaning specified in Section 5.14.

"Significant Suppliers" shall have the meaning specified in Section 5.14.

"Statement" shall have the meaning specified in Section 3.4(c).

"Subsidiary" shall mean, with respect to any Person (a) a corporation, a majority of whose capital stock with voting power, under ordinary circumstances, to elect directors is at the time, directly or indirectly, owned by such Person, by a subsidiary of such Person, or by such Person and one or more subsidiaries of such Person, (b) a partnership in which such Person or a subsidiary of such person is, at the date of determination, a general partner of such partnership, or (c) any other Person (other than a corporation) in which such Person, a subsidiary of such Person or such Person and one or more subsidiaries of such Person, directly or indirectly, at the date of determination thereof, has (i) at least a majority ownership interest or (ii) the power to elect or direct the election of a majority of the directors or other governing body of such Person.

"Supplies" shall have the meaning specified in Section 2.1(d).

"Surface Transportation Board" shall mean the Surface Transportation Board established pursuant to the ICC Termination Act of 1995, as amended.

"Taxation," "Tax" or "Taxes" shall mean all forms of taxation, assessment, levy, duty or other governmental charge imposed by any Governmental Entity, including any income, alternative or add-on minimum, accumulated earnings, personal holding company, franchise, capital stock, environmental, profits, windfall profits, gross receipts, sales, use, value added, transfer, registration, stamp, premium, excise, customs duties, severance, real property, personal property, ad valorem, occupancy, license, occupation, employment, payroll, social security, (including national insurance contributions) disability, unemployment, withholding, corporation, inheritance, value added, stamp duty reserve, estimated or other similar tax, assessment, levy, duty (including duties of customs and excise) or other governmental charge of any kind whatsoever, replaced by or replacing any of them chargeable by any Taxation Authority together with all penalties, interest and additions thereto, whether disputed or not.

"Tax Authority" or "Taxation Authority" shall mean any taxing or other authority (whether within or outside the U.S.) competent to impose Tax.

"Tax Return" shall mean any and all returns, declarations, reports, documents, claims for refund, or information returns, statements or filings which are required to be supplied to any Tax Authority, including any schedule or attachment thereto, and including any amendments thereof.

"Third Party Claim" shall have the meaning specified in Section 10.3(a).

"Trademark License Agreement" shall mean the Trademark License Agreement to be entered into by and among Buyer and the Company concurrently with the Closing, substantially in the form of Exhibit D.

"Trademarks" shall mean all trade names, logos, common law trademarks and servicemarks and all registrations and applications therefor.

"Transition Services Agreement" shall have the meaning specified in Section 7.18.

"Transfer Tax" or "Transfer Taxes" shall mean any federal, state, provincial, county, local, foreign and other sales, use, transfer, conveyance, documentary transfer, recording or other similar Tax, fee or charge imposed upon the sale, transfer or assignment of property or any interest therein or the recording thereof, and any penalty, addition to Tax or interest with respect thereto, but such term shall not include any Tax on, based upon or measured by, the net income, gains or profits from such sale, transfer or assignment of the property or any interest therein.

"WARN Act" shall mean the Worker Adjustment and Retraining Notification Act of 1988, as amended, and any successor Law, and the rules and regulations thereunder and under any successor Law.

"Working Capital Adjustment" shall have the meaning specified in Section 3.4(e).

"Working Capital Amount" shall have the meaning specified in Section 3.4(c).

1.2 Interpretation.

(a) Whenever the words "include," "includes" or "including" are used in this Agreement they shall be deemed to be followed by the words "without limitation."

(b) Words denoting any gender shall include all genders. Where a word or phrase is defined herein, each of its other grammatical forms shall have a corresponding meaning.

(c) A reference to any party to this Agreement or any other agreement or document shall include such party's successors and permitted assigns.

(d) A reference to any legislation or to any provision of any legislation shall include any modification or re-enactment thereof, any legislative provision substituted therefor and all regulations and statutory instruments issued thereunder or pursuant thereto.

(e) All references to "$" and dollars shall be deemed to refer to United States currency.

(f) All references to any financial or accounting terms shall be defined in accordance with GAAP.

(g) The words "hereof," "herein" and "hereunder" and words of similar import when used in this Agreement shall refer to this Agreement as a whole and not to any particular provision of this Agreement, and Section, Schedule and Exhibit references are to this Agreement unless otherwise specified.

(h) The meanings given to terms defined herein shall be equally applicable to both singular and plural forms of such terms.

ARTICLE 2
TRANSFER OF ASSETS AND ASSUMPTION OF LIABILITIES

2.1 Assets to be Acquired. At the Closing, and upon the terms and conditions set forth herein and subject to the approval of the Bankruptcy Court pursuant to Sections 105, 363 and 365 of the Bankruptcy Code, Sellers shall sell, convey, assign, transfer and deliver to Buyer, and Buyer shall purchase, acquire and accept, all of the right, title and interest, free and clear of all Liens (other than Liens included in the Assumed Liabilities and Permitted Liens), of Sellers in each and all of the Acquired Assets. "Acquired Assets" shall mean all properties, assets and rights, except as set forth herein, of every nature, tangible and intangible, of Sellers used, or held for use, in the Business, real or personal, now existing or hereafter acquired, whether or not reflected on the books or financial statements of the Sellers as the same shall exist on the Closing Date, including the following assets:

(a) all right, title and interest of Sellers in the real property set forth on Schedule 2.1(a)-1, together with all buildings, structures, fixtures, and improvements erected thereon, and all rights, privileges, easements, licenses, hereditaments and other appurtenances relating thereto (the "Owned Real Property"), and all right, title and interest of Sellers in the real property set forth on Schedule 2.1(a)-2, together with all buildings, structures, fixtures, and improvements erected thereon, and all rights, privileges, easements, licenses, hereditaments and other appurtenances relating thereto (the "Leased Real Property"); provided, however, that the Acquired Assets shall not include any of the real property set forth on Schedule 2.2(i) or any other real property that is not identified on Schedule 2.1(a)-1 or Schedule 2.1(a)-2;

(b) all (i) Sellers' owned equipment, machinery, furniture, fixtures and improvements and tooling used or held for use in the Business (the "Owned Machinery and Equipment"), (ii) rights of Sellers to the equipment, machinery, furniture, fixtures and improvements and tooling used or held for use in the Business, which are leased pursuant to an Assumed Contract (the "Leased Machinery and Equipment" and collectively with the Owned Machinery and Equipment, the "Machinery and Equipment"), and (iii) rights of Sellers to the warranties, express or implied, and licenses received from manufacturers and sellers of the Machinery and Equipment;

(c) those leases (including leases and subleases of Acquired Real Property and of Machinery and Equipment) and other Contracts (together with all of Seller's deposits thereunder) entered into by any Seller that are executory and unexpired as of the Closing Date and are set forth on Schedule 2.1(c), any other Contract added to the list of Assumed Contracts in accordance with Section 2.5, and the Ordinary Course Contracts (collectively, the "Assumed Contracts");

(d) all supplies, items, spare parts and other materials utilized to operate and maintain the Machinery and Equipment or to process raw materials and work in process used or held for use in the Business (the "Supplies");

(e) all inventories of raw materials, slabs, works in process, finished products, goods, spare parts, replacement and component parts, and office and other supplies used or held for use in the Business (the "Inventory");

(f) all cars, trucks, fork lifts, other industrial vehicles and other motor vehicles owned by the Sellers and used or held for use in the Business or leased by the Sellers where the lease for such vehicle is an Assumed Contract;

(g) all railroad cars, railroad switching, service and repair facilities, rolling stock and vehicles, machinery and related equipment used or held for use in the Business;

(h) all Accounts Receivable;

(i) all Permits used in or necessary to conduct the Business or applicable to the Acquired Assets and all pending applications therefor, including those Permits set forth on Schedule 2.1(i);

(j) copies or originals of all books, records, files or papers, whether in hard copy or electronic format, used in the Business or in respect of the Acquired Assets, including engineering information, test results, training manuals, sales and promotional literature, plans, processes, sales and purchase correspondence, personnel and employment records (other than records with respect to former employees or employees who do not become employees of Buyer as of the Closing Date), customer lists, vendor lists, catalogs, research material, technical information, diagrams, drawings, quality control data, maintenance schedules, operating and production records, safety and environmental reports, data, studies and documents, fixed asset ledgers, Tax Returns regarding real property, personal property and ad valorem taxes with respect to the Acquired Assets, including any exemption or abatement agreements or certifications and supporting documentation for such Tax Returns, including any such items classified as privileged, confidential or proprietary material, and any right and interest any Seller may have to possession or control of the knowledge of, any such material by, and related expertise of, any employee, agent, contractor or supplier of any Seller;

(k) all right, title or interest in or to any computer software (including process control software), source code and object code, and all documentation related thereto, and any patents, patent registrations, patent applications, Trademarks (other than the Trademarks set forth on Schedule 2.2(k)), copyrights, copyright applications, copyright registrations, know-how, processes, trade secrets, proprietary data, formulae, and other intangible property used or held for use in the Business (collectively, the "Intellectual Property"), including those listed on Schedule 2.1(k); and all rights thereunder or in respect thereof, including rights to sue and collect and remedies against past, present and future infringements or misappropriations thereof, and rights of priority and protection of interests therein under the laws of any jurisdiction worldwide and all tangible embodiments thereof used or held for use in the Business; provided, however, with respect to any Intellectual Property not set forth on Schedule 2.1(k)(i), to the extent Sellers have not obtained the necessary consents to assign any such Intellectual Property to Buyer on or before the Closing Date, then notwithstanding anything to the contrary contained herein, until such consents are obtained, this Agreement shall not constitute an agreement to assign such Intellectual Property, and Sellers shall (A) use all commercially reasonable efforts to obtain such consents and (B) enter into any reasonable arrangement designed to provide Buyer with the benefits of, and cause Buyer to bear the costs and obligations of, Sellers' ownership of such Intellectual Property;

(l) all goodwill associated with the Business or the Acquired Assets;

(m) all credits and allowances for air and water emissions and water intakes Sellers have, are entitled to or have applied for, with respect to the Acquired Facilities, including any air emissions for which Sellers have credit or which Sellers have banked, applied to bank or agreed to sell or trade;

(n) all prepaid expenses and deposits of Sellers made in connection with the Business, including those set forth on Schedule 2.1(n); and

(o) all of any Seller's equity interest in Double G Coatings, L.P., Double G Coatings, Inc., Delray Connecting Railroad Company and Steel Health Resources LLC (collectively, the "Acquired Entities").

EXCEPT FOR THE REPRESENTATIONS AND WARRANTIES SET FORTH IN THIS AGREEMENT, (i) THE ACQUIRED ASSETS ARE BEING SOLD ON AN "AS IS", "WHERE IS" BASIS AND (ii) NO SELLER MAKES ANY OTHER WARRANTIES, INCLUDING MERCHANTABILITY, FITNESS OR OTHERWISE WITH RESPECT TO THE ACQUIRED ASSETS.

2.2 Excluded Assets. The Acquired Assets do not include Sellers' right, title or interest in or to any of the following properties and assets of Sellers (collectively, the "Excluded Assets"):

(a) cash (including checks received prior to the close of business on the Closing Date, whether or not deposited or cleared prior to the close of business on the Closing Date), commercial paper, marketable securities, certificates of deposit and other bank deposits, treasury bills and other cash equivalents;

(b) shares of capital stock of any Seller or securities convertible into, exchangeable or exercisable for shares of capital stock of any Seller;

(c) any Contract that is not an Assumed Contract;

(d) any assets of any Plan, including any plan or arrangement providing pension benefits or post-retirement health or medical benefits to any present or former employee of the Company or any of its Subsidiaries and any rights under any such Plan or any Contract between any employee or consultant and the Company or any of its Affiliates;

(e) all avoidance actions or similar causes of action, arising under Sections 544 through 553 of the Bankruptcy Code, other than any such actions related to any Assumed Contract;

(f) all rights to or claims for refunds, overpayments or rebates of Taxes for periods ending on or prior to the Closing Date;

(g) all claims that Sellers may have against any third Person with respect to any other Excluded Assets;

(h) all rights of Sellers under any collective bargaining agreement, agreement with any labor union, employment agreement or severance agreement;

(i) all real property that is set forth on Schedule 2.2(i) and any other real property that is not set forth on Schedule 2.1(a)-1 or Schedule 2.1(a)-2;

(j) the company seal, minute books, charter documents, stock or equity record books and such other books and records as pertain to the organization, existence or capitalization of Sellers; and

(k) the properties and assets set forth in Schedule 2.2(k).

2.3 Liabilities to be Assumed by Buyer. At the Closing, Buyer will assume only the following obligations of Sellers (the "Assumed Liabilities") and no others: (i) the Accounts Payable; (ii) all Liabilities of Sellers under the Assumed Contracts; provided, however, Buyer shall not assume or agree to pay, discharge or perform any Liabilities arising out of any breach by Sellers of any provision of any Assumed Contract, including Liability for breach, misfeasance or under any other theory relating to Sellers' conduct prior to the Closing; and (iii) those Liabilities listed on Schedule 2.3.

2.4 Excluded Liabilities. Other than the Assumed Liabilities, Buyer shall not and does not assume any other Liability whatsoever (including Liabilities relating to the conduct of the Business or to the Acquired Assets (and the use thereof) at any time on or prior to the Closing Date), whether relating to or arising out of the Business or Acquired Assets or otherwise, fixed or contingent, disclosed (whether on the Disclosure Schedule or otherwise), or undisclosed (collectively, the "Excluded Liabilities"). Without limiting the foregoing, Buyer shall not and does not assume any of the following (each of which shall be included within the definition of "Excluded Liability"):

(a) all Liabilities relating to or arising, whether before, on or after the Closing, out of, or in connection with, any of the Excluded Assets;

(b) all Liabilities, other than the Accounts Payable, that arise (whether under the Assumed Contracts or otherwise) with respect to the Acquired Assets or the use thereof on or prior to the Closing Date or relate to periods ending on or prior to the Closing Date or are to be observed, paid, discharged or performed on or prior to the Closing Date (in each case, including any Liabilities that result from, relate to or arise out of tort or other product liability claim);

(c) litigation and related claims and Liabilities or any other claims against the Company or any of its Subsidiaries of any kind or nature whatsoever, other than Accounts Payable, involving or relating to facts, events or circumstances arising or occurring on or prior to the Closing Date, no matter when raised (including Liability for breach, misfeasance or under any other theory relating to the Company's or any such Subsidiary's conduct, performance or non-performance);

(d) all Liabilities relating to any Contract between any employee or consultant and the Company or any of its Subsidiaries;

(e) all Liabilities relating to any environmental, health or safety matter (including any Liability or obligation arising under any Environmental Law) arising out of or relating to the Company's or any of its Subsidiary's operation of their respective businesses or their leasing, ownership or operation of real property;

(f) all Liabilities for damages to persons or property arising out of alleged defects in products sold by the Company or any of its Subsidiaries, or arising under warranties, express or implied, issued by the Company or any of its Subsidiaries;

(g) all Liabilities in excess of the Claims Reserve to repair or replace, or to refund the sale price (plus related expenses) of, products sold and delivered by the Company or any of its Subsidiaries prior to the Closing Date;

(h) all Liabilities of the Company or any of its Subsidiaries under any collective bargaining agreement, agreement with any labor union, employment agreement or severance agreement;

(i) all Liabilities of the Company or any of its Subsidiaries, or of any trust or other entity established to provide employee benefits, to their present or former employees, retirees or spouses, dependents or other beneficiaries of present or former employees or retirees, including all Liabilities attributable to, incurred in connection with, arising from or relating to, any Plan, whether formal or informal and whether legally binding or not;

(j) all Liabilities of the Company or any of its Subsidiaries attributable to, incurred in connection with, arising from, or relating to, a violation of any Laws governing employee relations, including anti-discrimination Laws, wage and hour Laws, labor relations Laws and occupational safety and health Laws;

(k) all Liabilities related to (i) the termination of employment of any employees of Sellers, including employees of Sellers who become employees of Buyer, including all Liabilities arising under the WARN Act, and (ii) earned but unpaid salary, bonuses, accrued but unpaid vacation days, accrued but unpaid medical and dental expenses, accrued and unpaid other forms of compensation and all other accrued welfare benefits of all employees of the Company or any of its Subsidiaries, including employees of Seller who become employees of Buyer and, whether or not accrued, any obligations under Section 4980B of the Code to provide continuation of group medical coverage with respect to any such employee or other qualified beneficiary;

(l) except as set forth in Section 7.9, all Liabilities for any and all Transfer Taxes due as a result of the transactions contemplated by this Agreement;

(m) except as set forth in Section 7.9, all Liabilities for any and all Taxes due or payable by the Company or any of its Subsidiaries for any period ending on or before the Closing Date or as a result of the operation of the Business or the ownership of the Acquired Assets on or before the Closing Date, without regard to whether such taxes are within the scope of the representation set forth in Section 5.10 hereof;

(n) all amounts payable pursuant to Section 365(b)(1)(A) or (B) of the Bankruptcy Code in order to effectuate, pursuant to the Bankruptcy Code, the assumption by Sellers and assignment by Buyer of Assumed Contracts under the Bankruptcy Court Approval (the "Cure Amounts"), other than as specifically set forth herein;

(o) other than Accounts Payable, all notes, bonds or other evidences of indebtedness, including any of the foregoing entered into with respect to any of the Acquired Facilities; and

(p) all Liabilities for fraud, breach, misfeasance or under any other theory relating to conduct, performance or non-performance of the Company or any of its Subsidiaries.

2.5 Changes in List of Assumed Contracts. From time to time after the date hereof and prior to the Closing, (i) Buyer may remove Contracts, other than Ordinary Course Contracts, from the list of Assumed Contracts, (ii) Buyer and the Company, by mutual agreement, may add Contracts to the list of Assumed Contracts, and (iii) Buyer, in its sole discretion, may add to the list of Assumed Contracts any material Contract the existence and terms of which were not disclosed to Buyer in reasonable detail prior to the Agreement Date. If any Contract is added to the list of Assumed Contracts, Sellers shall take such steps as are necessary, including payment of all Cure Amounts, to cause such Contract to be assumed by, and assigned to, Buyer.

ARTICLE 3
CLOSING; PURCHASE PRICE

3.1 Closing; Transfer of Possession; Certain Deliveries.

(a) The consummation of the transactions contemplated herein (the "Closing") shall take place on the second Business Day after the satisfaction of all of the conditions set forth in Article 8 (or the waiver thereof by the party entitled to waive that condition) or on such other date as the parties hereto shall mutually agree. The Closing shall be held at the offices of Skadden, Arps, Slate, Meagher & Flom (Illinois), at 10:00 a.m., local time, unless the parties hereto otherwise agree. The actual date of the Closing is herein called the "Closing Date." For purposes of this Agreement, from and after the Closing, the Closing shall be deemed to have occurred at 12:01 A.M. on the Closing Date.

(b) At the Closing, Sellers shall deliver to Buyer:

(i) duly executed bills of sale, substantially in the form of Exhibit E attached hereto, transferring the Acquired Assets to Buyer;

(ii) duly executed real property special warranty (or the equivalent) deeds in recordable form, in form and substance acceptable to Buyer, to effect the sale, transfer, assignment and delivery of the Acquired Real Property;

(iii) the Assignment and Assumption Agreement, duly executed by Sellers;

(iv) all other instruments of conveyance and transfer, in form and substance reasonably acceptable to Buyer, as are necessary to convey the Acquired Assets to Buyer; and

(v) all other previously undelivered certificates, agreements and other documents required to be delivered by Sellers at or prior to the Closing in connection with the transactions contemplated by this Agreement.

(c) At the Closing, Buyer shall deliver:

(i) to Sellers, the Purchase Price in accordance with the provisions of Section 3.3;

(ii) the Assignment and Assumption Agreement, duly executed by Buyer; and

(iii) all other previously undelivered certificates, agreements and other documents required to be delivered by Buyer at or prior to the Closing in connection with the transactions contemplated by this Agreement.

3.2 Deposit Escrow. On January 9, 2003, Buyer and Sellers executed the Deposit Escrow Agreement and deposited with the Escrow Agent $6.5 million (the "Deposit Escrow"). The Deposit Escrow shall be held and disbursed pursuant to the terms of the Deposit Escrow Agreement and this Agreement.

3.3 Purchase Price. In consideration of the Acquired Assets, and subject to the terms and conditions of this Agreement, Buyer shall assume the Assumed Liabilities as provided in Section 2.3 and at the Closing shall pay to Sellers an aggregate purchase price (together with the amount of the Indemnity Escrow, the "Purchase Price") of $1,050 million comprised of: (a) the Deposit Escrow, which shall be transferred directly to Sellers by the Escrow Agent; (b) subject to Section 3.4(a) and Section 3.4(b), $843.5 million in immediately available funds, by wire transfer to an account or accounts designated by Sellers (together with the Deposit Escrow, the "Cash Consideration"); and (c) $200 million by assumption of the Assumed Liabilities. Each Seller shall receive that portion of the Cash Consideration set forth opposite such Seller's name on Schedule 3.3 hereof.

3.4 Purchase Price Adjustment.

(a) The Purchase Price shall be increased for lease payments made by Sellers pursuant to those Assumed Contracts set forth on Schedule 3.4(a) in respect of lease payments due and payable on or after January 1, 2003, as follows: (i) the Cash Consideration shall be increased by $1.00 for each $1.00 of lease payments set forth on Schedule 3.4(a) made by Seller, not to exceed $2 million in the aggregate; and (ii) with respect to lease payments in excess of $2 million in the aggregate, the Cash Consideration shall be increased by $0.75 for each $1.00 of lease payments set forth on Schedule 3.4(a) made by Seller.

(b) The Purchase Price may be reduced at the Closing, at Buyer's election, on the basis of the Estimated Net Receivables Amount and the Estimated Inventory Value set forth

on the Closing Financial Certificate delivered by the Company pursuant to Section 7.17. If the Estimated Net Receivables Amount plus the Estimated Inventory Value (the "Estimated Working Capital Amount") is less than $450 million, then Buyer may, at Buyer's election, reduce the Cash Consideration to be paid to Sellers at the Closing by the amount of such shortfall (the "Estimated Working Capital Adjustment").

(c) The Purchase Price shall be adjusted pursuant to subsection (e) of this Section 3.4 after the Closing. Within sixty (60) days following the Closing Date, Buyer shall prepare and deliver to the Company a Notice (the "Statement") setting forth the Net Receivables Amount and the Inventory Value (together, the "Closing Date Items"), as of the close of business on the Closing Date. The Closing Date Items shall be determined in accordance with GAAP and the same accounting principles, procedures and methods that were used to prepare the Company Financial Statements. After the Closing Date, at Buyer's request, the Company and each of the other Sellers shall assist Buyer and its Representatives in the preparation of the Statement and shall provide Buyer and its Representatives any information reasonably requested and shall further provide them with access at all reasonable times during regular business hours and upon reasonable notice to personnel, books and records of the Company and each of the other Sellers for such purpose.

(d) Unless the Company notifies Buyer in writing within 30 days after Buyer's delivery of the Statement of any objection to any component of the computation of the Closing Items set forth therein (the "Objection Notice"), such computation shall be final and binding. The Objection Notice shall specify the amount of and the basis for the objections set forth therein. The Objection Notice shall include only objections based on (i) mathematical errors in computation of the Closing Date Items, or (ii) Closing Date Items not having been prepared in accordance with GAAP or the same accounting principles, procedures and methods that were used to prepare the Company Financial Statements. If Buyer and the Company cannot resolve any such objections, then such objections shall be resolved by an independent nationally recognized accounting firm reasonably acceptable to Buyer and the Company (the "Independent Accounting Firm"). The determination of the Independent Accounting Firm shall be made as promptly as practicable, and in no event later than 75 days after delivery of the Statement, and shall be final and binding on the parties, absent manifest error, which error may only be corrected by such Independent Accounting Firm. The fees and expenses of the Independent Accounting Firm shall be paid one-half by Buyer and one-half by the Company.

(e) If the aggregate amount of Accounts Receivable included in the Acquired Assets (excluding the amount of Accounts Receivable of National Steel Pellet Company included in the Acquired Assets) minus (i) the aggregate amount of Accounts Payable included in the Assumed Liabilities (excluding the amount of Accounts Payable of National Steel Pellet Company included in the Assumed Liabilities) and (ii) the Company Reserves (excluding the amount of Company Reserves related to National Steel Pellet Company) (the "Net Receivables Amount"), plus the Inventory Value (excluding the Inventory Value of the Inventory of National Steel Pellet Company included in the Acquired Assets) (the "Working Capital Amount") is less than $450 million then the Purchase Price shall be decreased by the amount of the shortfall (the "Working Capital Adjustment"). Any Working Capital Adjustment resulting from this Section 3.4(e) shall be offset by any reduction to the Purchase Price made at the Closing based on the Estimated Working Capital Adjustment.

(f) The amount of the Working Capital Adjustment shall be paid on the Adjustment Payment Date. The "Adjustment Payment Date" shall be the date that is 35 days after the delivery of the Statement; provided, however, if Sellers dispute the Statement, the Adjustment Payment Date shall be the date that is 15 days after the final determination of the Closing Date Items in accordance with the provisions of Section 3.4(d).

3.5 Allocation of Purchase Price. Buyer and each Seller shall agree upon an allocation of the Purchase Price and the Assumed Liabilities among the Acquired Assets (the "Allocation") for all income Tax purposes. The Allocation shall be consistent with the Code and based on an initial proposal by Buyer. Sellers will have the right to raise reasonable objections to the Allocation within 15 days after Buyer's delivery thereof, in which event Buyer and Sellers will negotiate in good faith to resolve such dispute. If Buyer and Sellers cannot resolve such dispute within 15 days after Sellers notify Buyer of such objections, such dispute with respect to the Allocation shall be presented to the Independent Accounting Firm, which shall, within 30 days thereafter, render a decision, which shall be final and binding upon each of the parties. The fees, costs and expenses incurred in connection therewith shall be shared in equal amounts by Buyer and Sellers. Buyer and Sellers each shall report and file all Tax Returns (including amended Tax Returns and claims for refunds) consistent with the Allocation, and shall take no position contrary thereto or inconsistent therewith (including in any audits or examinations by any Tax Authority or any other Proceedings). Buyer and Sellers shall cooperate in the preparation of, and shall timely file, any forms (including Form 8594) with respect to the Allocation, including any amendments to such forms required with respect to any adjustment to the Purchase Price, pursuant to this Agreement. Notwithstanding any other provisions of this Agreement, the foregoing agreement shall survive the Closing Date without limitation.

3.6 Designation of Affiliates by Buyer. Prior to the Closing, Buyer may designate one or more of its Subsidiaries to acquire at the Closing all or part of the Acquired Assets, in which event all references to "Buyer" shall be deemed to refer to each such Subsidiary with respect to the Acquired Assets to be acquired by such Subsidiary; provided, however, that no designation otherwise permitted by this Section 3.6 shall relieve Buyer from any of its liabilities or obligations hereunder.

3.7 Section 338(h)(10) Election. Sellers shall cooperate with Buyer's request to make an election under Section 338(h)(10) of the Code to treat the purchase and sale of any Seller's equity interest in any of the Acquired Entities as a purchase and sale of the assets of the entity, to the extent permitted by the Code.

3.8 Designation of Exchange Accommodation Titleholder. Prior to Closing, Buyer may designate one or more Persons as a "qualified intermediary" within the meaning of Internal Revenue Service Regulation §1.1031(k)-1(g)(4), or an "exchange accommodation titleholder" within the meaning of Internal Revenue Service Revenue Procedure 2000-37, 2000-2 CB 308, to acquire at the Closing all or part of Buyer's rights to this Agreement or the Acquired Assets in order to effectuate a like-kind exchange under Section 1031 of the Code. Buyer's Liabilities under this Agreement shall be no greater, and no less, than such Liabilities would have been had the Buyer or its Subsidiaries directly acquired the Acquired Assets.

ARTICLE 4
[REMOVED]

ARTICLE 5
REPRESENTATIONS AND WARRANTIES OF SELLER

In connection with the following representations and warranties, attached to this Agreement is a disclosure schedule (the "Disclosure Schedule") arranged in numbered parts corresponding to the Section numbering in this Agreement of the following representations and warranties. The information disclosed in any numbered part of the Disclosure Schedule shall be deemed to relate to and to qualify only the particular representation or warranty set forth in the corresponding numbered Section in this Agreement and shall not be deemed to relate to or qualify any other representation or warranty unless so stated otherwise, specifying each other representation and warranty to which it relates. No reference to or disclosure of any item in the Disclosure Schedule shall be construed as an admission or indication that such item or other matter is material or that such item or other matter is required to be referred to or disclosed in the Disclosure Schedule. Sellers jointly and severally hereby represent and warrant to Buyer that, as of the Agreement Date and as of the Closing Date (except with respect to representations and warranties made as of a particular date, which shall be deemed to be made only as of such date), except as set forth on the Disclosure Schedule:

5.1 Due Organization. Each Seller is a corporation, limited liability company or partnership, duly organized under the laws of its jurisdiction of incorporation or formation, with full power and authority to conduct its business as presently conducted, to own or use its properties and assets and to perform all of its obligations under all Assumed Contracts. Each Seller is duly qualified to do business and in good standing under the Laws of each jurisdiction in which either the ownership or use of the properties owned or used by it, or the nature of the activities conducted by it, requires such qualification, except where the failure to be so qualified and in good standing would not reasonably be expected to have a Material Adverse Effect. Schedule 5.1 of the Disclosure Schedule lists the form of organization, the jurisdiction of incorporation or formation, and the holders of the outstanding capital stock or other equity interests of each Seller and the Acquired Entities.

5.2 Authorization; Validity. Each Seller has the requisite power and authority to execute and deliver this Agreement and the other documents and instruments to be executed and delivered by it pursuant hereto and to perform its obligations hereunder and thereunder. The execution and delivery of this Agreement by each Seller and the other agreements to be executed and delivered by such Seller pursuant hereto, and the performance by such Seller of its obligations hereunder, including the consummation of the transactions contemplated hereby, have been duly authorized by all necessary corporate action on the part of each Seller, including by any action or required approval of the equityholder or equityholders of each Seller. This Agreement has been duly and validly executed and delivered by each Seller and (assuming this Agreement constitutes a valid and binding obligation of Buyer and each of the other agreements to be executed and delivered by parties pursuant hereto other than Sellers constitute a valid and binding obligation of such other parties and subject to Bankruptcy Court Approval) constitutes, and each of the other agreements to be executed and delivered by each Seller pursuant hereto

upon such Seller's execution and delivery will constitute, valid and legally binding obligations of such Seller enforceable against such Seller in accordance with its respective terms.

5.3 No Violation. Subject to receipt and maintenance of the Orders, consents, approvals, waivers and authorizations referred to in Section 5.4 and the Bankruptcy Court Approval, the execution, delivery and performance by each Seller of this Agreement and the transactions contemplated hereby, do not and will not: (a) conflict with or result in, with or without the giving of notice or lapse of time or both, any violation of or constitute a breach or default, or give rise to any right of acceleration, payment, amendment, cancellation or termination, under (i) the certificate of incorporation, bylaws or other formation documents of such Seller, (ii) any mortgage, indenture, lease, Contract, or other agreement to which any Seller is a party or by which any of any Seller's assets or properties are subject, including any Assumed Contract, or (iii) any Law or Order pertaining to the Business, the Acquired Assets or to which any Seller is otherwise subject, except in the cases of clauses (ii) and (iii) where such conflict, violation, breach, default or right would not reasonably be expected to have a Material Adverse Effect; or (b) result in the creation of any Lien (other than Liens included in the Assumed Liabilities and Permitted Liens) upon any of the Acquired Assets.

5.4 Third Party Approvals. Schedule 5.4 of the Disclosure Schedule sets forth a true and complete list of each Order, consent, approval, waiver or authorization of any Governmental Entity and each material consent, approval, waiver or authorization of any other Person that is required in connection with the execution, delivery and performance by Sellers of this Agreement and the other documents and instruments to be executed and delivered by Sellers pursuant hereto and the transactions contemplated hereby and thereby other than (a) Orders, consents, approvals, waivers or authorizations of, or declarations or filings with, the Bankruptcy Court, (b) filings pursuant to the HSR Act, and (c) approvals required by the Surface Transportation Board in connection with the sale of the Railroad Assets.

5.5 Title to Assets; Sufficiency and Condition of Assets. All of each Seller's right, title and interest in and to the Acquired Assets (or in the case of any leased or licensed Acquired Assets, each Seller's rights under such leases or licenses) shall be transferred to Buyer at Closing, free and clear of all Liens (other than Liens included in the Assumed Liabilities and Permitted Liens). At Closing, Sellers will have good and marketable title to each of the Acquired Assets, except for those Acquired Assets leased by Sellers, as to which Sellers will have valid leasehold interests. The Acquired Assets constitute all of the properties, assets and rights used by the Sellers or necessary or useful for Buyer to conduct and operate the Business as conducted and operated by Sellers. All of the Acquired Assets are in good order and repair for assets of comparable age and past use and are capable of being used in the ordinary course of business in the manner necessary to operate the Business, except where the failure to be in such condition would not, individually or in the aggregate, have a Material Adverse Effect. The condition of each Acquired Asset that is leased pursuant to an Assumed Contract is in compliance with the provisions of such Assumed Contract.

5.6 Intellectual Property.

(a) Schedule 5.6(a) of the Disclosure Schedule sets forth a true and complete list of all material Intellectual Property used or held for use in the Business and all jurisdictions

where such Intellectual Property is registered or protected or where applications have been filed, together with all patent, registration and application numbers. Sellers own and have the right to use, or, in the case of licensed rights, have valid rights to use, such Intellectual Property, free and clear of all Liens (other than Permitted Liens).

(b) Schedule 5.6(b) of the Disclosure Schedule sets forth a true and complete list of all material licenses, sublicenses and other agreements pursuant to which (i) any Seller has authorized any other Person to use Intellectual Property, or (ii) any Person has authorized any Seller to use any Intellectual Property.

(c) To the Knowledge of Sellers, the Intellectual Property does not infringe upon, violate or misappropriate the rights of any Person. Consummation of the transactions contemplated hereby will not result in the loss or impairment of any of the material Intellectual Property or any material right pertaining thereto. Sellers have taken reasonable precautions and security measures to protect the secrecy, confidentiality and value of the trade secrets of the Business. As of the Agreement Date, no Seller has Knowledge of any infringement or unauthorized use by any Person of any material Intellectual Property.

5.7 Compliance with Laws. Except with respect to those matters covered by Section 5.11 and Environmental Laws (which are covered by Section 5.20), (i) each Seller is in compliance with all applicable Laws, except where the failure to be in compliance would not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect, and (ii) as of the Agreement Date, no Seller has received any notice of any alleged violation of any Law applicable to it. No Seller is in default in any material respect of any Order applicable to the Acquired Assets or the transactions contemplated under this Agreement. No investigations, inquiries or reviews by any Governmental Entity with respect to the Business have been commenced, nor to the Knowledge of any Seller, are any contemplated that would impose any material Liability on Buyer or, from and after the Closing Date, the Acquired Assets or the Business.

5.8 Title to Property.

(a) Schedule 5.8(a) identifies all of the real property owned or leased by the Company or any of its Subsidiaries and used or held for use in the Business.

(b) Neither the Company nor any of its Subsidiaries has received any written notice of, or has Knowledge of, condemnation or eminent domain proceedings pending or threatened that affect the Acquired Real Property. Neither the Company nor any of its Subsidiaries has received any written notice of, or, except where any such violations would not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect, has any Knowledge of, any zoning, ordinance, building, fire or health code or other legal violation affecting any such Acquired Real Property.

(c) There are no encroachments or other facts or conditions affecting any of the Acquired Real Property that would be revealed by an accurate survey or inspection thereof, which encroachments, facts or conditions would, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect. None of the buildings and structures on such

Acquired Real Property encroaches in any material respect upon real property of another Person or upon the area of any easement affecting the Acquired Real Property.

5.9 Brokers and Finders. No broker, investment banker, financial advisor or other Person is entitled to any broker's, finder's, financial advisor's or other similar fee or commission from Buyer in connection with the transactions contemplated by this Agreement based upon arrangements made by or on behalf of the Company or any of its Subsidiaries.

5.10 Taxes.

(a) The Company and its Subsidiaries have timely filed with the appropriate Tax Authorities all material Tax Returns required to be filed by any of them. All Tax Returns filed by the Company and its Subsidiaries are true, complete and correct in all material respects. All Taxes covered by such Tax Returns (whether or not shown on any Tax Return) have been timely paid, except for Taxes (i) disclosed on Schedule 5.10(a)(i) of the Disclosure Schedule, (ii) which are being contested in good faith in appropriate Proceedings and disclosed on Schedule 5.10(a)(ii), or (iii) which, individually or in the aggregate, would not reasonably be expected to result in any material Liability to Buyer or Sellers.

(b) None of the Acquired Assets is subject to a safe harbor lease within the meaning of Section 168(f)(8) of the Internal Revenue Code of 1954 as in effect prior to the enactment of the Tax Reform Act of 1986, Public Law 99-514.

5.11 Labor Matters; Employee Relations.

(a) There are no material claims or Proceedings pending or, to the Knowledge of any Seller, threatened, between the Company or its Subsidiaries and any employees of the Company or any of its Subsidiaries. There are no strikes, slowdowns, work stoppages, lockouts, or, to the Knowledge of any Seller, threats thereof, by or with respect to any employees of the Company or its Subsidiaries.

(b) The Company and each of its Subsidiaries is and has been in compliance with all applicable Laws respecting employment, except where the failure to be in compliance would not reasonably be expected to have a Material Adverse Effect. The Company and each of its Subsidiaries have complied with their obligations under the WARN Act, based on the transactions contemplated by this Agreement.

5.12 ERISA Compliance; Absence of Changes in Benefits Plans. Schedule 5.12 of the Disclosure Schedule sets forth a true and complete list, as of the Agreement Date, of all Plans. True and complete copies of each of the following documents, including any amendments made on or prior to the Agreement Date, have been made available by Sellers to Buyer: (i) each Plan and all amendments thereto, and the most recent descriptions thereof which have been distributed to plan participants; (ii) all funding arrangements with respect to the Plans; (iii) all actuarial or other assumptions used to calculate funding obligations with respect to any Plan or any change in the manner in which such contributions are determined; and (iv) a brief description of any Plan which is not in writing. No "reportable event," as defined in Section 4043(b) of ERISA and the regulations promulgated thereunder, has occurred under any Plan and to the Knowledge of the Sellers no action is contemplated by any Seller or any other Person that would constitute a

reportable event, in each case which could reasonably result in the imposition of any Liabilities upon Buyer. No Seller participates in any Plan that is a "multiemployer plan," as such term is defined in Section 4001(a)(3) of ERISA in respect of any employee of the Business.

5.13 Litigation. Other than the Chapter 11 Case, there are no material actions pending, or, to the Sellers' Knowledge, threatened against any Seller in connection with the Acquired Assets or the Business or which could give rise to or increase an Assumed Liability. There are no Orders against any Seller or any of their respective properties or businesses that would, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect.

5.14 Customers and Suppliers. Schedule 5.14 of the Disclosure Schedule sets forth a complete and accurate list of all Significant Customers and Significant Suppliers. "Significant Customers" are: (i) the 10 customers that have purchased the most, in terms of dollar value, products or services sold by the Business during the year ended December 31, 2001; and (ii) the 10 customers that have purchased the most, in terms of dollar value, products or services sold by the Business during the year ended December 31, 2002. "Significant Suppliers" are: (y) the 10 suppliers that have sold the most, in terms of dollar value, products or services to the Business during the year ended December 31, 2001; and (z) the 10 suppliers that have sold the most, in terms of dollar value, products or services to the Business during the year ended December 31, 2002. As of the Agreement Date, no Significant Customer or Significant Supplier has given any Seller notice terminating, canceling or materially reducing, or threatening to terminate, cancel or materially reduce, any Contract or relationship with Seller. As of the Agreement Date, no Significant Customer (i) has notified the Company or any Subsidiary that the Company or any Subsidiary no longer meets the customers' quality specifications or any certification requirements imposed upon steel suppliers or (ii) to Sellers' Knowledge, has threatened to terminate such certification. During the three-month period immediately preceding the Agreement Date, there has been no material increase in (i) the dollar amount of customer claims relating to the quality of Sellers' products or services, or (ii) the percentage of products shipped by Sellers that do not conform, as determined consistently with the Sellers' past practices, to original or prime product requirements (whether full or limited warranty), in each case as compared with the comparable period of the preceding calendar year.

5.15 Accounts Receivable. Schedule 5.15 of the Disclosure Schedule is a complete and accurate list, as of November 30, 2002, of the Accounts Receivable of Sellers, including an aging of all Accounts Receivable showing amounts due in 30-day aging categories. Sellers have provided reserves for Accounts Receivable in accordance with GAAP and the Company's accounting policies attached hereto as Schedule 1.1(a), consistently applied by Sellers. On the Closing Date, Sellers will deliver to Buyer a complete and accurate list, as of a date within five Business Days of the Closing Date, of the Accounts Receivable. All Accounts Receivable represent valid obligations arising from bona fide business transactions in the ordinary course of business consistent with past practice. Subject to the Company Reserves and any write-down of any Accounts Receivable in connection with the Working Capital Adjustment in Section 3.4, there is no contest, claim, counterclaim, defense or right of set-off under any Contract or otherwise with any obligor of any Account Receivable relating to the amount or validity of such Account Receivable.

5.16 Inventory. All Inventory is in good and merchantable quality and is useable and saleable in the ordinary course of business, except for those items the value of which (i) has been reduced in accordance with GAAP and the Company's inventory policies, attached hereto as Schedule 1.1(a), consistently applied by Sellers or (ii) is or will be reduced in connection with the Working Capital Adjustment in Section 3.4.

5.17 Financial Statements and SEC Filings.

(a) The Company has delivered or made available to Buyer a true, correct and complete copy of the audited consolidated balance sheet of the Company as of December 31, 2002, and audited consolidated statements of operations, changes in stockholders' equity (deficit) and cash flows for the year then ended (the "Company Financial Statements"). The Company Financial Statements are consistent in all material respects with the books and records of the Business. The Company Financial Statements (including the related notes) have been prepared in accordance with GAAP consistently applied and fairly present the results of operations and financial condition of the Company and its Subsidiaries for the periods covered thereby. Other than the Financing, since December 31, 2002, Seller has not borrowed, incurred, assumed, prepaid, guaranteed, or become subject to any material liability or modified any existing material liability (absolute, accrued or contingent) other than (i) in the ordinary course of business consistent with past practice in nature and amount, (ii) as shown on the Company Financial Statements or (iii) which has been discharged, satisfied or paid in the ordinary course of business since December 31, 2002.

(b) Each of the forms, reports and documents filed by the Company with the SEC since December 31, 2001 (the "Company SEC Documents") complied in all material respects with all applicable requirements of the Securities Act and the Exchange Act as in effect on the dates so filed. With respect to the Acquired Assets, the Assumed Liabilities and the Business, none of the Company SEC Documents (as of the respective filing dates or, if amended, as of the date of the last such amendment filed prior to the Agreement Date) contained any untrue statement of a material fact or omitted to state a material fact required to be stated therein or necessary in order to make the statements made therein, in light of the circumstances under which they were made, not misleading.

5.18 Contracts. All of the Assumed Contracts are in full force and effect and constitute valid and binding agreements of the Company or the Subsidiary party thereto, enforceable in accordance with their respective terms, and to the knowledge of the Company or any Subsidiary that is a party to any such Assumed Contract, the other parties thereto, subject, as to enforceability against each such other party, to bankruptcy, moratorium or other insolvency laws and to equitable principles of general application (regardless if enforcement is sought at law or in equity). With respect to the Assumed Contracts, upon entry of the Bankruptcy Court Approval and payment of the Cure Amounts, (i) neither the Company nor any Subsidiary will be in breach or default of its obligations thereunder, (ii) to the Knowledge of the Company or any of its Subsidiaries, no conditions exist that with notice or lapse of time or both would constitute a default thereunder, and (iii) to the Knowledge of the Company or any of its Subsidiaries, no other party to any of the Assumed Contracts is in breach or default thereunder, except in each case where such breach or default would not reasonably be expected to have a Material Adverse Effect. Schedule 5.18 of the Disclosure Schedule sets forth a complete and correct list, as of the

Agreement Date, of all Material Contracts other than those Contracts that are "Material Contracts" solely because such Contracts are "Assumed Contracts."

5.19 Permits. Schedule 5.19 of the Disclosure Schedule sets forth a true, complete and correct list of all material Permits held by the Company or its Subsidiaries as of the Agreement Date in connection with the Business or the Acquired Assets (including the date of expiration of each Permit). Each Permit is valid and in full force and effect and neither the Company nor any of its Subsidiaries is in default under or in violation of, and no condition exists that with notice or lapse of time or both would constitute a default under or a violation of, any such Permit, except for such defaults or violations which, individually or in the aggregate, would not reasonably be expected to have a Material Adverse Effect.

5.20 Environmental Matters. Each Seller and each Acquired Entity is in compliance with all Environmental Laws. Sellers possess and are in compliance with all Permits required under Environmental Laws for the conduct of the Business. There are no pending or, to the Knowledge of the Company or any of its Subsidiaries, threatened Proceedings against the Company or any of its Subsidiaries alleging a violation of or Liability under any Environmental Law. There has been no Release of any Hazardous Substance that will or is reasonably likely to require abatement or correction under Environmental Laws at (A) any of the Acquired Real Property or (B) any property to which any Seller sent waste materials for treatment, storage or disposal since January 1, 2001. Sellers have provided to Buyer copies of all information necessary for an understanding of the presence or migration of any Hazardous Substance on, in or under the Acquired Real Property. Schedule 5.20 of the Disclosure Schedule sets forth: (i) with respect to the Acquired Assets and Assumed Liabilities, all accruals or reserves of the Company or any of its Subsidiaries relating to matters arising under any Environmental Law as of November 30, 2002; and (ii) a list, as of the Agreement Date, of all environmental audits and all Notices of Violation relating to the Business, the Acquired Assets and the Assumed Liabilities. As used herein, "Release" means any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping or disposing into the environment; and "Hazardous Substance" means any "hazardous substance" as defined by the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. §§ 9601 et. seq., and petroleum, including crude oil and any fraction or any derivative thereof.

5.21 Capital Expenditures. As of the Agreement Date, the Company has made available to Buyer the most recent capital spending plans of the Company and its Subsidiaries relating to the Business or the Acquired Assets, including any plans relating to any matter arising under any Environmental Law.

ARTICLE 6
REPRESENTATIONS AND WARRANTIES OF BUYER

Buyer hereby represents and warrants to Sellers, as of the Agreement Date and as of the Closing Date (except with respect to representations and warranties made as of a particular date, which shall be deemed to be made only as of such date), as follows (and Buyer makes no other representations or warranties to Sellers):

6.1 Due Organization. Buyer is a corporation validly existing and in good standing under the laws of the state of its incorporation and has the requisite corporate power and authority to own, lease and operate the assets to be sold hereunder and to conduct its business as presently conducted. Buyer is duly qualified to do business and in good standing under the laws of each jurisdiction in which either the ownership or use of the properties owned or used by it, or the nature of the activities conducted by it, requires such qualification, except where the failure to be so qualified and in good standing would not reasonably be expected to have a Buyer Material Adverse Effect.

6.2 Authority; Validity. Buyer has the requisite power and authority to execute and deliver this Agreement and the other documents and instruments to be executed and delivered by Buyer pursuant hereto and to perform its obligations hereunder and thereunder. The execution and delivery of this Agreement and the other agreements to be executed and delivered by Buyer pursuant hereto, and the consummation by Buyer of the transactions contemplated hereby and thereby, have been duly authorized by all necessary corporate action on the part of Buyer. This Agreement has been duly and validly executed and delivered by Buyer and constitutes, and each of the other agreements to be executed and delivered by Buyer pursuant hereto upon its execution and delivery by Buyer will constitute (assuming in each case the due and valid authorization, execution and delivery thereof by the other parties thereto and the entry of the Bankruptcy Court Approval by the Bankruptcy Court), valid and legally binding obligations of Buyer enforceable against Buyer in accordance with its terms.

6.3 No Violation. The execution, delivery and performance by Buyer of this Agreement and the transactions contemplated hereby do not and will not conflict with or result in, with or without the giving of notice or lapse of time or both, any violation of or constitute a breach or default, or give rise to any right of acceleration, payment, amendment, cancellation or termination, under (a) the certificate of incorporation or bylaws of Buyer, (b) any mortgage, indenture, lease, Contract or other agreement to which Buyer is a party or by which Buyer or any of its properties or assets is bound or subject, or (c) any Law or Order to which Buyer is bound or subject, except in the cases of clauses (b), and (c) where such conflict, breach, default or right would not, individually or in the aggregate, reasonably be expected to have a Buyer Material Adverse Effect.

6.4 Third Party Approvals. Except for any approvals required in order to comply with the provisions of the HSR Act and approvals required by the Surface Transportation Board in connection with the acquisition of the Railroad Assets, the execution, delivery and performance by Buyer of this Agreement and the other documents and instruments to be executed and delivered by Buyer pursuant hereto and the transactions contemplated hereby and thereby do not require any consents, waivers, authorizations or approvals of, or filings with, any Governmental Entity or any other Person which have not been obtained by Buyer.

6.5 Brokers and Finders. No broker, investment banker, financial advisor or other Person is entitled to any broker's, finder's, financial advisor's or other similar fee or commission from Sellers in connection with the transactions contemplated by this Agreement based upon arrangements made by or on behalf of Buyer.

6.6 Compliance with Laws. Buyer is in compliance with all applicable Laws, except where the failure to be in compliance would not reasonably be expected to have a Buyer Material Adverse Effect.

6.7 Litigation. Except as disclosed in the forms, reports and documents filed by the Buyer with the SEC since December 31, 2001, there are no actions pending against Buyer or any of its Subsidiaries or any of their respective properties that would, individually or in the aggregate, reasonably be expected to have a Buyer Material Adverse Effect.

ARTICLE 7
COVENANTS OF THE PARTIES

7.1 Conduct of Business Pending the Closing. During the period from the date of this Agreement and continuing until the earlier of the termination of this Agreement in accordance with its terms or the Closing, the Company shall, and shall cause each of its Subsidiaries to, carry on the Business in the ordinary course of business and, to the extent consistent therewith, use all commercially reasonable efforts to preserve the Business intact and preserve the goodwill of and relationships with Governmental Entities, customers, suppliers, partners, lessors, licensors, licensees, contractors, distributors, agents, officers and employees and others having business dealings with the Business, provided that the foregoing shall not prevent Sellers from rejecting Contracts that are not Assumed Contracts. During the period from the date of this Agreement through the Closing Date, the Company shall endeavor to maintain the Net Receivables Amount, the Inventory Value and each component of Inventory at or in excess of the amounts set forth on Schedule 7.1. Without limiting the generality of the first sentence of this Section 7.1, during the period from the date of this Agreement through the Closing Date, the Company shall not, and shall not permit any of its Subsidiaries to, without the prior written consent of Buyer:

(a) abandon any rights under any of the Assumed Contracts; terminate, amend, modify or supplement the terms of any Assumed Contract; or fail to honor or perform, the Assumed Contracts;

(b) other than sales of Inventory in the ordinary course of business or the disposition of obsolete equipment, lease, license, surrender, relinquish, sell, transfer, convey, assign or otherwise dispose of any Acquired Assets;

(c) mortgage, pledge or subject to Liens (other than Permitted Liens), any property, business or any of the Acquired Assets, other than as would not result in any Liability that would be or would increase an Assumed Liability as of or subsequent to the Closing;

(d) incur or permit to be incurred any Liability (other than Accounts Payable or in connection with the performance of Assumed Contracts) that would be or would increase an Assumed Liability as of or subsequent to the Closing;

(e) fail to replenish the Inventory and Supplies of the Business in the ordinary course of business;

(f) increase the salary of any Identified Employee at or after the time such person becomes an Identified Employee, other than in the ordinary course of business consistent with past practice;

(g) make or rescind any material Tax election or take any material Tax position (unless required by law) or file any Tax Return or change its fiscal year or financial or Tax accounting methods, policies or practices, or settle any Tax Liability, except in each case as would not reasonably be expected to affect the Buyer;

(h) institute, settle or agree to settle any litigation, action or Proceeding before any court or Governmental Entity relating to the Acquired Assets, or modify in any manner that is adverse to the Business or the Acquired Assets, rescind or terminate a material Permit, allowance, or credit (or application therefor) relating to the Business or the Acquired Assets;

(i) transfer or grant any rights under, modify any existing rights under, or enter into any settlement regarding the breach or infringement of, any material Intellectual Property; or

(j) enter into any Contract to do any of the foregoing.

7.2 Bankruptcy Court Order. Buyer agrees that it will promptly take such actions as are reasonably requested by Sellers, on behalf of Sellers, to assist in obtaining the Bankruptcy Court Approval, including furnishing affidavits or other documents or information for filing with the Bankruptcy Court for purposes, among others, of demonstrating that Buyer is a "good faith" Buyer under Section 363(m) of the Bankruptcy Code. In the event the Bankruptcy Court Approval shall be appealed, Sellers shall use all reasonable efforts to defend such appeal.

7.3 Notification of Certain Matters. Sellers shall give prompt Notice to Buyer, and Buyer shall give prompt Notice to Sellers, of (i) any notice or other communication from any Person alleging that the consent of such Person which is or may be required in connection with the transactions contemplated by this Agreement is not likely to be obtained prior to Closing, and (ii) any written objection or Proceeding that challenges the transactions contemplated hereby or the entry of the Bankruptcy Court Approval. Sellers shall give prompt Notice to Buyer of (i) any notice of any alleged violation of Law applicable to any Seller; (ii) the commencement of any investigation, inquiry or review by any Governmental Entity with respect to the Business or that any such investigation, inquiry or review, to the Knowledge of any Seller, is contemplated; (iii) the infringement or unauthorized use by any Person of any material Intellectual Property (of which any Seller has Knowledge); and (iv) the execution of any Material Contract (and Sellers shall deliver or make available a copy thereof to Buyer). Sellers shall use commercially reasonable efforts to give prompt Notice to Buyer of the execution of any Ordinary Course Contract and, upon the request of Buyer to make available to Buyer copies of any such Ordinary Course Contracts.

7.4 Access.

(a) Subject to applicable Law, from the date hereof until the Closing Date, Sellers (i) shall give Buyer and its Representatives reasonable access during normal business hours to the offices, properties, officers, employees, accountants, auditors, counsel and other

representatives, books and records of the Company and its Subsidiaries; provided, however, that Buyer's inspection of Sellers' properties shall not, without the consent of the Company, which consent shall not be unreasonably withheld or delayed, include the environmental sampling of any environmental media, including air, soil, surface water or groundwater, (ii) shall furnish to Buyer and its Representatives such financial, operating and property related data and other information as such persons reasonably request, and (iii) shall instruct the Company's and its Subsidiaries' employees, counsel and financial advisors to cooperate reasonably with Buyer in its investigation of the business of the Company and its Subsidiaries. All such information shall be provided subject to the provisions of the Confidentiality Agreement. In addition, notwithstanding any provision of the Confidentiality Agreement to the contrary, Buyer shall, with the prior consent of the Company, which consent shall not be unreasonably withheld or delayed, have the right to contact and negotiate directly with Seller's joint venturers and other partners, parties to the Assumed Contracts and lenders with respect to any Acquired Assets or Assumed Liabilities. The Company shall have the right to participate in such negotiations and agrees to cooperate with Buyer, at Buyer's request, in any such negotiations. It is acknowledged and understood that no investigation by Buyer or other information received by Buyer shall operate as a waiver or otherwise affect any representation, warranty or other agreement given or made by Seller hereunder. Buyer agrees that any on-site inspections of any Acquired Real Property, including any inspection or study pursuant to Section 7.4(b)(ii) or Section 7.4(b)(iii), shall be conducted in the presence of Sellers or its Representatives. All inspections shall be conducted so as not to interfere unreasonably with the use of the Acquired Real Property by Sellers.

(b) From and after the Closing Date, Sellers shall give Buyer and Buyer's Representatives reasonable access during normal business hours to the offices, facilities, plants, properties, officers, employees, books and records of Sellers pertaining to the Business, and Sellers shall cause their Representatives to furnish to Buyer such financial, technical, operating and other information pertaining to the Business as Buyer's Representatives shall from time to time reasonably request and to discuss such information with such Representatives. Sellers shall, and shall cause each of their Affiliates to, cooperate with Buyer as may reasonably be requested by Buyer for purposes of (i) enabling an independent accounting firm selected by Buyer to conduct an audit of the Business, including access to the Company's independent auditors' working papers pertaining to the Business or the Assets; (ii) undertaking, with the consent of the Company, which consent shall not be unreasonably withheld or delayed, any study of the condition or value of the Acquired Assets including any environmental assessment; and (iii) undertaking any study relating to Sellers' compliance with Laws, including Environmental Laws; and the Company acknowledges that information or access may be requested and used for such purpose.

(c) From and after the Closing Date, Buyer shall give Sellers and Sellers' Representative reasonable access during normal business hours to the books and records pertaining to the Excluded Assets and Excluded Liabilities and, to the extent that Sellers retain any Liabilities with respect to such items, the Acquired Assets or Assumed Liabilities. Buyer shall, and shall cause each of its Affiliates to, cooperate with Sellers as may reasonably be requested by Sellers for such purposes.

7.5 Public Announcements. From the Agreement Date until the earlier of the Closing or the termination of this Agreement, Buyer and the Company will consult with each other before issuing, and provide each other the opportunity to review and comment upon, any press release, any court filing or pleading filed with the Bankruptcy Court relating primarily to this Agreement or the transactions contemplated hereby, or other public statements with respect to the transactions contemplated by this Agreement, and neither Buyer nor any Seller shall issue any such press release or make any such public statement without the prior approval of the other party, in each case except as may be required by Law, court process or by obligations pursuant to any listing agreement with any national securities exchange. Buyer and each Seller shall cause its Affiliates, employees, officers and directors to comply with this Section 7.5.

7.6 Cure of Defaults. Subject to Bankruptcy Court Approval, the Sellers shall, on or prior to the Closing, cure any and all defaults and breaches under and satisfy any Liability arising from or relating to pre-Closing periods under the Assumed Contracts so that such Assumed Contracts may be assumed by Sellers and assigned to Buyer in accordance with the provisions of Section 365 of the Bankruptcy Code and this Agreement. Each Seller agrees that it will promptly take such actions as are reasonably necessary or desirable to obtain a Final Order of the Bankruptcy Court providing for the assumption and assignment of the Assumed Contracts.

7.7 ERISA and Employment Matters. Buyer shall offer employment, effective as of the Closing Date, to the Identified Employees on such terms as Buyer shall determine in its sole discretion. Seller shall terminate the employment of all Hired Non-CB Employees immediately prior to the Closing Date and shall comply with any and all requirements of the WARN Act in connection therewith. Each Identified Employee who accepts Buyer's offer of employment shall be deemed to be a "Hired Non-CB Employee" on the day such employee commences active employment with Buyer (not earlier than the Closing Date). With respect to Buyer's medical insurance coverage benefit plans, such plans shall (i) provide coverage to each Hired Non-CB Employee as of the day such employee commences active employment with Buyer and (ii) waive pre-existing condition limitations to the same extent waived under the applicable plan of Buyer, except that the benefits under such plans, including any new plans, may be adjusted or limited to take into account similar benefits provided under any federal or state assistance programs, subject to applicable Law.

7.8 Further Agreements. Sellers shall use all commercially reasonable efforts to promptly deliver to Buyer any mail or other communication received by Sellers after the Closing Date pertaining to the Acquired Assets, the Business or the Assumed Liabilities. Buyer shall use all commercially reasonable efforts to promptly deliver to Sellers any mail or other communication received by it after the Closing Date pertaining to the Excluded Assets or any Excluded Liabilities and any cash, checks or other instruments of payment in respect thereof. From and after the Closing Date, Sellers shall use all commercially reasonable efforts to refer all inquiries with respect to the Business, the Acquired Assets and the Assumed Liabilities to Buyer, and Buyer shall use all commercially reasonable efforts to refer all inquiries with respect to the Excluded Assets and the Excluded Liabilities to Sellers.

7.9 Payment of Transfer Taxes and Tax Filings. All Transfer Taxes arising out of the transfer of the Assets and any Transfer Taxes required to effect any recording or filing with respect thereto shall be borne one-half by Buyer and one-half by Sellers. The Transfer Taxes

shall be calculated assuming that no exemption from Transfer Taxes is available, unless otherwise indicated in the Bankruptcy Court Approval or, at Closing, Sellers or Buyer, as appropriate, provides an appropriate resale exemption certificate or other evidence acceptable to Buyer or Seller, as appropriate, of exemption from such Transfer Taxes. Sellers and Buyer shall cooperate to timely prepare and file any Tax Returns relating to such Transfer Taxes, including any claim for exemption or exclusion from the application or imposition of any Transfer Taxes. Sellers shall pay such Transfer Taxes and shall file all necessary documentation and returns with respect to such Transfer Taxes when due, and shall promptly, following the filing thereof, furnish a copy of such return or other filing and a copy of a receipt showing payment of any such Transfer Tax to Buyer. Notwithstanding the foregoing, the parties shall seek to include in the Bankruptcy Court Approval a provision that the sale, transfer, assignment and conveyance of the Acquired Assets to Buyer hereunder shall be entitled to the protections afforded under Section 1146(c) of the Bankruptcy Code. Each party hereto shall furnish or cause to be furnished to the other, upon request, as promptly as practicable, such information and assistance relating to the Assets and the Business as is reasonably necessary for filing of all Tax Returns, including any claim for exemption or exclusion from the application or imposition of any Taxes or making of any election related to Taxes, the preparation for any audit by any taxing authority and the prosecution or defense of any claim, suit or proceeding relating to any Tax Return.

7.10 Utilities. To the extent practicable, the parties hereto shall notify the gas, water, sewage treatment, telephone and electric utility companies that Buyer shall be responsible for the payment of all obligations of the Business or the Acquired Assets incurred therefor on or after the Closing Date. Sellers shall request the gas, water and electric utility companies to cause meters to be read as of the Closing Date, and Sellers shall be responsible for the payment of all charges for such services incurred and provided through the Closing Date. Sellers shall cause the telephone companies to render a bill for telephone service incurred through the Closing Date, and Sellers shall be responsible for the payment of such bills. In the event that after the Closing Date, any provider of phone, gas, water or electric utilities seeks payment from Buyer of unpaid phone, gas, water or electric utilities provided to Sellers on or prior to the Closing Date, Sellers shall pay such unpaid amounts as promptly as is required (after reasonable Notice from Buyer) to avoid any discontinuation of utility service to Buyer. To the extent that Buyer pays such unpaid amounts, Sellers shall promptly reimburse Buyer for the cost of such payments; provided, however, Sellers shall not be obligated to reimburse Buyer for any such amounts included in Accounts Payable for purposes of the Working Capital Adjustment.

7.11 Proration of Taxes and Certain Charges.

(a) Except as otherwise expressly provided herein, all real property Taxes, personal property Taxes or similar ad valorem obligations levied with respect to the Acquired Assets for any taxable period that includes the day before the Closing Date and ends after the Closing Date, whether imposed or assessed before or after the Closing Date, shall be prorated between Sellers and Buyer as of 12:01 A.M. on the Closing Date. If any Taxes subject to proration are paid by Buyer, on the one hand, or Sellers, on the other hand, the proportionate amount of such Taxes paid (or in the event a refund of any portion of such Taxes previously paid is received, such refund) shall be paid promptly by (or to) the other after the payment of such Taxes (or promptly following the receipt of any such refund); provided, however, Sellers shall

not be obligated to reimburse Buyer for any such amounts included in Accounts Payable for purposes of the Working Capital Adjustment.

(b) Except as otherwise expressly provided herein, all installments of special assessments or other charges on or with respect to the Acquired Assets payable by Sellers for any period in which the Closing Date shall occur, including base rent, common area maintenance, royalties, all municipal, utility or authority charges for water, sewer, electric or gas charges, garbage or waste removal, and cost of fuel, shall be apportioned as of the Closing Date and each party shall pay its proportionate share promptly upon the receipt of any bill, statement or other charge with respect thereto. If such charges or rates are assessed either based upon time or for a specified period, such charges or rates shall be prorated as of 12:01 A.M. on the Closing Date. If such charges or rates are assessed based upon usage of utility or similar services, such charges shall be prorated based upon meter readings taken on the Closing Date.

(c) Except as otherwise expressly provided herein, all amounts due pursuant to the terms of the Assumed Contracts, other than those Contracts set forth on Schedule 3.4(a) attached hereto, for any period in which the Closing Date shall occur shall be prorated as of 12:01 A.M. on the Closing Date.

(d) If any amounts subject to proration pursuant to subsections (b) or (c) of this Section 7.11 are paid by Buyer, on the one hand, or Sellers, on the other hand, the other party shall promptly reimburse the payor the other party's proportionate amount of such payment; provided, however, Sellers shall not be obligated to reimburse Buyer for any such amounts included in Accounts Payable for purposes of the Working Capital Adjustment.

7.12 Regulatory Approvals; Reasonable Efforts; Notification; Consent.

(a) Each of the parties will use all reasonable efforts to take, or cause to be taken, all actions and use all reasonable efforts to do, or cause to be done, and to assist and cooperate with the other parties in doing, all things necessary, proper or advisable to consummate and make effective, in the most expeditious manner practicable, the transactions contemplated by this Agreement, including (i) the obtaining of all other necessary actions, nonactions, waivers, and Permits from Governmental Entities and the making of all other necessary registrations and filings (including filings under the HSR Act), (ii) the obtaining of all necessary consents, approvals or waivers from third parties, and (iii) the execution and delivery of any additional certificates, agreements, instruments, reports, schedules, statements, consents, documents and information necessary to consummate the transactions contemplated by this Agreement.

(b) Except as required by Law, each party hereto shall promptly inform the other of any communication from any Governmental Entity regarding any of the transactions contemplated by this Agreement. If any party hereto or Affiliate thereof receives a request for additional information or documentary material from any such Government Entity with respect to the transactions contemplated by this Agreement, then such party will use its reasonable efforts to make, or cause to be made, as soon as reasonably practicable and after consultation with the other party, an appropriate response in compliance with such request. Each party hereto

shall bear its respective filing fees associated with the filings required under the HSR Act or under any Antitrust Law.

(c) Neither Buyer nor any of its Subsidiaries shall be required to (A) divest, or cause or permit the Company or its Subsidiaries or Affiliates to divest, any of their respective businesses, product lines or assets, (B) hold the Acquired Assets separately, or (C) take or agree to take any other actions or agree to any limitations that, individually or in the aggregate, could reasonably be expected to have a Material Adverse Effect or an adverse effect on the value, financial condition, business or results of operations of Buyer or its pre-closing Subsidiaries that would be material to an entity having assets, liabilities, revenues and earnings similar in amount to those of the Company. Buyer shall not be required to waive any of the conditions to this Agreement set forth in Article 8.

7.13 [Removed]

7.14 Rejected Contracts. No Seller shall reject any Assumed Contract in any bankruptcy proceeding following the date hereof without the prior written consent of the Buyer.

7.15 Further Assurances. Subject to the terms and conditions herein provided, following the Closing Date, Sellers shall execute and deliver to Buyer such bills of sale, endorsements, assignments and other good and sufficient instruments of assignment, transfer and conveyance, in form and substance reasonably satisfactory to Buyer, as shall be necessary to vest in Buyer all of Sellers' right, title and interest in and to the Acquired Assets. Simultaneously with such delivery, Sellers shall take such reasonable steps as may be reasonably necessary or appropriate at and after the Closing, so that Buyer shall be placed in actual possession and operating control of the Acquired Assets. Sellers shall, and shall cause their respective Affiliates to, provide copies or otherwise make available to Buyer and Buyer's Representatives, all information and records (financial and otherwise) relating to, or otherwise used or useful in the Business, and not otherwise included in the Acquired Assets.

7.16 Union Negotiations. Buyer and the United Steelworkers of America have entered into a letter of agreement (the "Letter of Agreement") which includes a tentative collective bargaining agreement including those items set forth on Schedule 7.16. Buyer and the International Chemical Workers Union have entered into a tentative collective bargaining agreement including those items set forth on Schedule 7.16. Buyer agrees that it shall use all reasonable efforts to propose collective bargaining agreements and initiate negotiations of such collective bargaining agreements with each of the Security, Police, Fire Professionals of America International Union, the Bricklayers & Allied Craftworkers International Union and the Laborers' International Union of North America and shall keep the Company reasonably informed of the progress of any such negotiations.

7.17 Closing Financial Certificate. The Company shall prepare, in good faith, and deliver to Buyer, at least three Business Days prior to the Closing Date, a certificate signed by the Company's Chief Executive Officer and Chief Financial Officer (the "Closing Financial Certificate") setting forth the Estimated Net Receivables Amount and the Estimated Inventory Value.

7.18 Transition Services Agreement. Each of Buyer and the Company shall use all reasonable efforts to negotiate a mutually satisfactory transition services agreement, pursuant to which Buyer or one of its Affiliates shall provide, in exchange for payment therefor, specified services to the Company (the "Transition Services Agreement"), to be entered into as of the Closing Date. The Transition Services Agreement shall not obligate Buyer to be responsible for any Excluded Liabilities.

7.19 Credit Support Arrangements. Buyer acknowledges that, in the course of the conduct of the Business by Sellers, Sellers have entered into various arrangements (the "Seller Credit Support Arrangements"), including letters of credit, guaranty, surety and other similar obligations (all as set forth on Schedule 2.2(k)). Buyer and Sellers agree that the Seller Credit Support Arrangements are not intended to inure to the benefit of Buyer after the Closing and that Sellers intend to monetize the Seller Credit Support Arrangements after the Closing. Buyer agrees that Sellers shall have no responsibility to continue any of the Seller Credit Support Arrangements in order to satisfy obligations with respect to the Business and the Acquired Assets arising after the Closing Date. Buyer agrees that, to the extent that the Seller Credit Support Arrangements serve to secure performance of obligations relating to the Business or the Acquired Assets which arise after the Closing, Buyer will enter into replacement credit support arrangements if and as necessary to secure such post-Closing obligations. Sellers and Buyer agree that: (i) Sellers are solely responsible for all workers' compensation claims with respect to injuries or other occurrences which occur prior to the Closing, and Buyer shall have no obligation to enter into replacement credit support arrangements to the extent they relate to such obligations; and (ii) Buyer shall be solely responsible for all workers' compensation claims with respect to injuries or other occurrences which occur after the Closing, and Buyer will enter into credit support arrangements if and as necessary to the extent they relate to such obligations. In addition, Buyer agrees to cooperate with Sellers to enable Sellers to monetize the Seller Credit Support Arrangements for which Buyer is not required to enter into replacement credit support arrangements in accordance with the immediately preceding two sentences. Seller shall reimburse Buyer for reasonable out-of-pocket expenses of Buyer in connection with such cooperation, it being understood that such cooperation will not include any obligation to pay the counterparties to such Seller Credit Support Arrangements.

ARTICLE 8
CONDITIONS TO OBLIGATIONS OF THE PARTIES

8.1 Conditions Precedent to Obligations of Buyer. The obligation of Buyer to consummate the transactions contemplated by this Agreement is subject to the satisfaction (or waiver by Buyer in Buyer's sole discretion) at or prior to the Closing Date of each of the following conditions:

(a) Accuracy of Representations and Warranties. Each of the representations and warranties of Sellers contained herein shall be true and correct in all material respects on the date hereof and shall be true and correct in all respects on and as of the Closing Date, with the same force and effect as though such representations and warranties had been made on and as of the Closing Date, except to the extent that any such representation or warranty is expressly made as of a specified date, in which case such representation or warranty shall have been true and correct as of such date; provided, however, that the failure of any such representations or

warranties to be true and correct on and as of the Closing Date shall not constitute a basis for Buyer to refuse to consummate the transactions contemplated hereby unless such failure, either individually or in the aggregate, has resulted in or would reasonably be expected to result in, a Material Adverse Effect; provided, further, that for the purposes of this Section 8.1(a), all references to materiality in Article 5 shall be disregarded.

(b) Performance of Obligations. Sellers shall have performed in all material respects all obligations and agreements contained in this Agreement required to be performed by them on or prior to the Closing Date.

(c) Officer's Certificate. Buyer shall have received a certificate, dated the Closing Date, of an executive officer of each Seller to the effect that the conditions specified in Sections 8.1(a) and (b) above have been fulfilled.

(d) Bankruptcy Court Approval. The Bankruptcy Court shall have entered an order or orders (the "Bankruptcy Court Approval") substantially in the form set forth in Exhibit G hereto, which, among other things, (i) approves, pursuant to Sections 105, 363 and 365 of the Bankruptcy Code, (A) the execution, delivery and performance by Sellers of this Agreement, including each and every term and condition hereof, and the other instruments and agreements contemplated hereby, (B) the sale of the Assets to Buyer on the terms set forth herein, and (C) the performance by Sellers of their respective obligations under this Agreement; (ii) authorizes and directs the Sellers to assume and assign to Buyer the Assumed Contracts; and (iii) finds that Buyer is a "good faith" buyer within the meaning of Section 363(m) of the Bankruptcy Code. The Bankruptcy Court Approval shall be in full force and effect and shall not have been stayed, enjoined or modified. Sellers shall have delivered to Buyer (i) a certified copy of the order or orders providing for Bankruptcy Court Approval, and (ii) copies of all affidavits of service of Sellers' motion seeking Bankruptcy Court Approval or notice of such motion filed by or on behalf of Sellers.

(e) Assumed Contracts. All of the material Assumed Contracts shall (i) be in full force and effect and assignable to and assumable by Buyer without the consent of the other party thereto or consent thereto shall have been obtained, and (ii) have had all of any Seller's breaches and defaults thereunder cured in accordance with Section 7.6 hereof.

(f) No Material Adverse Change.

(i) Since December 31, 2002, no event, occurrence, fact, condition, change, development or effect shall have occurred or shall exist that, individually or in the aggregate, has had or would reasonably be expected to have a Material Adverse Effect on the Company and Sellers, taken as a whole.

(ii) For the three-month period ending on the last day of the month immediately preceding the Closing Date:

(A) the aggregate revenues from coated steel shipped to the automotive market from the Company and its Subsidiaries shall not be less than $95 million; and

(B) the aggregate revenues from chrome, tin and blackplate shipped to the container market from the Company and its Subsidiaries shall not be less than $65 million.

(g) No Intercompany Indebtedness; No Liens. Each of Delray Connecting Railroad Company, Double G Coatings, L.P., Double G Coatings, Inc. and Steel Health Resources, LLC shall have been released from its obligation to repay indebtedness owing at or accruing prior to Closing to the Company or any of its Subsidiaries and no indebtedness of any Seller to the Company or any of its Subsidiaries shall give rise to or increase an Assumed Liability. The assets of Delray Connecting Railroad Company shall be free and clear of all Liens (other than Permitted Liens).

(h) No Violation of Orders. No provisions of any applicable Law or Order enacted, entered, promulgated, enforced or issued by any Governmental Entity shall be in effect that (i) prevents the sale and purchase of the Acquired Assets or any of the other transactions contemplated by this Agreement, (ii) would adversely affect or interfere with the operation of the Business as contemplated to be conducted after the Closing in a manner that would reasonably be expected to constitute a Material Adverse Effect, or (iii) would require Buyer or any of its Affiliates to sell or otherwise dispose of, hold separate or otherwise divest itself of, any of the Acquired Assets or any of the assets, properties or business of Buyer or any of its Affiliates.

(i) HSR Act. Any applicable waiting period under the HSR Act or any other applicable Antitrust Laws, in each case, if required, shall have expired or shall have been earlier terminated, and all necessary approvals under all applicable Antitrust Laws shall have been obtained.

(j) Title Insurance. At Buyer's sole cost and expense, a title insurance company acceptable to Buyer in its sole discretion shall have issued a commitment to issue to Buyer an ALTA (or local equivalent) owner's coverage policy of title insurance for each of the properties described on Schedule 2.1(a)-1, insuring the interest to be acquired by Buyer in each property, subject only to standard survey exceptions and Permitted Liens, and in each case in an amount acceptable to Buyer in its sole discretion, but in no event in an amount greater than the fair market value of each property.

(k) Transition Services Agreement. The Company shall have executed and delivered to Buyer the Transition Services Agreement.

(l) Headquarters Lease. The Company shall have executed and delivered to Buyer the Headquarters Lease.

(m) Trademark License Agreement. The Company shall have executed and delivered to Buyer the Trademark License Agreement.

(n) Closing Financial Certificate. The Company shall have delivered to Buyer the duly executed Closing Financial Certificate.

8.2 Conditions Precedent to the Obligations of Sellers. The obligation of Sellers to consummate the transactions contemplated by this Agreement is subject to the satisfaction (or waiver by Seller) at or prior to the Closing Date of each of the following conditions:

(a) Accuracy of Representations and Warranties. The representations and warranties of Buyer contained herein shall be true and correct in all material respects on the date hereof in and shall be true and correct in all respects on and as of the Closing Date. with the same force and effect as though such representations and warranties had been made on and as of the Closing Date, except to the extent that any such representations or warranty is made as of a specified date, in which case such representation or warranty shall have been true and correct as of such date; provided, however, that the failure of any such representations or warranties to be true and correct on and as of the Closing Date shall not constitute a basis for Sellers to refuse to consummate the transactions contemplated hereby unless such failure, either individually or in the aggregate, has resulted in or would reasonably be expected to result in, a Buyer Material Adverse Effect; provided, further, that for the purposes of this Section 8.2(a), all references to materiality in Article 6 shall be disregarded; and provided, further, that for the purposes of the indemnification provision in Section 10.2(a), the references to materiality and Buyer Material Adverse Effect in this Section 8.2(a) shall be disregarded.

(b) Performance of Obligations. Buyer shall have performed in all material respects all obligations and agreements contained in this Agreement required to be performed by it prior to or on the Closing Date.

(c) Officer's Certificate. Sellers shall have received a certificate, dated the Closing Date, of an officer of Buyer to the effect that the conditions specified in Sections 8.2(a) and (b) above have been fulfilled.

(d) Bankruptcy Court Approval. The Bankruptcy Court Approval shall be in full force and effect and shall not have been stayed, enjoined or modified.

(e) No Injunction. No preliminary or permanent injunction or other Order issued by, and no Proceeding or Order by or before any Governmental Entity nor any Law or Order promulgated or enacted by any Governmental Entity shall be in effect or pending which declares this Agreement invalid or unenforceable in any respect or which materially delays, restrains, enjoins or otherwise prohibits or seeks to restrain, enjoin or otherwise prohibit the transactions contemplated hereby.

(f) HSR Act. Any applicable waiting period under the HSR Act or any other applicable Antitrust Laws, in each case, if required, shall have expired or shall have been earlier terminated, and all necessary approvals under all applicable Antitrust Laws shall have been obtained.

(g) Transition Services Agreement. Buyer shall have executed and delivered to Sellers the Transition Services Agreement.

(h) Headquarters Lease. Buyer shall have executed and delivered to Sellers the Headquarters Lease.

(i) Trademark License Agreement. Buyer shall have executed and delivered to Sellers the Trademark License Agreement.

ARTICLE 9
TERMINATION

9.1 Termination of Agreement. This Agreement may be terminated and the transactions contemplated hereby abandoned at any time prior to the Closing:

(a) by written agreement of the Company and Buyer;

(b) by either Buyer or the Company:

(i) if the Closing shall not have occurred on or before the date that is the earliest of (x) May 21, 2003; and (y) twenty-two Business Days following the entry of the Bankruptcy Court Approval; provided, however, that the terminating party is not in material and willful breach of any of its representations and warranties contained in this Agreement and has not failed in any material respect to perform any of its obligations hereunder; or

(ii) if there shall be any Law or regulation that makes consummation of the transactions contemplated hereby illegal or otherwise prohibited, or if any judgment, injunction, order or decree permanently restraining, prohibiting or enjoining Buyer or the Company from consummating the transactions contemplated hereby is entered and such judgment, injunction, order or decree shall become final;

(c) by Buyer:

(i) if there shall have been a breach by any Seller of any of its representations, warranties, covenants or agreements contained in this Agreement, which breach would result in the failure to satisfy one or more of the conditions set forth in Section 8.1, and such breach shall be incapable of being cured or, if capable of being cured, shall not have been cured within 15 days after written Notice thereof shall have been received by the Company; or

(ii) if (A) the Bankruptcy Court Approval shall not have been entered on or before April 22, 2003 or (B) the Bankruptcy Court Approval shall fail to be in full force and effect or shall have been stayed, enjoined, reversed, modified or amended in any respect without the prior written consent of Buyer; or

(d) by the Company if there shall have been a breach by Buyer of any of its representations, warranties, covenants or agreements contained in this Agreement, which breach would result in the failure to satisfy one or more of the conditions set forth in Section 8.2, and such breach shall be incapable of being cured or, if capable of being cured, shall not have been cured within 15 days after written Notice thereof shall have been received by Buyer.

9.2 Consequences of Termination. In the event of any termination of this Agreement by either or both of Buyer and the Company pursuant to Section 9.1, written Notice thereof shall forthwith be given by the terminating party to the other party hereto, specifying the provision hereof pursuant to which such termination is made, and this Agreement shall thereupon terminate

and become void and of no further force and effect, and the transactions contemplated hereby shall be abandoned without further action of the parties hereto; provided, however, that such termination shall not relieve any party hereto of any Liability for willful breach of this Agreement.

ARTICLE 10
INDEMNIFICATION

10.1 Indemnification of Buyer. [Removed.]

10.2 Indemnification of Sellers. Buyer hereby agrees to indemnify and hold harmless each Seller, its officers, directors, employees, agents and Affiliates (the "Seller Indemnitees") from and against, and pay or reimburse the Seller Indemnitees for, any and all Liabilities, losses, claims, damages, punitive damages, causes of action, lawsuits, administrative proceedings (including informal proceedings), investigations, audits, demands, assessments, adjustments, judgments, settlement payments, deficiencies, penalties, fines, interest (including interest from the date of such damages) and costs and expenses (including without limitation reasonable attorneys' fees and disbursements of every kind, nature and description) (collectively, "Losses") resulting from or arising out of:

(a) the inaccuracy of any representation or warranty made by Buyer herein or in any certificate delivered pursuant to this Agreement;

(b) any failure of Buyer to perform any covenant or agreement made or contained in this Agreement or to fulfill any other obligation in respect hereof;

(c) the Assumed Liabilities; and

(d) Liabilities with respect to, arising out of or relating to, the ownership, possession or use of the Acquired Assets and the operation of the Business on or after the Closing Date.

10.3 Indemnification Procedures.

(a) In order for a Seller Indemnitee (an "Indemnified Party") to be entitled to any indemnification provided for under this Agreement in respect of, arising out of or involving a claim or demand made by any person or entity against the Indemnified Party (a "Third Party Claim"), such Indemnified Party must notify the parties obligated to provide indemnification pursuant to Section 10.2 hereof (each, an "Indemnifying Party") in writing, and in reasonable detail, of the Third Party Claim promptly after receipt by such Indemnified Party of written Notice of the Third Party Claim; provided, however, that failure to give any Notice or make any deliveries required under this Article 10 shall not affect the indemnification provided hereunder except to the extent the Indemnifying Party shall have been actually prejudiced as a result of such failure. Such notice shall state the nature and the basis of such claim and, if estimable, a reasonable estimate of the amount thereof. Thereafter, the Indemnified Party shall deliver to the Indemnifying Party, promptly after the Indemnified Party's receipt thereof, copies of all notices and documents (including court papers) received by the Indemnified Party relating to the Third Party Claim.

(b) The Indemnifying Party shall have the right to defend and settle, at its own expense and by its own counsel (provided that such counsel is not reasonably objected to by the Indemnified Party), any Third Party Claim; provided that, and for so long as, the Indemnifying Party pursues the same in good faith and diligently. If the Indemnifying Party undertakes to defend or settle, it shall promptly notify the Indemnified Party of its intention to do so, and the Indemnified Party shall cooperate with the Indemnifying Party and its counsel in the defense thereof and in any settlement thereof. Such cooperation shall include, but shall not be limited to, furnishing the Indemnifying Party with any books, records or information reasonably requested by the Indemnifying Party that are in the Indemnified Party's possession or control and making employees of the Indemnified Party available on a mutually convenient basis to provide additional information and explanation of any materials provided hereunder. Notwithstanding the foregoing, the Indemnified Party shall have the right to participate in any matter through counsel of its own choosing at its own expense (unless there is a conflict of interest that prevents counsel for the Indemnifying Party from representing the Indemnified Party, in which case the Indemnifying Party will reimburse the Indemnified Party for the reasonable expenses of its counsel). After the Indemnifying Party has notified the Indemnified Party of its intention to undertake to defend or settle any such asserted liability, and for so long as the Indemnifying Party diligently pursues such defense, the Indemnifying Party shall not be liable for any additional legal expenses incurred by the Indemnified Party in connection with any defense or settlement of such asserted liability, except to the extent such participation is requested by the Indemnifying Party, in which event the Indemnified Party shall be reimbursed by the Indemnifying Party for reasonable additional legal expenses and out-of-pocket expenses.

(c) No Indemnifying Party shall, without the written consent of the Indemnified Party, effect the settlement or compromise of, or consent to entry of any judgment with respect to, any pending or threatened action or claim in respect of which indemnification or contribution may be sought hereunder (whether or not the Indemnified Party is an actual or potential party to such action or claim) unless such settlement, compromise or judgment (i) includes an unconditional release of the Indemnified Party from all Liability arising out of such action or claim, (ii) does not include a statement as to, or an admission of, fault, culpability or a failure to act by or on behalf of any Indemnified Party, and (iii) does not include any injunctive or non-monetary relief.

(d) If the Indemnifying Party does not assume the defense of any Third Party Claim, then the Indemnified Party may defend against such Third Party Claim in such manner as it reasonably deems appropriate at the expense of the Indemnifying Party.

(e) Notice given by Buyer to the Company shall constitute valid Notice to all Seller Indemnitees, and with respect to any Third Party Claim with respect to which more than one Seller Indemnitee is an indemnified party or a potential indemnified party, all such Seller Indemnitees shall select a single Seller Indemnitee to act as representative for all such Seller Indemnitees with respect to such Third Party Claim, and (i) such representative shall be authorized to make authorizations and consents on behalf of each such Seller Indemnitee, and (ii) Buyer shall, with respect to all matters relating to such Third Party Claim, be entitled to rely on the statements, authorizations and consents of such representative as being the statement, authorization or consent of each such Seller Indemnitee.

(f) In the event an Indemnified Party has indemnification claim against any Indemnifying Party under the Agreement that does not involve a Third Party Claim being asserted against or sought to be collected from such Indemnified Party, the Indemnified Party shall deliver Notice of such claim with reasonable promptness to the Indemnifying Party. The failure by any Indemnified Party so to notify the Indemnifying Party shall not relieve the Indemnifying Party from any liability that it may have to such Indemnified Party, except to the extent that the Indemnifying Party has been actually prejudiced by such failure. Such notice shall state the nature and the basis of such claim, and, if estimable, a reasonable estimate of the amount thereof. If the Indemnifying Party notifies the Indemnified Party that it does not dispute the claim described in such Notice or does not respond to such claim within 60 days of receipt thereof, the Loss arising from the claim specified in such Notice will be conclusively deemed a liability of the Indemnifying Party and the Indemnifying Party shall pay the amount of such Loss to the Indemnified Party on demand following the final determination thereof. In the event of any dispute of a claim, the Indemnifying Party and the Indemnified Party will proceed in good faith to negotiate a resolution of such dispute, and if not resolved through negotiations within a period of thirty (30) days, such dispute shall be resolved by litigation in a court of competent jurisdiction.

10.4 Survival of Representations and Warranties; Sellers' Liability. The representations and warranties made in this Agreement shall survive until the Closing Date and not beyond such date and shall not be extinguished by any investigation made by or on behalf of any party hereto. In no event shall Sellers' liability for breach of this Agreement, whether any claim or cause of action asserted as the basis for such liability arises under contract, in tort or otherwise, exceed $25 million in the aggregate.

10.5 Termination of Indemnification. The obligations to indemnify and hold harmless any party pursuant to Section 10.2 shall terminate on the date that is 12 months after the Closing Date (the "Indemnity Termination Date"). If, prior to the Indemnity Termination Date, an Indemnified Party shall have given notice to the Indemnifying Party of a claim for indemnification then the right to indemnification with respect to such claim shall remain in effect without regard to when such matter shall have been finally determined.

10.6 Limitations on Indemnification. The indemnification provided for in Section 10.2 shall be subject to the following limitations:

(a) Buyer shall not be obligated to pay any amounts for indemnification under Section 10.2(a) until the aggregate indemnification payments equal $1.25 million (the "Basket Amount"), whereupon Buyer shall be obligated to pay all amounts in excess of the Basket Amount up to $25 million. Buyer shall be obligated to pay any amounts for indemnification under Sections 10.2(b) and 10.2(c) from the first dollar of Loss in full up to $25 million.

(b) In no event shall Buyer's indemnification obligations under this Agreement exceed $25 million.

(c) The indemnification provided for in this Article 10 shall be the exclusive right and remedy of Sellers with respect to any claim or cause of action based upon, relating to or arising out of this Agreement or otherwise in respect of the transactions contemplated hereby,

whether such claim or cause of action arises out of any contract, tort or otherwise and no such claim or cause of action shall be enforceable unless made in accordance with the procedures, and within the time periods, set forth in this Article 10. Notwithstanding the foregoing sentence, and the second sentence of Section 10.4, either party shall be entitled to any additional remedies that may be available under law or equity for a breach of a representation or warranty to the extent such party can demonstrate fraud or willful or knowing misrepresentation by the other party in a non-appealable final action before a court of competent jurisdiction.

ARTICLE 11
MISCELLANEOUS

11.1 Expenses. Except as set forth in this Agreement and whether or not the transactions contemplated hereby are consummated, each party hereto shall bear all costs and expenses incurred or to be incurred by such party in connection with this Agreement and the consummation of the transactions contemplated hereby. As between Buyer and Sellers, Sellers shall bear all costs of any Persons (other than Buyer, its agents or Affiliates), entitled to reimbursement by the Bankruptcy Court.

11.2 Assignment. Neither this Agreement nor any of the rights or obligations hereunder may be assigned by Sellers without the prior written consent of Buyer, or by Buyer without the prior written consent of Sellers, provided, that Buyer may assign its rights hereunder to one or more wholly-owned Subsidiaries of Buyer, which assignment shall not relieve Buyer of its obligation hereunder. Subject to the foregoing, this Agreement shall be binding upon and inure to the benefit of the parties hereto and their respective successors and assigns.

11.3 Parties in Interest. This Agreement shall be binding upon and inure solely to the benefit of Seller and Buyer, and nothing in this Agreement, express or implied, is intended to or shall confer upon any other Person any rights, benefits or remedies of any nature whatsoever under or by reason of this Agreement except as expressly set forth herein. Without limiting the foregoing, no direct or indirect holder of any equity interests or securities of either Seller or Buyer (whether such holder is a limited or general partner, member, stockholder or otherwise), nor any Affiliate of either Seller or Buyer, nor any Representative, or controlling Person of each of the parties hereto and their respective Affiliates, shall have any liability or obligation arising under this Agreement or the transactions contemplated hereby.

11.4 Notices. All notices, demands, requests, consents, approvals or other communications (collectively, "Notices") required or permitted to be given hereunder or that are given with respect to this Agreement shall be in writing and shall be personally served, delivered by a nationally recognized overnight delivery service with charges prepaid, or transmitted by hand delivery, or facsimile, addressed as set forth below, or to such other address as such party shall have specified most recently by written Notice. Notice shall be deemed given on the date of service or transmission if personally served or transmitted by facsimile with confirmation of receipt; provided, that if delivered or transmitted on a day other than a Business Day or after normal business hours, notice shall be deemed given on the next Business Day. Notice otherwise sent as provided herein shall be deemed given on the next Business Day following timely deposit of such Notice with an overnight delivery service:

If to any Seller:

National Steel Corporation
4100 Edison Lakes Parkway
Mishawaka, IN 46545
Attention: Kirk Sobecki
Senior Vice President and Chief Financial Officer
Tel: 574.273.7444
Fax: 574.273.7868

With copies to:

National Steel Corporation
4100 Edison Lakes Parkway
Mishawaka, IN 46545
Attention: Ronald J. Werhnyak
Senior Vice President,
General Counsel and Secretary
Tel: 574.273.7601
Fax: 574.273.7868

and

Skadden, Arps, Slate, Meagher & Flom (Illinois)
333 West Wacker Drive
Chicago, IL 60606
Attention: Gary P. Cullen, Esq.
Timothy R. Pohl, Esq.
Telephone: 312.407.0700
Fax: 312.407.0411

If to Buyer:

United States Steel Corporation
600 Grant Street
Pittsburgh, PA 15219
Attention: John P. Surma
President
Tel: 412.433.1146
Fax: 412.433.1167

With copies to:

United States Steel Corporation
600 Grant Street
Pittsburgh, PA 15219
Attention: Robert M. Stanton
Assistant General Counsel
Tel: 412.433.2877
Fax: 412.433.1145

and

Morgan, Lewis & Bockius LLP
301 Grant Street, Thirty-Second Floor
Pittsburgh, PA 15219
Attention: Marlee S. Myers, Esq.
Tel: 412.560.3300
Fax: 412.560.3399

Rejection of or refusal to accept any Notice, or the inability to deliver any Notice because of changed address of which no Notice was given, shall be deemed to be receipt of the Notice as of the date of such rejection, refusal or inability to deliver.

11.5 Choice of Law. This Agreement shall be construed and interpreted, and the rights of the parties shall be determined, in accordance with the substantive laws of the State of Delaware, without giving effect to any provision thereof that would require the application of the substantive laws of any other jurisdiction, except to the extent that such laws are superseded by the Bankruptcy Code.

11.6 Entire Agreement; Amendments and Waivers. This Agreement, the Confidentiality Agreement and all agreements entered into pursuant hereto and all certificates and instruments delivered pursuant hereto and thereto constitute the entire agreement between the parties hereto pertaining to the subject matter hereof and supersede all prior agreements, understandings, negotiations, and discussions, whether oral or written, of the parties. This Agreement may be amended, supplemented or modified, and any of the terms, covenants, representations, warranties or conditions may be waived, only by a written instrument executed by the Buyer and the Company, or in the case of a waiver, by the party waiving compliance. No waiver of any of the provisions of this Agreement shall be deemed or shall constitute a waiver of any other provision hereof (whether or not similar), and no such waiver shall constitute a continuing waiver unless otherwise expressly provided.

11.7 Counterparts. This Agreement may be executed in two or more counterparts, each of which shall be deemed an original, and all of which together shall constitute one and the same instrument. Counterparts to this Agreement may be delivered via facsimile. In proving this Agreement, it shall not be necessary to produce or account for more than one such counterpart signed by the party against whom enforcement is sought.

11.8 Invalidity. If any one or more of the provisions contained in this Agreement or in any other instrument referred to herein, shall, for any reason, be held to be invalid, illegal or unenforceable in any respect, the parties shall use their reasonable efforts, including the amendment of this Agreement, to ensure that this Agreement shall reflect as closely as practicable the intent of the parties hereto on the date hereof.

11.9 Headings. The table of contents and the headings of the Articles and Sections herein are inserted for convenience of reference only and are not intended to be a part of, or to affect the meaning or interpretation of, this Agreement.

11.10 Exclusive Jurisdiction. Without limiting any party's right to appeal any order of the Bankruptcy Court, (a) the Bankruptcy Court shall retain exclusive jurisdiction to enforce the terms of this Agreement and to decide (insofar as they relate to Sellers) any claims or disputes

which may arise or result from, or be connected with, this Agreement, any breach or default hereunder, or the transactions contemplated hereby, and (b) any and all claims, actions, causes of action, suits and proceedings related to the foregoing shall be filed and maintained only in the Bankruptcy Court, and the parties hereby consent to and submit to the jurisdiction and venue of the Bankruptcy Court and shall receive Notices at such locations as indicated in Section 11.4.

11.11 WAIVER OF RIGHT TO TRIAL BY JURY. SELLERS AND BUYER HEREBY WAIVE TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW ANY RIGHT THEY MAY HAVE TO A TRIAL BY JURY IN RESPECT OF ANY PROCEEDING DIRECTLY OR INDIRECTLY ARISING OUT OF OR IN CONNECTION WITH THIS AGREEMENT OR THE TRANSACTIONS CONTEMPLATED HEREBY (WHETHER BASED ON CONTRACT, TORT OR ANY OTHER THEORY).

11.12 Beneficiaries. Nothing in this Agreement, express or implied, is intended to confer upon any other Person any rights or remedies of any nature under or by reason of this Agreement, except as expressly provided herein.

11.13 Counting. If the due date for any action to be taken under this Agreement (including the delivery of Notices) is not a Business Day, then such action shall be considered timely taken if performed on or prior to the next Business Day following such due date.

11.14 Preparation of this Agreement. Buyer and Sellers hereby acknowledge that (i) Buyer and Sellers jointly and equally participated in the drafting of this Agreement and all other agreements contemplated hereby, (ii) Buyer and Sellers have been adequately represented and advised by legal counsel with respect to this Agreement and the transactions contemplated hereby, and (iii) no presumption shall be made that any provision of this Agreement shall be construed against either party by reason of such role in the drafting of this Agreement and any other agreement contemplated hereby.

[Remainder of Page Intentionally Left Blank]

IN WITNESS WHEREOF, this Asset Purchase Agreement has been duly executed and delivered by the duly authorized officers of Sellers and Buyer as of the date first above written.

UNITED STATES STEEL CORPORATION

By:_____
Name: John P. Surma
Title: President

NATIONAL STEEL CORPORATION

By:_____
Name: Mineo Shimura
Title: Chairman of the Board and Chief Executive Officer

D. W. PIPELINE COMPANY

By:_____
Name: Kirk A. Sobecki
Title: Vice President and Chief Financial Officer

GRANITE INTAKE CORPORATION

By:_____
Name: Kirk A. Sobecki
Title: Vice President and Chief Financial Officer

NATIONAL ACQUISITION CORPORATION

By:_____
Name: Kirk A. Sobecki
Title: Vice President and Chief Financial Officer

NATIONAL CASTER ACQUISITION CORPORATION

By:_____
Name: Kirk A. Sobecki
Title: Vice President and Chief Financial Officer

NATIONAL CASTER OPERATING COMPANY

By:_____
Name: Kirk A. Sobecki
Title: Vice President and Chief Financial Officer

NATIONAL CASTING CORPORATION

By:_____
Name: Kirk A. Sobecki
Title: Vice President and Chief Financial Officer

NATIONAL COATING LIMITED CORPORATION

By:_____
Name: Kirk A. Sobecki
Title: Vice President and Chief Financial Officer

NATIONAL COATING LINE CORPORATION

By:_____
Name: Kirk A. Sobecki
Title: Vice President and Chief Financial Officer

NATIONAL MATERIALS PROCUREMENT CORPORATION

By:_____
Name: Kirk A. Sobecki
Title: Vice President and Chief Financial Officer

NATIONAL PICKLE LINE CORPORATION

By:_____
Name: Kirk A. Sobecki
Title: Vice President and Chief Financial Officer

NS HOLDINGS CORPORATION

By:_____
Name: Kirk A. Sobecki
Title: Vice President and Chief Financial Officer

PROCOIL CORPORATION

By:_____
Name: Kirk A. Sobecki
Title: Vice President and Chief Financial Officer

NATIONAL STEEL PELLET COMPANY

By:_____
Name: Kirk A. Sobecki
Title: Vice President and Chief Financial Officer

HANNA ORE MINING COMPANY

By:_____
Name: Kirk A. Sobecki
Title: Vice President and Chief Financial Officer

Exhibit B

INTERCREDITOR SETTLEMENT TERMSHEET

Intercreditor Settlement Term Sheet

In consideration of the following agreements, the undersigned, by and through their counsel, hereby agree to withdraw (except as set forth below) any objections to the Debtors' Motion for Orders Pursuant to 11 U.S.C. §§ 105(a), 363, 365, 1145, and 1146(c) and Fed.R.Bankr.P. 2002, 6004, 6006 and 9014 (A) Authorizing and Approving (i) the Sale of Certain of the Debtors' Assets Free and Clear of Liens, Claims and Encumbrances, (ii) the Assumption and Assignment of Certain Executory Contracts and Unexpired Leases, (iii) the Assumption of Certain Liabilities, (iv) the Form and Manner of Sale Notices, and (v) Certain Sale Procedures, Including the Payment of a Break-Up Fee, and (B) Ordering that (i) the Securities Received by the Debtors Pursuant to the Sale are Exempt from Registration Under 11 U.S.C. § 1145 and (ii) the Sale is Exempt From Certain Taxes Pursuant to 11 U.S.C. § 1146, dated January 9, 2003 (the "Sale Motion"), and the Debtors' request for approval to enter into and consummate an asset purchase agreement with the Successful Bidder.[1]

I. **Settlement with First Mortgage Bondholders**

A. On the date on which the transactions contemplated by that certain Asset Purchase Agreement dated as of April 21, 2003 by and among United States Steel Corporation and National Steel Corporation and the Subsidiaries of National Steel Corporation Set Forth on the Signature Pages Thereto (the "Asset Purchase Agreement") are consummated (the "Closing Date"), the Debtors shall pay to HSBC Bank USA (the "Indenture Trustee"), as indenture trustee under that certain Indenture of Mortgage and Deed of Trust dated May 1, 1952 (the "Bond Indenture") for the 8 3/8% Series due 2006 and the 9 7/8% Series D due 2009 (the "Bonds") the sum of $234 million. In exchange for such payment, the Indenture Trustee, for itself and on behalf of the holders of the Bonds, shall release any and all claims, liens or security interests on any assets of the Debtors, and the Indenture Trustee and the ad hoc committee of holders of the Bonds (the "Bondholders' Committee) shall consent to the sale of such assets free and clear of all such claims, liens and encumbrances pursuant to the Sale Motion. The Indenture Trustee shall cooperate in executing any documentation necessary to evidence the release of such claims, liens and encumbrances. All such liens, claims, and encum-

[1] All capitalized terms not defined herein shall take the meaning ascribed to them in the Sale Motion.

brances (which shall be deemed valid on the Closing Date) shall attach to the Sale proceeds until payment has been made to the Indenture Trustee as specified herein.

B. The Bondholders' Committee shall support the Plan (as defined below).

II. **Settlement with Mitsubishi Corporation and Marubeni Corporation**

A. On the Closing Date, the Debtors shall pay to Mitsubishi Corporation ("Mitsubishi") and Marubeni Corporation ("Marubeni"), collectively, $78.2 million. In exchange for such payment Mitsubishi and Marubeni shall release any and all claims, liens or security interests on any assets of the Debtors and consent to the sale of such assets free and clear of all such claims, liens, and encumbrances pursuant to the Sale Motion subject to the provisions of Sections II.D and II.E below. Mitsubishi and Marubeni shall cooperate in executing any documentation necessary to evidence the release of such claims, liens and encumbrances. All such liens, claims, and encumbrances (which shall be deemed valid on the Closing Date) shall attach to the Sale proceeds until payment has been made to Mitsubishi and Marubeni as specified herein.

B. Mitsubishi and Marubeni shall consent to the assumption and assignment of the lease agreement (the "Great Lakes Caster Lease") among U.S. Bank (as successor to The Connecticut National Bank), as lessor and owner trustee, and National Acquisition Corporation ("NAC"), as lessee, dated as of September 1, 1987, and other agreements specified on Schedule 2.1(c) to the Asset Purchase Agreement (collectively, the "Assumed and Assigned Lease") to the Successful Bidder and waive any right to contend that the Successful Bidder must assume any other agreements in connection with such assumption and assignment.

C. Mitsubishi and Marubeni shall support the Plan, subject to all arguments with respect to distributions on account of the claims of Mitsubishi and Marubeni.

D. The settlement with Mitsubishi and Marubeni as set forth in Section II.A above (the "Mitsubishi/Marubeni Settlement") is subject to the satisfaction of two (2) conditions: (1) Mitsubishi and Marubeni receiving final corporate approvals for the Mitsubishi/Marubeni Settlement, and (2) Mitsubishi and Marubeni reaching agreement with the Successful Bidder on certain modifications to the Assumed and Assigned Lease and final documentation thereof

(collectively, the "Mitsubishi/Marubeni Conditions"). If the Mitsubishi/Marubeni Conditions are satisfied, the Debtors shall pay to Mitsubishi and Marubeni (in addition to the provisions of Section II.A), collectively, $1 million on the Closing Date in full satisfaction of any other cure obligations with respect to the Assumed and Assigned Lease, provided, however, that nothing contained herein shall relieve Successful Bidder, as assignee, of any [redacted] obligations under the Assumed and Assigned Lease, as modified. The Reimbursement Agreements shall be rejected and any and all claims with respect thereto shall be waived.

E. In the event that the Mitsubishi/Marubeni Conditions are not satisfied by the Closing Date, the Debtors shall (1) place in escrow $125 million and all claims, liens and encumbrances asserted by Mitsubishi and Marubeni that would otherwise have been released pursuant to Section II.A above shall be released and shall attach to the amount of such escrow and (2) place in escrow $103,583,219.89 with respect to their asserted cure claim in connection with the Great Lakes Caster Lease (collectively, the "Mitsubishi/Marubeni Escrows"). The Assumed and Assigned Lease shall be assumed and assigned to the Successful Bidder, and the parties shall litigate the asserted cure claim against the Debtors at a later date (and the escrowed amounts shall not constitute a cap on such claims). Under no circumstances shall the Successful Bidder be liable for any of the amounts set forth in the objections filed in these cases by Mitsubishi and Marubeni, whether under the Reimbursement Agreements or otherwise.

F. If the Mitsubishi/Marubeni Conditions are not satisfied and thus the Mitsubishi/Marubeni Escrows are required to be funded, all rights of the Debtors and all other parties in interest with respect to the amount, if any, from the Mitsubishi/Marubeni Escrows to which Mitsubishi or Marubeni is entitled (under the Plan or otherwise), and all rights of Mitsubishi and Marubeni with respect to valuation of their collateral sold to the Successful Bidder (including the rights of Mitsubishi and Marubeni to argue with respect to their credit bids, under section 363(k) of the Bankruptcy Code that such credit bids were the highest and best bids with respect to their respective collateral, and that such bids were a determination of the value of such collateral), shall be fully preserved.

G. If following the Closing Date and prior to the later of (x) 60 days following entry of an order approving the Sale Motion and (y) the filing of the Plan (as defined below), the two conditions described in II.D above are satisfied, then the provisions of II.A and II.B above shall take effect as if such conditions had been satisfied prior to the Closing Date.

III. Settlement with Official Committee of Unsecured Creditors

A. The Official Committee of Unsecured Creditors of the Debtors (the "Unsecured Creditors' Committee") shall support the Plan.

IV. The Plan

A. Within thirty (30) days of the Closing Date, the Debtors shall file a plan of liquidation (the "Plan") and an accompanying disclosure statement, which will be reasonably acceptable to the Bondholders' Committee, the Unsecured Creditors' Committee, Mitsubishi, and Marubeni.

B. The Plan shall contain, among other things, the following provisions:

1. All allowed administrative, priority, and secured claims shall be paid in full. Except as provided in this term sheet, nothing shall prohibit any party hereto from objecting to any claim in these cases.

2. On the Plan's effective date, $25 million shall be immediately distributed to holders of allowed general unsecured claims (or deposited into an escrow for their benefit).

3. Amounts available for distribution to prepetition creditors remaining after the payments set forth in Section IV.B.1 and IV.B.2 above, if any (the "Excess Recovery Amount") shall be allocated as follows:

   (a) In satisfaction of all of their claims against any of the Debtors, holders of the Bonds shall receive 64% of the Excess Recovery Amount, plus amounts otherwise payable to Mitsubishi and Marubeni under Section IV.B.3.b below in the event that the Mitsubishi/Marubeni Conditions are not satisfied;

(b) If the Mitsubishi/Marubeni Conditions are satisfied, in satisfaction of all of their claims against any of the Debtors, Mitsubishi and Marubeni shall collectively receive 16% of the Excess Recovery Amount; and

(c) Holders of General Unsecured Claims shall receive 20% of the Excess Recovery Amount.

C. The Plan shall provide for payment by the Debtors, as a substantial contribution claim, the success fee earned by Houlihan Lokey Howard & Zukin ("HLHZ") pursuant to HLHZ's retention agreement with the Bondholders' Committee.

D. In the event that the Mitsubishi/Marubeni Conditions are not satisfied, the Plan shall provide that Mitsubishi and Marubeni shall receive (x) such other treatment as Mitsubishi, Marubeni, and the Debtors shall agree to or (y) as provided under section 1129(b) of the Bankruptcy Code; provided, however, that if the Plan is not filed within thirty days of the Closing Date, then Mitsubishi and Marubeni shall be entitled to file an action for relief exclusively under sections 362(d) or 506(a) of the Bankruptcy Code.

E. The Plan shall be subject to voting by impaired creditors upon Bankruptcy Court approval of a Disclosure Statement and subject to all confirmation requirements set forth in the Bankruptcy Code.

V. <u>Miscellaneous</u>

A. On the Closing Date, all amounts owing under the Debtors' debtor-in-possession financing facility shall be paid in full.

B. All parties hereto shall support the Debtors' request to extend their exclusive period to file a plan until thirty (30) days after the Closing Date.

C. Amounts set forth in Sections I.A and II.A above shall be inclusive of any amounts paid by the Debtors as adequate protection to such parties on or about May 15, 2003, but not inclusive of any adequate protection or other payments previously made to the Indenture Trustee, Mitsubishi, or Marubeni pursuant to existing adequate protection stipulations. From and after the Closing Date, the Debtors shall not be required to make any additional

adequate protection payments to the Indenture Trustee, Mitsubishi, and Marubeni.

D. Any and all rights of the Debtors and the other parties hereto with respect to third parties (other than with respect to the Successful Bidder) are not impacted by this settlement and are fully reserved.

Dated as of April 21, 2003

National Steel Corporation and its affiliates

By: Timothy R. Pohl
Its: Counsel

The Official Committee of Unsecured Creditors

By: _____
Its: Counsel

HSBC Bank USA, as Indenture Trustee
By: _____
Its: Counsel – Mark Sowerstein

The Bondholders' Committee
By: _____
Its: Counsel

Mitsubishi Corporation
By: _____
Its: Counsel
Allan S. Brilliant, one of its attorney's and authorized representative

Marubeni Corporation
By: _____
Its: Counsel
Stephen J. Shimshak, one of it's attorneys and authorized representative

EXHIBIT D

1. Lease Agreement dated as of September 1, 1987 between The Connecticut National Bank and National Acquisition Corporation.

2. Lease Supplement No. 1 dated as of September 1, 1987 between The Connecticut National Bank and National Acquisition Corporation.

3. Lease Supplement No. 2 dated as of November 18, 1987 between The Connecticut National Bank and National Acquisition Corporation.

4. Amendment No. 1 to Lease Agreement dated June 16, 1988 between The Connecticut National Bank and National Acquisition Corporation.

5. Ground Lease Assignment and Assumption Agreement dated as of November 18, 1987 between The Connecticut Bank and Trust Company, National Association, National Acquisition Corporation and The Connecticut National Bank.

6. Amendment and Restatement of Ground Lease dated as of November 18, 1987 between National Acquisition Corporation and The Connecticut National Bank.

7. Ground Sublease [and Record Notice of Equipment Lease Agreement] dated as of September 1, 1987 between The Connecticut National Bank and National Acquisition Corporation.

8. Amendment and Restatement of Ground Sublease dated as of November 18, 1987 between The Connecticut National Bank and National Acquisition Corporation.

9. Ground Sublease Supplement No. 2 dated as of November 18, 1987 between The Connecticut National Bank and National Acquisition Corporation.

10. Bill of Sale and Severance Agreement No. 3 dated as of November 18, 1987 between National Steel Corporation and The Connecticut National Bank.

11. Ground Lease Property Deed dated as of November 18, 1987 by The Connecticut Bank and Trust Company, National Association, as Seller, to National Acquisition Corporation, as Buyer.

12. Bar Mill Warehouse Deed dated as of November 18, 1987 by National Steel Corporation to National Acquisition Corporation.

13. Support Services Agreement dated as of December 1, 1986 between National Steel Corporation and The Connecticut Bank and Trust Company, National Association.

14. Support Services Agreement Supplement dated September 4, 1987 between National Steel Corporation and The Connecticut National Bank.

15. Support Services Agreement II Assignment and Assumption Agreement dated as of November 18, 1987 between The Connecticut Bank and Trust Company, National Association, The Connecticut National Bank, as Owner Trustee and National Steel Corporation.

16. Support Services Agreement III dated as of November 18, 1987 by and between National Steel Corporation and The Connecticut National Bank.

17. Participation Agreement dated as of September 1, 1987 between National Acquisition Corporation, Grant Holdings, Inc., The Connecticut National Bank, The Fuji Bank and Trust Company, Mitsubishi International Corporation, Marubeni America Corporation, National Steel Corporation, Mitsubishi Corporation, Marubeni Corporation and The Connecticut Bank and Trust Company, National Association.

18. Amendment No. 1 to Participation Agreement dated as of November 18, 1987, among National Acquisition Corporation, Grant Holdings, Inc., The Connecticut National Bank, The Fuji Bank and Trust Company, Mitsubishi International Corporation, Marubeni America Corporation, National Steel Corporation, Mitsubishi Corporation, Marubeni Corporation and The Connecticut Bank and Trust Company, National Association.

19. Tax Indemnification Agreement dated as of September 1, 1987 between National Acquisition Corporation and Grant Holdings, Inc.

20. Amendment No. 1 to Tax Indemnification Agreement dated as of November 18, 1987 by and between National Acquisition Corporation and Grant Holdings, Inc.

Statement of Basis
for the Planned Issuance of a
Revised Clean Air Act Permit Program (CAAPP) Permit
for:

United States Steel Corporation
Granite City Works
20th & State Streets
Granite City, Illinois

Source I.D. No.: 119813AAI
Permit No.: 96030056

Permitting Authority:
Illinois Environmental Protection Agency
Bureau of Air, Permit Section
PO Box 19276
1021 N. Grand Avenue East
Springfield, Illinois

February 4, 2013

INTRODUCTION

This document is the Statement of Basis that has been prepared in conjunction with the planned issuance of a revised Clean Air Act Permit Program ("CAAPP") permit to United States Steel Corporation for its Granite City Works ("US Steel"). A Statement of Basis is a support document that is meant to provide a narrative discussion of the legal and factual basis underlying the planned issuance of a CAAPP permit. As a Statement of Basis is only an informational document, it is not a part of the CAAPP permit and it does not create any binding or enforceable rights or duties independent of the permit.

US Steel operates an integrated iron and steel mill in Granite City, Illinois. Because of the mill's emissions of various pollutants, US Steel is required to obtain an operating permit for the mill under Illinois' CAAPP.

The CAAPP generally requires that major stationary sources of regulated air pollutants apply for and obtain a CAAPP permit for their operations. The CAAPP is administered by the Illinois EPA. CAAPP permits contain conditions identifying all applicable requirements under the federal Clean Air Act ("CAA") and Illinois' Environmental Protection Act ("Act"). Testing, monitoring, compliance procedures, recordkeeping and reporting requirements are also established, as required or necessary, to assure compliance and accomplish the purposes of the CAAPP and the Act. The terms and conditions of a CAAPP permit are enforceable by the Illinois EPA, USEPA and the public.

The Illinois EPA previously issued a revised CAAPP permit to US Steel on May 2, 2011.[1] A petition was filed on August 16, 2011 with USEPA by Washington University School of Law on behalf of the American Bottom Conservancy (ABC) requesting that USEPA object to this permit. On December 3, 2012, USEPA took final action on this petition, granting it in part and denying it in part.

Following review of USEPA's response to the petition, the Illinois EPA has elected to make certain revisions to the current CAAPP permit issued to US Steel. Before making these revisions to the permit, the Illinois EPA is holding a 10-day comment period in accordance with Section 39.5(9)(g) of the Act. The draft of the revised CAAPP permit that the Illinois EPA plans to issue and this Statement of Basis are being mailed to those persons who participated in the previous public comment periods on the CAAPP permit for this source.[2] These and other relevant documents are also being placed in public repositories located at the Six Mile Regional Library District, 2001 Delmar Avenue, Granite City, and at the Illinois EPA's Offices at 2009 Mall St., Collinsville, and 1340 N. Ninth St., Springfield.

---

[1] The revised CAAPP permit issued on May 2, 2011 underwent two subsequent administrative amendments, with amendments to the permit issued by the Illinois EPA on October 5, 2011 and May 3, 2012. The first amendment corrected various typographical errors in the permit. The second amendment included a new recordkeeping provision in the permit for emissions of certain pollutants from particular basic oxygen furnace processes. The new provision had been in the draft of the revised CAAPP permit but was inadvertently omitted when the final version of the revised permit was prepared and issued. This correction to the May 2011 permit, by including new Condition 7.5.9(f), answered one point in the current petition, as recognized by USEPA in its December Order which held that this point was now moot. In particular, the CAAPP permit now required recordkeeping for relevant emissions of the basic oxygen furnace processes, including certain records related to the emission factors that US Steel used for this purpose.

[2] The comment period on the original CAAPP permit issued to US Steel for the Granite City Works ran from October 2008 through February 2009. The prior 10-day comment period on the revised CAAPP permit issued to US Steel in May 2011 occurred in March 2011.

I. General Information

A. Applicant/Permittee and Source Information

US Steel Corporation
Granite City Works
20th and State Streets
Granite City, Illinois 62040

Source ID No: 119813AAI

SIC Code: 3312 - Integrated Steel Mill

County: Madison

Responsible Official

Richard E. Veitch, General Manager
(618)451-3456

B. Facility Description

US Steel Corporation's ("US Steel" or "source") Granite City Works is an integrated iron and steel mill producing flat rolled steel products. The principal operations at this facility are: (1) Coke Production (Coke Ovens and Coke Byproduct Plant), (2) Iron Production (Blast Furnaces), (3) Steel Production (Basic Oxygen Process Shop), (4) Steel Finishing, (5) Boilers, and (6) Handling and Processing of Bulk Materials. In addition, the roadways at the facility and nearby public roadways serving the facility emit fugitive dust. More detailed descriptions of the various operations and emission units at the facility are found in the conditions of the current CAAPP permit that provide "Descriptions" of units.[3]

Coke Production (Coke Ovens and Coke Byproducts Plant)

Coke is manufactured at the facility for use in the blast furnaces in which iron is produced. Coke is an essential raw material for the blast furnaces, as

[3] The permitting action that is now contemplated would, again, not involve the CAAPP permits for the following facilities, which are owned and operated by companies other than US Steel but meet the criteria of the CAAPP to be considered a single stationary source with US Steel's Granite City Works. Although considered part of the Granite City Works, it remains appropriate that each of these other facilities, with their different responsible officials, to be permitted individually under the CAAPP. This approach is consistent with Illinois EPA's past permitting practice, as well as available USEPA guidance on single source permitting under the Title V program.

- Stein Steel Mill Services (I.D. 119013AAD) located at 20th Street and Edwardsville road in Granite City - Handling of Basic Oxygen Furnace slag.
- Granite City Slag, LLC (I.D. 119040ATF) located at 20th Street and Edwardsville Road in Granite City - Handling of blast furnace slag.
- AKJ Industries, Inc. (I.D. 119040AEB) located at 20th Street and Edwardsville Road in Granite City - Processing by-product stream from the by-product recovery plant.
- Oil Technology, Inc. (I.D. 119040ATG) located onsite of US Steel (Route 203) in Granite City - Processing recovered waste oil for recycling.
- Tube City, IMS (I.D. 119040ATL) located at 2500 East 23rd Street in Granite City - Handling of scrap metals.
- Gateway Energy & Coke Co., LLC (I.D. 119040ATN) located at 2585 Edwardsville Road in Granite City - Production of coke in new heat recovery coke oven batteries.

it is the reducing agent that converts iron ore to iron and also serves as the fuel that provides heat to the furnaces.

Coke is produced by "cooking" appropriate coal at an elevated temperature to drive off the volatile fraction of the coal. US Steel operates two batteries of byproduct recovery ovens. In byproduct recovery coking, the combustible byproduct gas from the coking process is sent to a byproduct plant to recover certain chemicals in the gas. The processed gas is then used as fuel, both for the coke ovens themselves and at other units at the facility. Coke is produced in the coke ovens, in batches, in four steps: 1) The charging of coal into a hot oven; 2) The actual coking of the coal in the oven; 3) The removal or pushing of the finished coke from the oven; and 4) The cooling or quenching of the hot coke with water in a separate quench station.

By-product coke ovens are indirectly heated through combustion flues in the refractory brickwork around each of the ovens. The flues from all the ovens exhaust through a common "main stack" or combustion stack. The principal fuel used to heat the ovens is coke oven gas. At this facility, the coke oven gas may be supplemented with natural gas and blast furnace gas, a byproduct from the blast furnaces. Emissions from heating the coke ovens are controlled by work practices to avoid leaks in the brickwork that enable some of the raw coke oven gas to go directly into the flues, bypassing the byproduct plant. Heating emissions are also controlled as raw coke oven gas and blast furnace gas are processed or cleaned to remove entrained particulate before being used as fuel. At this facility, coke oven gas is also normally further processed in a Desulfurization System to remove sulfur, lowering the SO_2 emissions that accompany its use as fuel.

In addition to combustion emissions from heating the ovens, each of the steps in the production cycle in coke ovens poses issues for emissions. The ovens are charged by pouring coal into the ovens through ports on the top of the ovens. Emissions are minimized by equipment design and work practices that reduce the escape of coal dust. While the coal is being coked, leaks in the seals around doors and ports on the ovens will result in emissions. This is because the ovens are designed to operate at a slight positive pressure to prevent air from entering the ovens and to facilitate collection of the raw coke oven gas for processing in the byproduct plant. The emissions from leaks are minimized by the design features of the ovens and work practices to prevent and plug leaks. The emissions from pushing coke are minimized by practices to ensure that the coal is fully coked before being removed from an oven. Pushing emissions are also controlled by a mobile control system, with hooding and an associated scrubber that travel along with the coke receiving car. Emissions from quenching are controlled by requirements for the quality of quench water and a quench tower over the quench station, with a row of baffles to capture particulate matter.

At the byproduct plant, the collected coke oven gas from the ovens is processed to recover certain chemicals for sale, including coal tar, benzene, and ammonium sulfate. Emissions of vapors from the various vessels in the byproducts plants are generally controlled by gas blanketing systems. These systems exhaust back into the raw coke oven gas stream, so that vapors are ultimately controlled by combustion when the gas is used as fuel.

Any excess coke oven gas, which cannot be used as fuel at the facility, is managed by combusting it in a flare. This controls the organic compounds in the gas and converts the sulfur in the gas, which is generally present as hydrogen sulfide, to less noxious SO_2. There are also two emergency by-pass

flares, one on each of the coke oven batteries. Like the flare at the byproducts plant, these flares are safety devices. In the event of an upset, they are used to maintain the pressure in the coke oven gas collection system at a safe level by combusting some of the coke oven gas.

Iron Production (Blast Furnaces)

Blast furnaces are tall, cylindrical, stationary furnaces. The charge materials (iron ore, coke, limestone and other flux material) are fed into the furnace at the top through a double-bell lock system. Heated air is blown into the furnace through nozzles or tuyeres near the bottom of the furnaces. In the furnaces, the coke undergoes partial combustion to carbon monoxide providing the heat to melt the charge as well as reducing the iron ore to elemental iron. Molten iron and slag accumulate at the bottom of the furnace and are removed periodically by tapping the furnace. The hot, carbon monoxide rich exhaust from the furnace, known as blast furnace gas, goes into a duct at the top of the furnace, to be cooled and cleaned prior to use as fuel at the facility. Any excess blast furnace gas, which cannot be used as fuel, is flared.

Emissions occur from blast furnaces during the periodic tapping of the furnaces, when molten iron and slag are exposed to the atmosphere as they drain from a furnace and flow in troughs to vessels for transport. Covers and other measures are used to reduce the formation of emissions during tapping. At this facility, emissions are also controlled as tapping occurs in the casthouse, a covered area between the two blast furnaces, which is equipped with fabric filters or baghouses. The casthouse itself is exhausted to the large Casthouse Baghouse. Additional hooding is present at the iron spouts, where molten iron is poured into the "torpedo" rail cars, which are used to transport molten iron to the Basic Oxygen Process Shop. The hooding over the iron spouts exhaust to another baghouse, the Iron Spout Baghouse.

Emissions also occur from the stoves that heat the blast air going into the furnaces. These stoves are fired with blast furnace gas. The blast furnace gas is cleaned to remove entrained dust before it is used as fuel. Otherwise, this dust would accumulate and interfere with the operation of the stoves.

Steel Production (Basic Oxygen Furnace (BOF) Shop and Continuous Casters

Iron produced at the blast furnaces is converted to steel in the Basic Oxygen Process Furnace (BOPF) or Basic Oxygen Furnace (BOF) Shop. The BOF Shop houses the hot metal desulfurization station, the basic oxygen furnaces (BOF), the ladle metallurgy furnace and the argon stirring stations. The steel is then cast into slabs in associated continuous casters.

At the BOF Shop, molten iron is first processed at the desulfurization station to reduce its sulfur content. This occurs in batches using desulfurization agents, such as lime, that react with sulfur dissolved in the molten iron. Molten iron from the blast furnace in torpedo cars is transferred to a ladle. The agents are then added to the molten iron with a lance. The sulfur-laden slag that is formed floats on the surface of the iron and is skimmed off the iron into a slag pot. The particulate emissions from the transfer of molten iron to ladles and the desulfurization and slag skimming processes are controlled by separate baghouses.

The desulfurized iron then goes to the BOF furnaces for conversion to steel. This occurs when oxygen injected into the molten metal reacts with carbon and silicon dissolved in the iron, driving these materials out of the metal,

converting it to steel. Iron is processed in these furnaces in batches or heats that last less than an hour. The first step in a heat is charging a furnace. Scrap metal is emptied into the furnace from large buckets. Molten iron is then poured into the furnace from a ladle. The emissions associated with charging are currently controlled by large hoods located above the charging area that capture particulate matter, which are ducted to an electrostatic precipitator ("ESP"). The next step is the actual conversion into steel, when oxygen is blown into the molten metal. An oxygen lance is introduced through a port in the roof over the furnace. The associated emissions are directly controlled as the furnace is exhausted through a second port in the roof that is ducted to the ESP. The next step in a heat, when the "blow" is complete, is tapping the furnace. The furnace is tilted in the direction opposite that for charging, and the steel is drained into a transfer ladle. Tapping emissions are currently captured by the roof on the furnaces, which also extends over the pouring area. The capture of emissions from the furnaces is facilitated as the roof over the furnaces is open to the atmosphere only through a roof monitor at the peak of the roof.

At the ladle metallurgy furnace and argon stirring stations, final adjustments are made to the composition of the molten steel from the BOFs. After the composition of the metal is analyzed, appropriate amounts of alloy material are added to achieve the desired composition. This occurs in the ladle metallurgy furnace if the steel has cooled and must be brought back up to temperature. Otherwise, alloy materials are added at the argon stirring stations, where the steel is then "stirred" by injecting inert argon gas into the steel to disperse the alloy materials in the molten steel and maintain a uniform temperature. Emissions from these stations are controlled by a baghouse.

In the continuous caster, molten steel is formed into solid slabs, which may be sold or further processed in finishing operations at the facility. Molten steel from the ladle metallurgy station is poured into the continuous caster and steel slabs of the desired cross-section and length are produced. This is accomplished by passing the molten steel through a water-cooled die, further cooling the steel strand leaving the die with water sprays, and finally cutting the strand into sections of the desired length. The design of the continuous casting process reduces emissions because it minimizes exposure of molten steel to the atmosphere.

Finishing Operations (Reheat Furnaces, Rolling Mills and Galvanizing)

In the finishing departments, slabs are heated and then rolled or milled into sheet metal that is sold in large coils. The slabs are first heated in gas-fired "reheat furnaces" to a temperature at which the steel is malleable and can be readily processed in a rolling mill. Low- NO_x combustion techniques are employed at the reheat furnaces to control emissions of NO_x.

In the rolling mills, the hot steel slabs are reduced in thickness by being repeatedly passed through a series of heavy rollers to form sheet metal of the desired thickness and width. This sheet metal may then undergo galvanization, with the application of a thin film of zinc to the surfaces of the metal to prevent corrosion.

Utility Operations (Boilers)

Boilers at the facility provide the steam needed for certain process operations at the facility, as well as for some space heating. Two older boilers produce low-pressure steam and are fired by natural gas, coke oven gas, and blast

furnace gas. A new "Cogeneration Boiler" (also known as Power Boiler 1) began operation in 2009. This boiler produces high-pressure steam used to generate electricity for the facility, with the low-pressure steam from the turbine-generators then being available for process operations and heating. The emissions from the boilers are generally minimized through fuel quality and good combustion practices.

Handling and Processing of Bulk Materials

Various bulk materials involved in the production of iron and steel are handled at the facility, including iron ore, scrap iron, coal, coke and limestone. These materials must be unloaded, held in storage piles or silos, and moved around the plant by various conveyor systems. Certain materials, like coal for coke ovens, must be processed by screening and crushing, before use. Slag from furnaces must also be handled and processed for use as construction aggregate or disposal. The particulate emissions from these emission units are controlled by various measures, specific to the unit, that act to minimize emissions. Baghouses are also used to control emissions from some emission units, such as the pulverizer used for final grinding of the coal feed to the coke ovens.

Vehicle Traffic on Roadways

Vehicle traffic on roadways, including the heavy equipment used to transport slag, around the facility results in emissions of fugitive dust. On paved roadways, these emissions are minimized by vacuum sweeping on a regular basis to remove silt from the road surface. On unpaved roadways and open areas, emissions are minimized by regular applications of water and surfactants.

C. Area Classification

Madison County, Illinois is currently designated as marginal nonattainment for the 2008 8-hour ozone National Ambient Air Quality Standard (NAAQS) and as nonattainment (annual standard) for the NAAQS for $PM_{2.5}$ (particulate matter less than 2.5 micrograms). Granite City Township and Venice Township in Madison County are nonattainment for the 2008 lead NAAQS. The area is in attainment with or not classifiable under the NAAQS for all other criteria pollutants.

D. Major Source Status

This source is a major source based on emissions of various regulated pollutants, including NO_x, PM, SO_2, VOM, CO, hazardous air pollutants ("HAPs"), and greenhouse gases ("GHG").

E. Chronology of Events

Initial CAAPP Permit

In March 1996, the Illinois EPA received a CAAPP application for the Granite City Division of the National Steel Corporation, who was then the owner and operator of the facility. This application was timely submitted in accordance with the requirements of the CAAPP, which had become effective in Illinois following USEPA's interim approval of the program on March 15, 1995.

The Illinois EPA received over 730 initial applications for CAAPP permits from subject sources in Illinois. The application for the source was one of the last initial CAAPP applications reviewed and processed by the Illinois EPA. In

the intervening years, the source was purchased by US Steel Corporation and the pending CAAPP application originally submitted for the source was transferred to US Steel as the new owner and operator of the Granite City Works.

The Illinois EPA subsequently prepared a draft CAAPP permit for US Steel and the public comment period for the draft permit commenced in mid October 2008. A public hearing was held on December 2, 2008. After the close of the comment period and a review of the public comments, the Illinois EPA prepared a proposed CAAPP permit and sent it to USEPA in mid June 2009 for a 45-day review, during which USEPA did not object to the proposed CAAPP permit. The Illinois EPA then prepared its formal response to comments raised by the public and US Steel during the public comment period on the draft CAAPP permit. The Illinois EPA issued the CAAPP permit on September 3, 2009.

Petition to USEPA to Object and USEPA Order on the Initial CAAPP Permit

The American Bottom Conservancy ("ABC") filed a Petition to Object ("Petition") with the USEPA in October 2009 requesting that USEPA object to the CAAPP permit issued to US Steel. The Petition asserted that the CAAPP permit failed to incorporate all "applicable requirements," including terms and conditions of prior state construction permits, failed to include the requisite Periodic Monitoring requirements and lacked required compliance schedules. The Petition also claimed that the CAAPP permit inappropriately allowed excess emissions during malfunction/breakdown and startup events[4], failed to include compliance assurance monitoring, and contained terms and conditions that are not practically enforceable.

On January 31, 2011, the USEPA responded to the Petition, denying in part and granting in part, on the arguments made by ABC. In its Order responding to the Petition ("Order"), USEPA refused to object to certain aspects of the issued CAAPP permit challenged by ABC.[5] The Order also granted the Petition with respect to certain aspects of the permit. Concerning periods of startup, malfunction and breakdown based on the Illinois State Implementation Plan (SIP), the USEPA required the Illinois EPA to either explain in the Statement of Basis how it had determined in advance that the Permittee met the requirements of the Illinois SIP at 35 IAC 201.262 or to otherwise make appropriate changes to the permit that continued operation during startup, malfunction or breakdown would only be authorized on a case-by-case basis if the source met the requirements of the SIP. USEPA also found that the CAAPP permit failed to include specific "applicable requirements" derived from conditions contained within certain preconstruction permits. Additionally, USEPA found that the CAAPP permit failed to adequately identify certain plans and/or plan requirements that were incorporated by reference into the permit and, further, that the CAAPP permit failed to contain enforceable steps and milestones for the terms of an existing consent order. USEPA also concluded that it could not determine whether the CAAPP permit established sufficient

[4] ABC originally asserted that the Illinois EPA had provided automatic exemptions from emission limits during malfunction/breakdown or startup events without first performing an evaluation of their impacts. In so doing, ABC claimed that nine permit terms illegally allowed for broad exemptions from permit requirements during these periods based on state law, and that Illinois EPA's response to comments fell short of adequately explaining why these exemptions were legally or factually justified.

[5] For example, USEPA concluded that a compliance schedule was not necessary to address pending Notices of Violations involving US Steel. USEPA also generally denied ABC's argument that the issued CAAPP permit improperly exempted certain emissions units from NESHAP standards during periods of startup, shutdown and malfunctions ("SSM").

Periodic Monitoring requirements for numerous emission units. Citing a lack of sufficient explanation in the Illinois EPA's response to comments, the Order directed the Illinois EPA to address this issue with greater specificity and analysis.

Illinois EPA Action in Response to the Initial USEPA Order

The Illinois EPA followed the USEPA's Order on the initial CAAPP Permit by substantially revising certain portions of the initial CAAPP identified by the Order or providing a more detailed justification of the conditions set forth in the permit. In response to the Order, the Illinois EPA provided an explanation in the Statement of Basis of Illinois's SIP concerning startup, malfunction and breakdown and how the permit ensured compliance with these requirements. Illinois EPA explained that the sole determinations made in advance are whether the source requested permission to continue to operate during a startup, malfunction or breakdown event in its CAAPP application, and whether the CAAPP application satisfied the application content of the SIP and provided proof sufficient to enable Illinois EPA to afford the source a potential prima facie defense to an enforcement action.

The Illinois EPA also explained in significantly greater detail in the Statement of Basis for that action both the practical and technological reasons justifying the inclusion of certain Periodic Monitoring requirements established in the CAAPP permit, including the approach to and use of selected emission factors for certain emission limits that originated in construction permits. At the same time, various enhancements or supplements were made to monitoring, testing recordkeeping and reporting requirements so that Periodic Monitoring under US Steel's CAAPP permit would be sufficient to assure compliance with applicable requirements.[6]

The Illinois EPA issued a revised CAAPP permit on May 2, 2011. Given US Steel did not petition the Illinois Pollution Control Board (Board) for review of this permit, this permit became final and effective at that time.

Petition to USEPA to Object to the Revised CAAPP Permit

ABC filed a second Petition to Object ("Second Petition") with the USEPA on August 16, 2011 requesting that USEPA object to the revised CAAPP permit issued on May 2, 2011. The Second Petition asserted that: a) the permit's use of emission factors failed to provide Periodic Monitoring designed to ensure compliance with permit limits and lacks practical enforceability; b) several permit limits lacked adequate Periodic Monitoring requirements to ensure compliance with applicable limits; c) the permit failed to appropriately address excess emissions associated with startup, breakdown, and malfunctions[7];

[6] The Illinois EPA also made a number of other revisions to the CAAPP permit in response to USEPA's order. Consistent with the Order's discussion concerning the meaning of the term "applicable requirements", the revised CAAPP permit included updated terms from a previous consent order. In addition, the revised CAAPP permit reflected requirements from construction permits issued by the Illinois EPA. Other changes were made to follow current USEPA guidance regarding the "incorporation by reference" of certain plans or programs.

[7] For the first time, ABC asserts that US Steel's application material requesting authorization to make a claim of malfunction/breakdown or startup was inconsistent with the Illinois SIP, 35 IAC 201.261, or that Illinois EPA's advance authorization to US Steel to make such claims was somehow inconsistent with the Illinois SIP, 35 IAC 201.262.

and d) the permit failed to include applicable requirements from a related construction permit for Gateway Energy & Coke Company.

USEPA Petition Response to Second Petition on the CAAPP Permit

On December 2, 2012, the USEPA responded to the Second Petition, denying in part and granting in part. To summarize USEPA's response to the Petition ("Second Order"), USEPA refused to object to certain aspects of the issued CAAPP permit that were challenged. For example, USEPA concluded that the Illinois EPA's use of the term "emission factors" in the May 2011 CAAPP permit would not compromise the enforceability of these terms in the permit. USEPA also denied the argument that the May 2011 CAAPP permit generally lacked adequate periodic monitoring for the coke oven gas flare, the uncaptured blast furnace casthouse, the blast furnace gas flares, and the slab reheat furnaces. Finally, USEPA denied the claim that the May 2011 CAAPP permit must include requirements from the construction permit issued for the new coke production facility developed and operated by Gateway Energy & Coke Company.

The Order also granted the Second Petition with respect to certain aspects of the May 2011 CAAPP permit. For example, USEPA found that the permit lacked Periodic Monitoring to ensure compliance with emission limits and many corresponding maximum emissions limits from Construction Permit No. 95010001. USEPA also concluded that US Steel's application for authorization to continue operations during startup, breakdown, and malfunction events did not include all of the information required by 35 IAC 201.261 and 201.262, and thus Illinois' SIP. USEPA went onto find that authorization to make claims related to startup and malfunction/breakdown for certain emission units could not be granted by the Illinois EPA in the absence of all information required by the Illinois SIP.[8]

Current Permitting Action

The Illinois EPA must address the objections from the Second Petition that were granted by USEPA in its Second Order. Detailed discussions for each point are provided later in this Statement of Basis. The Illinois EPA's overall approach to Second Order is summarized below.

Consistent with the discussion in the Second Order concerning the need to include Periodic Monitoring to ensure compliance with certain emission limits, the Illinois EPA plans to make available in the current CAAPP permit the initial emission factors that US Steel intends to use to demonstrate compliance with these emission limits. The Illinois EPA provides a clear explanation in the planned revision to the CAAPP permit of how the emission factors will be used to determine compliance with the relevant limits in the permit.

As a general principle of administrative law, only those issues that have been "preserved" may be appropriately raised before an administrative tribunal. *Accord., In re Avon Custom Mixing Services, Inc.*, 10 E.A.D. 700, 704-705 (EAB 2002) (A party seeking review must generally demonstrate that the issues were raised during the public comment period). Following this general principle affords the permitting authority notice and an opportunity to cure the alleged deficiencies in the permit prior to issuance. *In re Kendall New Century Development,* 11 E.A.D. 40, 46 (EAD 2003).

[8] This is the first time that USEPA finds that US Steel did not meet the content requirements, as set forth in the Illinois SIP, in its request for authority to continue operations during startup or malfunction/breakdown events and in so doing, any approval of these requests by the Illinois EPA in the CAAPP permit was "flawed."

Additionally, the revised permit that the Illinois EPA now plans to issue would include conditions detailing how the emission factors will be reviewed and, if necessary, updated in the future to assure that the emissions factors used to determine compliance are appropriate.

The Illinois EPA has also given considerable attention to the subject of malfunction/breakdown and startup, as addressed by USEPA in the Second Order. To assist the Illinois EPA, US Steel supplied additional information to support its requests for permission to continue to operate particular emission units during malfunction/breakdown events in violation of certain state emission standards. US Steel also supplied additional information to support its requests related to startup of particular units. US Steel has provided all the information that 35 IAC 201.261 requires from a source that is requesting permission to continue operation with excess emission during a malfunction/ breakdown or startup event. The Illinois EPA has explained in this Statement of Basis why the CAAPP permit should continue to provide the requested authorizations consistent with Illinois' SIP, 35 IAC 201.262.

The Illinois EPA plans to proceed with revisions to US Steel's current CAAPP permit following the applicable procedures set forth in the CAAPP.[9] In general, this permit revision is an outgrowth of USEPA's public petition process. As set forth in the CAAPP, if a petition objecting to a CAAPP permit is granted by USEPA after the permit has already been issued, the Illinois EPA is authorized to revise and resubmit the CAAPP permit to USEPA. *See generally,* Section 39.5(9)(e)-(g) of the Act and 35 IAC 252.301.[10] This authority, which effectively allows for formal reconsideration of the issued permit, presents an opportunity for the Illinois EPA to reconcile its permitting decision with USEPA's Order. The CAAPP does not specify a time-frame for making such revisions; however, federal requirements provide that a permitting authority must act within 90 days to address USEPA's concerns relating to a petition.[11]

As required by the CAAPP, the planned revision of the CAAPP permit is being accompanied by the opportunity for further public comment by US Steel and any person who previously participated in the public comment processes. Other people that are interested may also submit comments. US Steel's initial CAAPP permit underwent the full range of procedures associated with an initial CAAPP permit proceeding, including a public comment period and a public hearing. The procedures for this permit revision under the CAAPP now consist simply of a 10-day comment period, as provided by Section 39.5(9)(g) of the Act.[12] Notice of

---

[9] The CAAPP, codified in state law at Section 39.5 of the Act, was enacted by the Illinois General Assembly in 1992 to fulfill the requirements of Title V of the Clean Air Act Amendments of 1990 and USEPA's implementing regulations under 40 CFR Part 70. USEPA granted final interim approval of the CAAPP on March 7, 1995. USEPA later granted full approval of the program, effective November 30, 2001, confirming that the minimum program elements required by Title V and Part 70 had been met.

[10] The process in the CAAPP and implementing rules essentially mirrors the procedures governing public petitions in 40 CFR Part 70. *See generally,* 40 CFR 70.8(c)-(d).

[11] Under Title V of the Clean Air Act (CAA) and 40 CFR Part 70, the failure of a permitting authority to submit a revised permit within 90 days of receipt of USEPA's objection results in USEPA assuming responsibility for mending any deficiencies with the Title V permit. *See,* Section 505(c) of the CAA; *see generally,* 40 CFR 70.8(d) and 70.7(g)(4) and (5). Courts have yet to rule as to whether the 90-day requirement is a jurisdictional requirement, though litigation is reportedly moving forward in one or more federal district courts.

[12] The same procedures were followed for the previous revision of the CAAPP permit in response to the First Order, with a 10-day public comment period, consistent with Section 39.5(9)(g) of the Act.

the comment period has been provided to US Steel and all persons who participated in the earlier public comment periods on the CAAPP permit for this source.

F. Environmental Justice

US Steel is located in a potential environmental justice ("EJ") community.[13] Given the facility's location in such an area, as well as significant public interest in the permitting of this facility, the Illinois EPA has enhanced the level of public outreach that has accompanied processing of CAAPP permits for this facility. Prior to the initial issuance of the CAAPP permit, the Illinois EPA extended the comment period twice, so that the public had over three months to submit their written comments. Prior to issuance of a revised permit in May 2011, the Illinois EPA provided general notice of the 10-day comment period by means of a newspaper notice, to facilitate comments by individuals who had not participated in the original comment period. This step is also being followed for the current 10-day comment period. In conjunction with the issuance of the original permit and the revised permit in May 2011, detailed Responsiveness Summaries were prepared in which the Illinois EPA, to the best of its ability, responded to questions and comments raised in the comment periods. This will also occur for the revision of the CAAPP permit that is now planned.[14]

While the Illinois EPA is sensitive to the location of this facility in a potential EJ community, Title V of the CAA does not provide for substantive emission control requirements beyond those arising under the applicable regulations that currently apply to a source. Thus, when issuing a CAAPP permit for this facility, the Illinois EPA does not have the authority to impose additional emission control requirements to reduce emissions beyond the levels provided for by applicable state and federal regulations. At the same time, CAAPP permits do not allow for additional emissions. CAAPP permits serve to provide benefits for air quality, the public and the environment generally as they better address currently applicable requirements. CAAPP permits more comprehensively identify those requirements and also address the means by which sources will show that they comply with those requirements. They also require more rigorous reporting by a facility of its compliance status than was previously required under state operating permits.

---

[13] The Illinois EPA's EJ-Public Participation Policy states that "a 'potential' EJ community is a community with low-income and/or minority population greater than twice the statewide average. In addition, a community may be considered a potential EJ community if the low-income and/or minority population is less than twice but still greater than the state-wide average and it has identified itself as an EJ community." (www.epa.state.il.us/environmental-justice/public participation-policy.pdf)

[14] For these planned revisions to the CAAPP permit, in this Statement of Basis, the Illinois EPA is also making clear its planned response to USEPA's Second Order. With respect to certain emission limits addressed by USEPA in this order, the Illinois EPA has identified the emission factors that US Steel is currently using to demonstrate compliance with the subject limits and provided information on the basis for these factors. The process that US Steel is using to verify compliance with the subject emission limits is articulated. Further detail is also provided for how the emission factors will be reviewed and, as necessary, updated to assure that appropriate factors are used in the determination of compliance. The Illinois EPA has also further explained the basis for granting authorization to US Steel to make claims relative to startup and malfunction/breakdown events for certain emission units.

II. Compliance and Enforcement History

A. Federal Enforcement Cases

On September 30, 2009, the USEPA issued a Notice of Violation and Finding of Violation ("NOV/FOV") for violations of the CAA, the NESHAP for Iron and Steel Manufacturing Facilities, 40 CFR Part 63 Subpart FFFFF ("Iron & Steel NESHAP"), the NESHAP for Coke Oven Batteries, 40 CFR Part 63 Subpart L ("Coke Oven NESHAP"), and Illinois' SIP. USEPA alleged that US Steel had not properly controlled emissions from its blast furnace casthouse, basic oxygen furnace shop and Coke Oven Battery A. In addition, USEPA alleged that the source failed to apply for and obtain the proper air pollution control permit for Blast Furnace B. Lastly, USEPA alleged that the source failed to complete all required inspections and comply with various operating and maintenance plans.

On April 23, 2010, US Steel responded to the NOV/FOV. On August 1, 2012, the Department of Justice ("DOJ") filed a complaint against US Steel in the United States District Court for the Northern District of Indiana (Case Number 2:12-CV-3C4), which included the alleged violations cited in the NOV/FOV and, as discussed below, included violations cited in the Illinois EPA's 2009 and 2010 violation notices.

B. State Enforcement Cases

On January 29, 2009, the Illinois EPA issued a violation notice (VN) for alleged violations of the Act, state and federal regulations, and CAAPP permit conditions. Specifically, the Illinois EPA alleged fugitive dust violations, inspection and maintenance deficiencies, excessive use of the emergency reladling station and charging of Batteries A and B off the collecting mains. On March 12, 2009, the Illinois EPA issued another VN for alleged violations of the Act, state and federal regulations, and CAAPP permit conditions. In this VN, the Illinois EPA addressed excess emissions from coke oven doors on Battery B and visible emissions from the #2 Tar Dehydrator Tank and deficiencies in the records for the leak detection and repair program for the coke by-product recovery plant. On August 30, 2010, the Illinois EPA referred the source to the Illinois Attorney General's Office ("IAGO") for the above violations.

On November 5, 2010, the Illinois EPA issued a VN for alleged violations of the Act, state and federal regulations, and CAAPP permit conditions. This VN addressed excess PM emissions from the #3 mobile control system for pushing emission and excess emissions from the coke oven doors on Battery A and Battery B. The violations alleged in this VN were referred to the IAGO on September 22, 2011 and included in the complaint referenced above.

On November 30, 2012, the Illinois EPA issued a VN for alleged violations of the Act, state and federal rules, and CAAPP permit conditions. This VN alleged excess VOM and NOx emissions from the Electrostatic Precipitator (ESP) on the BOF and opacity exceedances by the BOF. In addition, the VN alleged operation of the BOF without operational steam rings. This VN was the result, in part, of emissions testing performed by US Steel in April 2012 as required by Conditions 7.5.7(a) and (b) of the current CAAPP permit. Follow-up testing was performed by US Steel in July 2012. On July 2, 2012, the Illinois EPA received a deviation report from US Steel, as required by Condition 7.5.10(d) of the CAAPP permit, reporting that the NOx and VOM emissions from the ESP at the BOF were in excess of the applicable annual limits of in Condition 7.5.6(c) of the CAAPP permit, 69.3 and 10.74 tons/yr, respectively.

On January 8, 2013, US Steel responded to the November 30, 2012 VN requesting an initial meeting with the Illinois EPA under Section 31(a)(4) of the Act. While not yet responding to the particulars of the violations, US Steel advised the Illinois EPA that it would be submitting additional information in rebuttal to the alleged violations, as provided for by Section 31(a)(5) of the Act.

Under the process for enforcement set out by Section 31 of the Act, the initial Section 31(a)(4) meeting between US Steel and the Illinois EPA is scheduled to occur during the 10-day public comment period for the planned revisions to the current CAAPP permit. This will be the first opportunity for US Steel to respond to the alleged violations, in person, to representatives of the Illinois EPA. In this meeting, US Steel may suggest a resolution (and alternative resolutions) to the alleged violations including an appropriate implementation time frame. *See,* Section 31(a)(4) of the Act. After such discussion, US Steel will have yet another opportunity to provide the Illinois EPA with an additional written response that shall include any additional information in rebuttal to the alleged violations and an explanation or justification of each alleged violation; if the source would like to enter into a Compliance Commitment Agreement (CCA), a proposed CCA that includes specified time frames for achieving each commitment; and if the source elects to rely upon its initial written response, the source may state as much. *See,* Section 31(a)(5) of the Act. If the Illinois EPA ultimately determines that these violations cannot be resolved without the involvement of the IAGO, US Steel will be afforded an additional opportunity to meet with appropriate Illinois EPA personnel. *See,* Section 31(b) of the Act. As this matter is still in the initial stages of the Section 31 process, these violations have not been referred to the IAGO.

C. Compliance Schedule

The identification of non-compliance and/or the issuance of a violation notice and reference to information contained therein, alone, is not sufficient to satisfy the demonstration required under Section 505(b)(2) of the CAA for the inclusion of an approvable compliance schedule in a Title V permit. This alleged non-compliance is simply an early stage in the larger enforcement process of determining whether a violation, in fact, has occurred. This information noted above in the current enforcement cases is, therefore, generally insufficient to warrant a compliance schedule without further investigation by appropriate enforcement staff at the state or federal level. Such an investigation typically involves additional information gathering and exchanges that are part of the enforcement process and not a part of the permitting process. This stage in the enforcement process is a critical step of fact finding under civil litigation procedures. It affords the source its required due process. Neither the issuance of a notice of violation or a violation notice or the identification of alleged non-compliance has the force or effect of law and therefore is not subject to judicial review at this early stage.

If the Illinois EPA were to consider including this information in the planned revised CAAPP permit, other relevant considerations would need to be taken into account such as: 1) the quality and source of the information, 2) whether the facts are disputable, 3) any defenses available to the source and 4) the nature of any disputed legal arguments. These factors may not be readily discernable at this early stage and would need to be considered within the constraints of the CAAPP permitting process. Section 39.5 of the Act and 40 CFR Part 70 do not contemplate this type of judicial review in the context of CAAPP or Title V permitting and do not provide the requisite authority to proceed with such

investigation. As such, Illinois EPA must consider the potential impact that enforcement and permitting have on one another. Where there is a pending or active enforcement case at the same time as a permitting action, the source and the State of Illinois or United States could easily find themselves litigating the same matters in different venues with the risk of different and conflicting results.

Therefore, while nothing in the Act would typically prohibit the Illinois EPA from including a compliance schedule in an initial permit or a renewal to a permit for the issues generally addressed in the current enforcement cases, as discussed above, an initial question that presents itself is whether the inclusion of a compliance schedule is mandatory, particularly when such information is available before the matter has been adjudicated and required actions to achieve compliance have yet to be resolved between the source and the enforcement authority. USEPA has stated, in a number of petition responses regarding this topic of discretionary versus mandatory compliance schedules, it is entirely appropriate for the permitting authority to allow an enforcement case to take its course and to wait to see whether an order results. At that time, the Title V permit may be reopened to include a compliance schedule.

For the VN issued by the Illinois EPA on November 30, 2012, there is an additional subject that must be considered for the alleged violations of the NOx and VOM limits for the BOF ESP. On January 31, 2013, the Illinois EPA received a proposed compliance schedule from US Steel for these violations. However, the Illinois EPA is not required to include this compliance schedule proposed by US Steel in the planned revised permit because it was not considered by USEPA in its action on a petition to object. The scope of the present permit proceeding is narrow. As set forth in the CAAPP, if a petition objecting to a CAAPP permit is granted by USEPA after the permit has already been issued, the Illinois EPA is authorized to revise the CAAPP permit in response to USEPA's order. *See generally,* Section 39.5(9)(e)-(g) of the Act. These provisions do not require a source to submit an appropriate, complete application as would be required under Section 39.5(5)(d) for the Illinois EPA to issue a new or revised CAAPP permit in circumstances where the Illinois EPA is not responding to a USEPA order. Indeed, Section 39.5(9)(g) specifically provides that a source will not be in violation of the requirement to have submitted a timely and complete application when the Illinois EPA is acting in response to a USEPA's objection.[15]

In addition, the proposed compliance schedule submitted by US Steel addressed violations that are at an early stage in the larger enforcement process of determining whether a violation has, in fact, occurred. As discussed above, additional exchanges that are part of Illinois' Section 31 process have yet to occur. US Steel has not yet had an opportunity to submit additional information in rebuttal to the alleged violations consistent with Section 31. Only after gathering such additional information will the Illinois EPA be able to weigh the quality of the information, disputed facts, any defenses available to the source and the nature of any disputed legal arguments.

Based on all the foregoing, it is the Illinois EPA's preliminary decision to wait until the enforcement cases identified above have been resolved and/or adjudicated before including any compliance schedule in a CAAPP permit for the

[15] This is likely due to the time constraints facing a permitting authority when seeking to revise a permit to comply with a USEPA order. While the CAAPP does not set a time-frame for making such revisions, federal requirements provide that a permitting authority must act within 90 days to address a USEPA order that grants a petition for review.

facility. In the meantime, Condition 9.1.4 would remain in the planned revised CAAPP permit, which provides that any permit shield or the revised CAAPP permit, itself, may not be used as a defense during any enforcement proceedings and that the requirements of any compliance schedule will be complied with at the appropriate time.

With respect to US Steel's recently submitted compliance schedule, the Illinois EPA intends to initiate the processing of US Steel's proposed compliance schedule as a significant modification to the CAAPP permit, in accordance with Section 39.5(14)(c)of the Act. That permitting action would potentially involve the incorporation of a yet-to-be finalized compliance schedule that would address violations of certain emission limits for the BOF. As provided by the Act, the CAAPP's procedures for significant modification must by used for "applications requesting significant modifications and for those applications that do not qualify as either minor modifications or as administrative permit amendments." A modification of a permit to include a compliance schedule would commonly be considered "significant." Section 39.5(14)(c)(i) and (ii) of the Act. As a significant modification, the modification of the CAAPP permit would be subject to requirements for public participation followed by review by USEPA in accordance with Sections 39.5(8)(a) and (9) of the Act rather than a 10-day comment period as provided for by Section 39.5(9)(g) of the Act.

III. Periodic Monitoring to Ensure Compliance with Certain Emission Limits

USEPA Order

In Section I.B-D of its Second Order, the USEPA found that the Periodic Monitoring Requirements in the current CAAPP permit for certain emission limits in the permit are inadequate. Most critically, the USEPA found that these requirements were deficient because they were not preceded by preparation of a listing of the emission factors that US Steel would initially use to determine compliance with the subject limits, with supporting information available, which would enable the public and USEPA to provide meaningful comments on these emission factors. USEPA also found that the supporting explanation for this Periodic Monitoring provided by the Illinois EPA in the record for the current permit was insufficicent.

As a consequence, USEPA instructed the Illinois EPA to correct these deficiencies in the permit and its development, as follows.

> The IEPA must determine and adequately support a mechanism to determine compliance with the applicable emission limits in Conditions 7.1.6(b)(i) - (iv), 7.4.6(b) - (f), 7.5.6 (c) - (g), and 7.6.6(a) - (e). IEPA must include in the permit itself the monitoring methodology for determining compliance with these limits. If using emission factors, IEPA must propose the actual emission factors in the permit or supporting permit record, and provide supporting documentation for the accuracy and appropriateness of those emission factors, such as historical source test data or other available information. If source test data are not readily available for a specific emission unit, as IEPA asserts, other sources of emission factors (including published literature and material and energy balances) must be reviewed and cited for acceptable emission factors prior to issuing the permit.
>
> For the reasons provided above, I grant this claim and direct IEPA to specify in the permit and make available for public comment the emission factors or equations that USGW initially intends to use to demonstrate compliance with emission factor limits and maximum emission limits contained in the permit conditions identified by the Petitioner, including a clear explanation of how the emission factors will be used to determine compliance. IEPA should also specify in the permit and make available for public comment a provision on how the emission factors or equations will be updated as new emissions information becomes available for the affected operations. Alternatively, IEPA must specify an alternative periodic monitoring methodology in the permit that is adequate to demonstrate compliance with the permit limits cited by the Petitioner. Second Order, p. 12

The Illinois EPA is now proceeding as directed by USEPA in its Order, with the intent of issuing a revised permit that includes additional provisions, as required by the Order, related to the emission factors and the procedures that US Steel would use to demonstrate compliance with the subject emission limits.

Background

CAAPP permits must address emission limits set in preconstruction permits issued under regulations approved by USEPA in accordance with Title I of the

Clean Air Act (CAA) as such limits are considered "applicable requirements."[16] Preconstruction permits, commonly referred to in Illinois as construction permits, derive from the New Source Review ("NSR") permit programs required by Title I of the CAA. These programs include the two major NSR permit programs: 1) the Prevention of Significant Deterioration ("PSD") program,[17] and the nonattainment NSR program.[18] These programs also encompass state construction permit programs for projects that are not major.

The USEPA's Second Order addresses a number of emission limits that were carried over or incorporated into the CAAPP permit from Construction Permit/PSD Approval 95010001. This permit was initially issued in January 1996, to National Steel, the former owner of the Granite City Works. This permit addressed an expansion project that included increases in the production of iron from the two existing blast furnaces at this steel mill and an increase in the production of steel from the two existing BOP furnaces. The permit provided approval to undertake the project pursuant to state laws and rules governing construction and modification of sources of emissions, including the nonattainment NSR program and the PSD program.

To implement the major NSR permit programs, Illinois' construction permits must commonly include limits on the amounts of different pollutants emitted by the new or modified emission units that comprise the proposed projects addressed by the permits, defining their permitted emissions.[19] This is the case for Permit 95010001. As a general matter, the Periodic Monitoring required by the current CAAPP permit for limits on emissions established in Permit 95010001 would be provided by the Monitoring that would be required for the subject emission units related to applicable regulatory standards and other emission control requirements, together with specific recordkeeping related to their actual emissions. Emission factors would be used to determine actual emissions, with records required for the emissions factors[20] that are used to determine

---

[16] *See* definition of applicable requirements in Section 39.5(1) of the Act.

[17] The federal PSD program, 40 CFR 52.21, applies in Illinois. The Illinois EPA administers PSD permitting for major projects in Illinois pursuant to a delegation agreement with USEPA.

[18] Illinois has a state nonattainment NSR program, Major Stationary Sources Construction and Modification ("MSSCM"), 35 IAC Part 203, pursuant to state rules, that have been approved by USEPA as part of Illinois' SIP.

[19] In Illinois' NSR permit program for non-major or "minor" projects, the amounts of pollutants that are permitted to be emitted or the "permitted emissions" from projects must be addressed during permitting. This is because the applicability thresholds for the major source NSR programs are based on annual emissions of proposed projects, in tons per year. Accordingly, construction permits for proposed projects commonly include emissions limits that establish or memorialize the permitted emissions of the various new and modified emission units that are involved in projects. These permitted emissions then serve in place of the "theoretical" potential emissions of a project when addressing NSR applicability.

Illinois' major NSR permits also have limits for the permitted emissions of the different units that comprise a project. Rather than addressing applicability of NSR, these limits serve to implement the substantive requirements of NSR, as the amount of emissions for which different emission units are permitted is a critical element of the analyses that must precede the issuance of a permit for a proposed major project.

[20] In this Statement of Basis, the term "emission factor" is generally used with its common meaning. That is, an "emission factor" is a set value for the mass of a pollutant emitted by a particular emission unit relative to the amount of material that is processed or handled by the unit, which value is generally representative of the operation and emissions of the unit.

emissions and for the "throughput" of the units (i.e., the amount of material handled by these units or hours of operation).[21] Recordkeeping would also be required for the determination of the annual emissions, for comparison to the applicable permit limits for annual emissions. The Periodic Monitoring for the operation of the subject emission units as related to other applicable requirements would verify proper operation of the units and serve to confirm that established emission factors for such units are appropriately used to determine the amount of emissions. The presence of limits on the amount of emissions from such units generally does not necessitate additional or more frequent Monitoring for the operation of these units. As emissions of the units would be calculated using emission factors, the other information needed to determine actual emissions is their throughput or amount of material that is handled, with the actual emissions being the product of the applicable emission factor and the throughput or activity of a unit. The Periodic Monitoring specifically for permit limits on the amount of emissions would entail the necessary records for the throughput of the subject units. The Monitoring would also include recordkeeping for the calculated emissions, as needed for direct comparison to the established permit limits.

When emission factors are used to determine emissions, the critical element is the factors that are selected for use. The current CAAPP permit requires the Permittee to keep a file containing the emission factors that it uses to determine actual emissions for purposes of determining compliance with the subject permit limits. These records must also include the basis or supporting documentation for the selected factors. This assures that the selected emission factors are memorialized in writing, along with the factual basis for the emission factors. This makes the relevant supporting information available to the Illinois EPA personnel as well to the source's staff, both present and future, for their review and use. The current permit also accommodates changes to "established" factors by the source if new information may become available.[22] Changes to these "established" emission factors would also be required to be documented, with explanation and supporting data, and linked to a particular date.[23] A change to the established emission factor that the source uses would be mandatory, with adoption of a new established emission

---

For purposes of this discussion, an emission factor may also be a set value for the maximum hourly emission rate of a unit. In such case, the annual emissions would be determined from that emission rate and the actual operating hours of the unit.

[21] The emissions of the subject emission units cannot be determined by "material balance." For example, the emissions of sulfur dioxide (SO_2) from the units do not result from use of a fuel, where, absent add-on control equipment or the presence of sorbent material in the flue gas, SO_2 emissions can be calculated from the sulfur content and usage of fuel.

[22] The simplest example of circumstances in which an established emission factor must be reevaluated is the performance of emission testing for the emission unit that is subject to the permit limit. Other circumstances would include emission testing of similar emission units, as might occur either at the facility or at other units operated by US Steel, when testing at those other units was the basis of the current factor. Established emission factors would also have to be reevaluated if USEPA revises its *Compilation of Air Pollutant Emission Factors*, AP-42, and that document was the basis of the current factor.

[23] The date that the emission factor used for a particular unit is changed may be significant. A change in an emission factor can result from a change in an emission unit or associated control equipment or control practices, so that the new emission factor would supersede the former factor on the date when the underlying change to the unit was made. A change in an emission factor can also reflect the availability of new information and better data. In such case, a change to the emission factor may have implications for the emissions of the unit, especially if the former emission factor understated actual emissions of a unit.

factor, if it is determined that the current emission factor would understate actual emissions.[24,25]

This approach to Periodic Monitoring for the subject emission limits is dictated by the nature of the affected emission units and the available methodology to determine the actual emissions of these units. It is also consistent with the basis by which these limits were established in the underlying permit, as they were developed using emission factors. It is not feasible or practical to conduct direct monitoring of emissions to determine compliance with the subject permit limits nor would it be reasonable to do so even if feasible.[26, 27] This is particularly true as limits are established that address uncaptured emissions or fugitive PM, as defined by 35 IAC 211.2490, such as the limits established for the roof monitor of the BOF shop. Stacks are not present as are essential for instrumental emissions monitoring. Fugitive PM emissions are routinely determined using established emission factors. Proper operation of these units and their associated control devices can be readily verified by much simpler methods. In addition, the permit limits for emissions of PM and other pollutants were generally developed from data that was considered to represent the emission rate or emission factor that would be present when a unit and its associated control measures would be operating properly.

---

[24] A particular emission factor would understate actual emissions if the actual emissions would in reality be greater than would be calculated using such factor. For example, consider a unit that processes 5,000 tons of material annually. The actual or "true" emission rate of the unit, as measured by properly conducted testing, which testing continues to be representative of the operation of the unit, is 0.25 pounds/ton. If a higher emission factor, e.g., 0.40 pounds/ton, were used to calculate actual emissions for the purpose of determining whether this unit complies with a subject limit, the use of such factor would be acceptable. This is because the result would not understate actual emissions. Using a factor 0.40 pounds/ton, the calculated annual emissions would be 1.0 ton (5,000 tons x 0.40 lb/tons ÷ 2,000 lbs/ton = 1.0 ton). This is greater than the "true" emissions that would be calculated with the emission rate measured by testing, 0.625 tons (5,000 tons x 0.25 lb/tons ÷ 2,000 lbs/ton = 0.625 tons). However, the use of an emission factor that is lower than the measured rate, e.g., 0.20 pounds/ton, would understate actual emissions of this unit. The emissions calculated using a factor of 0.20 pounds/ton would be only 0.50 tons. Since this factor would understate the actual emissions of the unit, the use of such a factor would not be appropriate.

[25] The relevant criterion for a mandatory change to an established emission factor is if the factor understates actual emissions. The permit would not preclude use of emission factors that overstate actual emission factors. In particular, the source need not adjust the established emission factor after every emission test if the established emission factor has conservatively been set at a level above all the test results, e.g., at the level of the applicable emission standard.

[26] Monitoring for the mass of emissions (e.g., emissions in pounds per hour), as needed to determine compliance with emission limits set by construction permits, is more complicated than emissions monitoring. It entails not only measuring the concentration of a pollutant or loading in the exhaust but also monitoring for the flow rate of the units, as needed to determine the mass of emissions of a pollutant.

[27] As stacks are present on units that are subject to limits, technologies and procedures have not been developed for the use of continuous PM emissions monitoring systems on those units. As a technical matter, an essential prerequisite for any such PM monitoring, which is not yet satisfied for continuous PM monitoring, would be a demonstration that available monitoring technologies can be operated and maintained to provide reliable information on PM emissions when applied to the exhaust of the unit. Moreover, even if continuous PM monitoring were feasible, the effort entailed in applying current continuous PM monitoring methods, which have been developed for use on large coal-fuel fired boilers, to the subject emission units would be excessive.

As such, it is appropriate for the Periodic Monitoring for these permit limits on emissions to focus and rely upon the Monitoring to verify proper operation of units and their control equipment. This is provided by the Periodic Monitoring that would be provided for the regulatory emission standards and other control requirements that apply to the units. This Monitoring would require appropriate combinations of inspections, observations, emission testing and recordkeeping to verify the proper operation of different units as related to control of their emissions. As emission testing would be required as part of that Monitoring, it would also provide confirmation that the emission factors being used by the source to address emissions of a unit for purposes of emission limits are suitable and do not understate the actual emissions of the unit. This approach to Periodic Monitoring for emission units subject to permit limits on the amount of emissions, relying upon emission factors, production rates, and control efficiencies has previously been upheld by USEPA. *See* Order Responding to Petitioner's Request that the Administrator Object to Issuance of State Operating Permit, In the Matter of East Kentucky Power Cooperative, Inc. (USEPA, Dec. 14, 2009); (where USEPA reasonably relied on emission factors along with recordkeeping to demonstrate compliance with emission limitations).[28]

It should also be clearly understood that certain subject limits pose particular concerns for Periodic Monitoring that that are not present when requirements are developed by rulemaking. This is because of the nature of NSR, which necessitates that construction permits set certain emission limits that are very different from emission standards that are established by rulemaking. Rulemakings are generally focused on regulating or controlling the emissions of particular pollutants from a particular category or categories of emission units. During rulemaking, the emission units that will actually be subject to regulation may be considered and the scope of regulation may be adjusted. The emission standards that are finally adopted will consider the nature of the emissions from the units, how they might appropriately be controlled and in what terms emission standards should be set.[29] By contrast, the scope of construction permits is set by the emission units that will comprise the particular projects and the provisions of the NSR programs, which act to dictate that quantitative emission limits must be set for those units in the construction permits. Accordingly, because of the nature of construction permitting, certain terms and conditions in these permits may pose issues for Periodic Monitoring that are not present for applicable requirements that were developed by rulemaking. Construction permits must set limits for certain emission units for which testing of emissions is not feasible or impractical. Most significantly, limits must be set for certain emission units that lack

---

[28] It should be recognized that this approach to the subject permit limits does not decouple the ongoing Monitoring for such limits from the actual operation of such units. This is because the appropriate emission factor used to determine actual emissions can differ based on how a unit is operated. For example, if the normal emission factor for a unit is predicated on control of PM emissions and the unit operates during a period when the capture system is damaged, it is appropriate for the emissions during such period to be calculated using a higher factor that accounts for the actual condition of the control system during such period.

[29] For example, the NESHAP for Integrated Iron and Steel Manufacturing, 40 CFR 63 Subpart FFFFF, regulates uncaptured emissions of particulate matter from units at BOF shops with standards that address the opacity of those emissions. This NESHAP does not set quantitative standards on the amounts or mass of particulate emissions, in pounds per ton of steel processed or the concentration of particulate in the exhaust, in gr/scf. This NESHAP also does not address emissions of pollutants other than particulate, such as NO_x or SO_2, from units at BOF shops.

stacks, for which it is not possible to obtain measurements of exhaust or air flow rates to measure the mass of emissions. Limits must also be set for uncaptured emissions from certain units, which bypass the stack, for which measurements of emissions are also not possible. Limits may also be set for certain units for which the emissions are negligible, either in absolute terms or relative to the emissions of the principal units and emission streams at a facility.

Planned Action 1

The Illinois EPA must determine and adequately support a mechanism to determine compliance with the subject emission limits in the permit.

The use of "emissions factors" is generally an appropriate mechanism to address compliance with these emission limits. As already explained in the above discussion concerning the establishment of emission limits in construction permits, as a consequence of NSR, construction permits contain emission limits for emission units that do not have stacks. For these emission limits, direct measurement of emissions is not feasible. For emission units that do have stacks, construction permits also contain emission limits for which continuous compliance determination methods for emissions are neither feasible nor practical. In such circumstances, compliance with these emission limits set by the construction permit must be determined from values for actual emissions that are calculated using "appropriate" emission factors. For an emission factor to be appropriate, it must be representative of the actual operation and emissions of the unit whose emissions are being quantified. If source-specific emission testing is conducted for the unit, a "site-specific" emission factor must be used considering the results of that testing, instead of a "generic" emission factor, like the factors in USEPA's *Compilation of Air Pollutant Emission Factors*, AP-42. Since compliance is being determined with an emission limit, the emission factor that is being used must not understate the actual emissions of the unit. As further testing is conducted for a unit or other new information relevant to emissions of the unit becomes available, the emission factor that is being used for the unit must be reviewed to assure that it is appropriate and the factor updated if necessary.

The use of appropriate emission factors to determine compliance with permit limits on emissions in this manner is a well established practice. It does not act to shield an emission unit from other applicable requirements that apply to the unit. In particular, emission units must continue to comply with applicable emission standards and operational requirements, with proper operation and maintenance of units and their controls as necessary to comply with those requirements. The use of emission factors also does not preclude event-specific determinations of emissions for units as necessary because the established emission factors are not appropriate to address particular events. In this regard, the use of emission factors in this manner does not nor could it preclude the use of other credible evidence by the Illinois EPA or others to address US Steel's compliance with the subject limits. As related to use of emission factors to determine compliance with subject limits on emissions, it is significant that the Order has not suggested that use of emission factors in the manner set forth by the current CAAPP permit is not appropriate.[30] Rather, the Order identifies deficiencies in the procedures in the current permit that accompany the use of emission factors, as relevant to assuring that US Steel is

[30] It is also noteworthy that USEPA has not identified an alternative approach to these emission limits that would not rely on use of emission factors.

using appropriate emission factors and the roles of the Illinois EPA, USEPA and the public in these procedures.

Planned Action 2

The Illinois EPA must include in the permit itself the monitoring methodology for determining compliance with the subject limits. If emission factors, the Illinois EPA must propose the actual emission factors in the permit or supporting permit record and provide supporting documentation for the accuracy and appropriateness of those emission factors, such as historical source test data or other available information. If test data is not readily available for a specific emission unit, other sources of emission factors, including published literature, must be reviewed by the Illinois EPA and cited for acceptable emission factors prior to issuing the permit.

The revised CAAPP permit that the Illinois EPA now plans to issue would include the monitoring methodology for determining compliance with these emission limits, with additional enhancements to the methodology as directed by USEPA. (See new Condition 5.13 in the draft of the revised permit.) The record for the planned revision of the permit includes the documentation that currently supports the emission factors that US Steel is presently using to determine compliance with the subject limits. Emission testing that has been conducted for the affected units provides the support for the accuracy and appropriateness of many of the emission factors. For these limits, the relevant emission tests are identified in the record, along with the actual rate of emissions measured by the test. This testing generally shows that the actual emissions are well below the relevant emission factor.[31] The Illinois EPA has also reviewed available supporting data for emission factors for the specific emission units for which emission testing is not feasible or practical. The information supporting each emission factor is identified in the attachment to this Statement of Basis. Additional supporting information is included in the permit record for revision of the CAAPP permit that is now planned. For emission units for which emission testing is conducted, the relevant emission tests that have occurred are identified, along with the measured emission rates. For units for which testing is not conducted, the basis of the emission factor is provided, including a citation to relevant provisions of published documents.

Planned Action 3

The Illinois EPA must make available for public comment the emission factors that US Steel initially intends to use to demonstrate compliance with the subject emission limits.

The revised CAAPP permit that the Illinois EPA now plans to issue would include a listing of the emission factors that US Steel is currently using to determine compliance with the subject limits. (See new Attachment 3 in the draft of the revised CAAPP permit.

[31] As previously discussed, emission testing conducted during 2012 pursuant to the current CAAPP permit showed actual rates of NOx and VOM emission from the ESP for the BOP furnaces that are greater than the rate of emissions in the permit and the emission factor that US Steel was using to determine compliance with the relevant limits for these pollutants. As a consequence, US Steel has submitted a proposed compliance schedule for these two limits, which the Illinois EPA will be processing as an application for a significant modification to the CAAPP permit for the Granite City Works, separate from the planned revision to the current CAAPP permit pursuant to USEPA's Second Order.

Planned Action 4

The Illinois EPA must specify in the permit and make available for public comment a clear explanation of how the emission factors will be used to determine compliance.

The revised CAAPP permit that the Illinois EPA now plans to issue would include the required explanations in planned Conditions 5.13, which would contain new procedures related to US Steel's use of emission factors to determine compliance with the subject emission limits. As the standard for an acceptable emission factor is that it not understate actual emissions, this would now be explicitly stated in planned Condition 5.13(a). As already explained, it is a fundamental aspect of these emission factors that they not understate actual emissions. This is because they are being used for the purpose of determining compliance with emission limits. The relevant recordkeeping provisions in the current CAAPP permit related to these emission factors already require that they not understate actual emissions.[32] However, it is appropriate for this requirement be reiterated in Condition 5.13(a) since Condition 5.13 would be added to the CAAPP permit generally dealing with US Steel's use of emission factors for the subject limits.[33]

Planned Condition 5.13(b) would explain how emission factors are to be used by US Steel to determine compliance with the applicable limits. Most importantly, the actual annual emissions of the subject emission units would be calculated using the relevant emission factors for comparison to the subject annual emission limits to determine compliance. However, if more refined calculations are needed to appropriately quantify the actual annual emissions of a unit, the calculation of the annual emissions of the unit would not be constrained to the use of a single emission factor. If US Steel has developed different factors for different modes of operation of an emission unit, the annual emissions of the unit would be determined as the sum of the emissions for each mode of operation. Also, if there are additional emissions that are not accounted for by the established emission factor(s), these "additional emission" must also be included in the calculation of actual emissions.[34] Thus, the established emission factors are merely a technique that US Steel must use to facilitate its calculation of annual emissions for purposes of determining compliance with the subject limits on annual emissions.

Planned Action 5

The Illinois EPA must specify in the permit and make available for public comment provisions setting forth how the emission factors will be updated as new information becomes available for the subject units.[35]

---

[32] *See* Conditions 7.1.9(h)(i), 7.4.9(i)(i), 7.5.9(f)(i), and 7.6.9(c)(i).

[33] This provision will also further confirm that when US Steel is demonstrating compliance with one of the subject limits, it cannot simply "…select whichever emission factor appears to demonstrate compliance," as erroneously suggested by USEPA in the Second Order.

[34] The occurrence of events that result in additional emissions, which are not adequately addressed by the relevant emission factors that have been established by USEPA, is already contemplated by the current CAAPP permit. The current CAAPP permit requires records for periods of events that would potentially be accompanied by such additional emissions, which records must also include estimates of the amount of such additional emissions during such periods. *See* Conditions 7.1.9(h)(ii), 7.4.9(i)(ii), 7.5.9(f)(ii) and (g), and 7.6.9(c)(ii).

[35] While the Second Order would also accommodate use of "alternative periodic monitoring

The revised CAAPP permit that the Illinois EPA now plans to issue would include additional provisions required by the USEPA's Second Order. (See Conditions 5.13(c), (d) and (e) in the draft of the revised permit.)

Planned Condition 5.13(c) would address the actual review and update of emission factors by US Steel, specifically requiring US Steel to review the emission factors that it uses to determine compliance with the subject emission limits. For emission units with such limits for which emission testing is required to be conducted by the current permit, whenever such testing is conducted, US Steel would be required to review and, if necessary, update the relevant emission factors based on the results of such testing. Source-specific testing provides an authoritative statement of the actual emission rate of a particular unit. Accordingly, for the units for which testing is required to conducted, it is appropriate to only require US Steel to review and possibly update emission factors in conjunction with such testing. For those emission units with limits for which emission testing is not required to be conducted by this permit, US Steel would be required to review and, if necessary, update the relevant emission factors on at least an annual basis. This review would be required to consider new information that is relevant to the actual emissions of such units that has become available since the previous review, including revisions of USEPA's *Compilation of Air Pollutant Emission Factors*, AP-42, other information published by USEPA, information related to other emission units operated by US Steel, information presented in specific papers and reports concerning the steel industry, and other salient information. Since emission testing is not conducted for these units, which would provide authoritative confirmation of their actual emission rates, US Steel should be required to review the appropriateness of the factors for these units on a regular schedule, to consider new information that would necessitate any updates to such factors. It would be reasonable for such review to be conducted annually consistent with the timing of the annual compliance certification that US Steel must prepare and submit for the source under the CAAPP.

Reporting requirements related to US Steel's review and update of its emission factors would be addressed in planned Condition 5.13(d). Condition 5.13(d)(i) would refer back to Condition 5.9.6(c)(ii) of the current permit. Condition 5.9.6(c)(ii) already requires US Steel to submit copies of its revised records for emission factors to the Illinois EPA when these records are revised.[36] When the records for emission factors are actually revised by US Steel pursuant to the review that would be required by Condition 5.13(c), Condition 5.9.6(c)(ii) would require that the revised records that result be submitted to the Illinois EPA. As new Condition 5.13 would be added to the CAAPP permit generally dealing with US Steel's use of emission factors to determine compliance with the subject limits, it is appropriate that this existing reporting requirement in Condition 5.9.6(c)(ii) also be addressed in new Condition 5.13.

Planned Condition 5.13(d)(ii) would address another aspect of reporting for the reviews of emission factors that would be required by Condition 5.13(c). While

---

methodologies" for the subject limits, which would not entail use of emission factors, the Illinois EPA is not proposing to include any such methodologies in the revised permit. As discussed, it is generally appropriate for compliance with the subject limits to be determined with emission factors, in the manner provided by the permit.

[36] Condition 5.9.6(c) was included in the current CAAPP permit in response to certain public comments when the permit was revised in May 2011. (*See* Comment/Response 37 in the *Response to Comments on the Planned Issuance of a Revised Clean Air Act Permit Program (CAAPP) Permit to U.S. Steel Corporation, Granite City Works*, Illinois EPA, May 2. 2011.

planned Condition 5.13(c) would require that US Steel conduct such reviews, these reviews would not necessarily always lead to updates to emission factors, so as to be followed by preparation and submittal of revised records to the Illinois EPA. Accordingly, Condition 5.13(d)(ii) would require US Steel to submit reports to the Illinois EPA related to these reviews. At a basic level, these reports would serve to provide positive confirmation that US Steel had conducted the required review of emission factors. In addition, these reports would also provide key information about the reviews that were conducted for the subject units and limits, including identification of any testing conducted during the previous year, or a description of new information that was considered, and the findings and conclusion of its review of such information.[37] These reports would also provide a summary of any updates to the relevant emission factors made by US Steel. The inclusion of this further information in the reports would be appropriate and reasonable as it will further facilitate, as well as simplify, the supervision of the use of emission factors by US Steel by the Illinois EPA and the potential involvement of the public in this process. This is especially true as the planned revised permit would now require US Steel to conduct an annual review for the emission factors that it is using. In this regard, it would be appropriate for these reports to be submitted annually, for the review conducted during the previous calendar year. The reports should also be submitted by the same date as the annual compliance certification, which also address operation and compliance of a source during the previous calendar year.

Planned Condition 5.13(e) would set forth a formal procedure to address potential circumstances in which US Steel should conduct further review of the particular emission factor(s) that it is using for certain limits. The planned condition would require US Steel to conduct such review within 45 days of written notification from the Illinois EPA or USEPA that such review is needed for particular emission factor(s). The circumstances under which US Steel would potentially need to conduct such additional review, as addressed in this planned condition, include inadequate documentation for the selected emission factor(s), inadequate explanation for updates to emission factor(s) in the reports for such updates, apparent failure to appropriately address a new mode of operation, and the need to consider other new information which appears pertinent to the emissions of a subject unit. This planned condition would respond to the concern, as generally expressed by USEPA in the Second Order, that the current CAAPP permit does not include adequate provisions for supervision by the Illinois EPA of US Steel's use of emission factors. It is not appropriate for the additional provisions related to emission factors in the CAAPP permit to require prior approval of emission factors by the Illinois EPA, since the permit would not provide US Steel with any permit shield in conjunction with the use of those factors.[38] However, it is appropriate for the revised permit to include procedural requirements that would facilitate supervision by the Illinois EPA, as well as by USEPA, of US Steel's use of emission factors. At a minimum, this is because the Act would not provide a mechanism to accomplish this other than by means of enforcement. The planned condition would provide a simpler and more direct mechanism to deal with the

[37] If the review for a particular unit would result in an update to the relevant emission factor, the detailed information for such update or revision to the emission factor should be provided in the revised records submitted to the Illinois EPA pursuant to Condition 5.9.6(c).

[38] In addition, USEPA has not suggested in the Order that it would be appropriate to provide any such shield, as would be implicit if the Illinois EPA were to specifically approve the emission factors that US Steel would use to determine compliance with the subject limits.

need for US Steel to conduct further review of certain emission factor(s) that it is using, when requested to do so by the Illinois EPA or USEPA. As such a mechanism would be established, it is appropriate for the planned condition to specify the circumstances in which it might be invoked. The planned condition lists the circumstances in which it is reasonable for US Steel to be required to conduct further review of particular emission factor(s).

IV. Provisions of the CAAPP Permit under State Rules for Startups and Malfunction/Breakdown Events

USEPA Order

In Section III of the Second Order, USEPA discussed ABC's allegations that the revised CAAPP permit issued in May 2011 continues to "pre-approve" US Steel's operation in excess of certain applicable emission standards. In this regard, it also addressed ABC's allegation that the Illinois EPA's interpretation in the Statement of Basis and Responsiveness Summary for the May 2011 permit relative to conditions for startup and malfunction/breakdown is not consistent with the terms of the actual permit and the relevant provisions of Illinois' State Implementation Plan (SIP).

As a preliminary matter, the Second Order found that the Illinois EPA appropriately explained that the sole determination made in advance of a malfunction/breakdown or startup event is whether a source requested permission to continue to operate during a malfunction/breakdown or startup event in its application, and that such authorization "does not shield the Permittee from enforcement for any such violation and only constitutes a prima facie defense to such enforcement action." USEPA agreed that the CAAPP permit conditions were consistently worded with the Illinois EPA's interpretation of its SIP.

Next, USEPA referred to ABC's claims that US Steel's application to continue operation during startup or malfunction/breakdown events did not comply with the Illinois SIP given it did not supply all the information required by the SIP. USEPA granted the petition on this issue finding that the Illinois EPA may not grant permission to US Steel to operate during a startup or malfunction/breakdown event absent an application from US Steel that includes all of the information required by Illinois SIP at 35 IAC 201.261 and 201.262.

In response to the Second Order, US Steel submitted additional information to the Illinois EPA to support its request for malfunction/breakdown and startup authorization consistent with the requirements of 35 IAC 201.261, Contents of Request for Permission to Operate During a Malfunction, Breakdown or Startup. Under 35 IAC 201.262, Standards for Granting Permission to Operate During a Malfunction, Breakdown or Startup, the standard for the Illinois EPA to grant continued operation during a malfunction or breakdown is that such continued operation is necessary to prevent injury to persons or severe damage to equipment. The standard for the Illinois EPA to grant continued operation during a startup event in violation of the standards or limitations is that all reasonable efforts have been made to minimize startup emissions, duration of individual startups and frequency of startups. The Illinois EPA has reviewed the information submitted by US Steel and has determined that applicable requirements would be satisfied. Accordingly, for the emission units that are the subject of US Steel's requests, the planned revised CAAPP permit would continue to authorize US Steel to make claims related to malfunction or breakdown and startup.

General Discussion

The Illinois EPA does not provide for "automatic exemptions" within CAAPP permits for operation with excess emissions during malfunction/breakdown or startups. As related to state emissions standards under the SIP, the conditions of the current CAAPP permit issued to US Steel regarding operation during periods of malfunction/breakdown and startup are consistent with the Illinois SIP and federal guidance on the subject of compliance during such

periods. An explanation of Illinois' SIP and permitting practice in this regard follows.

Section 201.149 of Illinois' SIP prohibits continued operation of an emission unit during malfunction or breakdown of the unit or associated air pollution control equipment, or startup of an emission unit or associated air pollution control equipment, if such operation would cause a violation of applicable emission standards or limitations absent express authorization in a permit. Further provisions pertaining to such authorizations are set forth in 35 IAC Part 201, Subpart I. These provisions make clear that the process in Illinois for addressing malfunction/breakdown and startup is in two steps. The first step, as set forth at 35 IAC 201.261, consists of seeking authorization by means of a permit application to prospectively make a claim related to malfunction/breakdown or startup. For malfunction/breakdown, the application shall include an explanation of why continued operation is necessary; the anticipated nature, source quantity and duration of emissions; and measures that will be taken to minimize the quantity and duration of emissions. For startup, the application shall include a description of the startup procedure, duration and frequencies of startups, type and quantity of emissions during startups, and efforts to minimize emissions, duration and frequency. These regulatory requirements are acknowledged by the CAAPP, pursuant to Section 39.5(5)(s) of the Act. Absent a request for authorization in an application for a CAAPP permit that satisfies both the requirements for application content and the standards for granting, and, after Illinois EPA review, an express grant of such authorization in a CAAPP permit issued by Illinois EPA, a CAAPP source cannot make a claim of malfunction/breakdown or startup under Illinois' rules.

The second phase of Illinois' process for operation with excess emissions during malfunction/breakdown or startup, as set forth at 35 IAC 201.262, addresses the showing that must be made in order to make a viable claim of malfunction/breakdown or startup. For malfunction/breakdown, this showing consists of a demonstration that operation was necessary to prevent injury to persons or severe damage to equipment, or was required to provide essential services. There are two elements to the required showing, "need" and "function". For startup, it shall consist of a demonstration that all reasonable efforts have been made to minimize emissions from the startup event, to minimize the duration of the event, and to minimize the frequency of such events. To a certain extent, this showing may be evaluated on past practice. However, this showing is also prospective, like the showing for malfunction/breakdown, as it relates to future events, which and whose exact circumstances are not known, and which, in fact, may not routinely occur.

Again, the Second Order found that US Steel did not meet the content requirements, as set forth in the Illinois SIP, in its request for authorization to continue operation during startup because startup emissions were not quantified. Although no specific deficiency was identified with respect to the separate requests for malfunction/breakdown, the Second Order appears to view the two sets of requests interchangeably, as the latter set was also deemed incomplete.[39] Rationalizing that any approval of the requests by Illinois EPA was contingent upon the "adequacy" of the content of those requests, USEPA found that the Illinois EPA erred in approving the requests and the resulting conditions of the CAAPP permit were therefore "flawed."

[39] The Second Order observes that the permittee did not include "anticipated quantities of emissions, *among other things*." (emphasis added). See, Second Order at page 25. However, this vague passage sheds little light on how US Steel allegedly failed to observe the content requirements in its requests related to malfunction/breakdown.

As a threshold matter, certain legal implications relating to the Second Order on this issue are of serious concern. The most problematic issue is the source of the legal authority through which the order suggests that part of the original CAAPP permit, issued on September 3, 2009, as it addressed continued operation during startup and malfunction or breakdown events under the Illinois' SIP is void. On the face of the order, the only purported basis for this action is an alleged SIP-related deficiency reflected in the underlying CAAPP application, which was deemed administratively complete by the Illinois EPA in 1996.

The premise of USEPA's argument suggests that the slightest inadequacy in a request for startup, breakdown or malfunction authorization, deprives the State permitting authority of its jurisdiction to approve the request and invalidates (or voids) any such approval reflected in a Title V permit, even though the SIP-based requirement is largely procedural in nature (i.e., application content) and intended only to facilitate the permit authority's review. This reasoning would appear both erroneous as a matter of law, which must necessarily involve the application of *state* law for any interpretative issue derived from the Illinois SIP, and overreaching with respect to USEPA's role in reviewing Title V permits.

If the content requirements of 35 IAC 201.261 are properly considered according to principles of statutory construction, the force of the language would likely be read as mandatory.[40] However, if these obligatory requirements are not met by a permit applicant, it is equally certain that subsequent agency action relating to the incomplete request would not be invalidated for that reason alone. Because the provision does not identify the consequences of noncompliance with its requirement, the Pollution Control Board and Illinois courts would likely construe this provision as being directory, not mandatory. As such, the Illinois EPA's approval of the request would not be considered jurisdictional (and therefore deemed void) on the basis of incompleteness. This result is consistent with thirty-year old judicial case precedent, which confirmed that the Illinois EPA does not lose jurisdiction under the Act to approve a permit notwithstanding that the application is incomplete under the Pollution Control Board's rules.[41] The framework of analysis set forth in the Second Order overlooks these basic, legal aspects of the issue.

Moreover, the nature of USEPA's review of the CAAPP permit seems strikingly at odds with this agency's oversight role established in the Clean Air Act.[42] For one thing, the scope of the Second Order appears to go well beyond an evaluation of whether a CAAPP permit for a particular source complies with the substantive requirements of the Title V program. In this instance, review has extended into the State's traditional province of SIP decision-making, which, for many sources, could have originated years ago in pre-Title V state construction or operating permits. That USEPA can assume this judicial role for SIP-based determinations under Title V is not readily apparent from the CAA,

---

[40] Under the approach typical of most Illinois state courts, the use of the term "shall" would strongly suggest that the content requirements are to be properly construed as a command, imposing an obligation on the part of the applicant to submit the information as part of its relevant request(s).

[41] *White Fence Farm, Inc., v. Land and Lakes Company,* 424 N.E.2d 1370 (4th Dist. Ct. Appeals, 1981).

[42] The Illinois EPA does not question USEPA's Title V authority to generally oversee implementation of Title V permitting, including performing its separate duties of commenting on proposed permits or conducting quasi-judicial reviews of Title V permits challenged in the public petition process.

particularly given the framework of cooperative federalism upon which the latter is built.

Even if authority exists under Title V to warrant the scope of such intervention, the manner of USEPA's review failed to comport with the appropriate standard of review and neglected to justify its principal legal conclusion. To the extent that the Illinois EPA's permit decision-making involved the implementation of SIP-related requirements, or, similarly, reflected its technical expertise in the field of air pollution, USEPA should have reviewed the agency decision under a standard of abuse of discretion, instead of substituting its own judgment for that of the State permit authority. The Second Order also rests upon a legal premise that presumes too much, failing to take into account the differences in the broader factual requirements sought under 35 IAC 201.161 and the narrower legal criteria expressed in the standards for issuance under 35 IAC 201.262. It is not intuitively obvious that some of the more anecdotal information requested in 35 IAC 201.261 must serve as a factual predicate to every determination under 35 IAC 201.262.[43]

Notwithstanding the apparent legal flaws of the Second Order on this issue, US Steel has assisted the Illinois EPA in endeavoring to address the Second Order by providing further information to support its request. Specifically, for those emission units for which US Steel was provided malfunction/breakdown or startup authorization under Illinois' SIP, US Steel supplied additional information to supplement its prior requests related to malfunction/breakdown events and its prior requests related to startup. This provided the specific information required by the relevant state rules. Again for malfunction or breakdown, this information is an explanation of why continued operation is necessary; the anticipated nature, source, quantity and duration of emissions; and measures that will be taken to minimize the quantity and duration of emissions. For startup, it is a description of the startup procedure, the duration and frequency of startups, the type and quantity of emissions during startups, and efforts to minimize emissions, duration and frequency.

That the planned revised CAAPP permit would continue to allow US Steel to make claims related to malfunction/breakdown or startup would not equate to an "automatic exemption." Such authorizations would be fully consistent with long standing practice in Illinois for permitting and enforcement. Due to the size and complexity of certain emission units at the Granite City Works and the inability to simply shutdown equipment or the level of hazards associated with improper startup or shutdown of such units, the source may experience excess emissions due to events that cannot be readily anticipated or reasonably avoided. However, US Steel is also fully aware that it may be held accountable for any excess emissions that occur regardless of any such authorizations.

Neither the provisions in the SIP nor the provisions in the CAAPP permit delineating the elements for a viable claim of malfunction/breakdown or startup translate into any advanced determination on excess emissions. Rather, the regulations and the CAAPP permit provide a framework whereby US Steel may have an opportunity to make a claim related to malfunction/breakdown or startup, with the viability of such claim subject to specific review against the requisite requirements. Indeed, 35 IAC 201.265 directly states that violating

[43] The Second Order does not consider how the quantification of emissions is to be factored into or is relevant to the criteria for malfunction/breakdown authorization (i.e., personnel/equipment safety or essential service) or the minimization efforts that form the basis for the criterion governing startup authorization.

an applicable state standard even if consistent with any expression of authority regarding a malfunction/breakdown or startup set forth in a permit shall only constitute a prima facie defense to an enforcement action for such violation. The malfunction/breakdown or startup authorization that would be provided in the planned revised CAAPP permit would not shield US Steel from state emission standards that may be violated during such events. Rather, the source is subject to the applicable limitations and standards on any malfunction/breakdown or startup authorization as would continue to be included in the revised permit. As a result, any excess emissions during these events would constitute violations potentially subject to enforcement action.

Source-Specific Discussion for Malfunction/Breakdown

For the emission units that are the subject of US Steel's requests, the planned revised CAAPP permit would continue to provide authorization to US Steel to make claims of malfunction or breakdown. The Illinois EPA has reviewed the information submitted by US Steel to support its requests related to malfunction and breakdown considering the requirements of the applicable Illinois rules, which rules are part of Illinois' SIP.

As already discussed, for an emission unit for which such a request is made, 35 IAC 201.261 requires a source to submit information explaining why continued operation of the emission unit would be necessary during malfunction or breakdown events; the anticipated nature, source, quantity and duration of emissions; and measures that will be taken to minimize the quantity and duration of emissions from malfunction and breakdown. For each emission unit at the Granite City Works that is the subject of such a request,[44] US Steel has explained that authorization for a claim of malfunction or breakdown is necessary because continued operation during such events in certain circumstances would be required to prevent injury to personnel at the Granite City Works. US Steel has also explained that continued operation during such events would also be needed to prevent severe damage to equipment. US Steel also submitted information regarding the nature, sources, quantity and duration of emissions during malfunction and breakdown events. For this purpose, US Steel provided information for each subject emission unit relative to the specific state emission standards for which authorization to make a malfunction and breakdown claim has been requested. This information was necessarily general in nature, addressing "typical" and worst-case malfunction or breakdown events. This is because a malfunction or breakdown may involve a minor aspect of an emission unit, e.g., failure of particular component(s) or feature(s) of the unit, or a major aspect of an emission unit, e.g., failure of the fan in the control system of the unit. In addition, malfunction and breakdown events are by definition "unplanned" future events, so that the exact nature of these events, their effects on emissions and their duration cannot be specified. Concerning those measures that will be taken to minimize the quantity and duration of emissions for malfunctions and breakdowns, US Steel described the preventative measures that would be taken to avoid malfunction/breakdown events. These generally included preventative maintenance, keeping an inventory of spare parts, and standing contracts with service providers. Upon occurrence of a malfunction or breakdown event, US Steel committed to the use of overtime, expedited shipments of replacement parts where a spare may not be available, and the use of additional mobile equipment to expedite repairs.

[44] The subject emission units are the coke oven processes, the blast furnace processes, the basic oxygen processes and the ladle metallurgy furnace, and the boilers, for which malfunction and breakdown is addressed, respectively, in Conditions 7.2.5-5, 7.4.5-2(b)(i), 7.5.5-2(b)(i) and 7.10.3(j) of the current permit.

Based on the Illinois EPA's review of the information that has been provided, US Steel has satisfied the informational requirements of 35 IAC 201.261 related to malfunction and breakdown.

US Steel has submitted proof that continued operation of the subject units would be necessary to prevent injury to persons or severe damage to equipment, satisfying 35 IAC 201.262. In general, many of the subject emission units involve materials that are potentially dangerous, i.e., flammable coke oven gas and molten metal, which must be handled properly to prevent injury to operational personnel. These materials would present an immediate danger to these personnel if operation of the subject units did not continue during malfunction/breakdown events. This is because it would entail handling of these materials in a way that is inconsistent with the way that these units are designed to operate and safely handle these materials. The flow of material outside of the design process pathways would pose a direct hazard to personnel. The resulting consequences, e.g., the need to remove solidified metal from furnaces vessels and metal transport equipment and make repairs to such equipment, would pose a secondary threat of injury to personnel. For the boilers, the steam that is produced by the boilers is essential for maintaining the ongoing operation of the blast furnaces and certain other operations at the Granite City Works in a safe and proper manner. The integrated nature of the source means that any significant disruption in the major areas of the source, which would occur if the operations of the subject units did not continue operation during malfunction or breakdown, poses a threat of disruption in operation of other related areas of the source. This would then pose risks to the safety of personnel as normal operation of those other areas at the source is disrupted.

US Steel has also explained that continued operation during malfunction and breakdown events would be needed to prevent severe damage to equipment. Most obviously, continued operation is necessary to prevent molten material from solidifying in furnaces and transport vessels, with resulting damage to equipment. In the case of the processing of molten iron from the blast furnaces, ceasing operation and letting the metal solidify in a torpedo car would irreparably damage the car. Other examples of the severe damage that could occur if operation did not continue include damage to the brickwork in the coke ovens, rupture of gas collecting mains, damage to the blast air system and failure of refractory.

In summary, based on its review, the Illinois EPA has concluded that the regulatory requirements for granting US Steel authorization to make claims of malfunction and breakdown continue to be met. For the emission units that are the subject of US Steel's requests, the planned revised CAAPP permit would continue to provide authorization to US Steel to make claims of malfunction or breakdown.

Source-Specific Discussion for Startup

For the emission units that are the subject of US Steel's requests, the planned revised CAAPP permit would continue to provide authorization to US Steel to make claims related to startup. The Illinois EPA has carefully reviewed the information submitted by US Steel to support its requests related to startup considering the requirements of the applicable Illinois rules, which rules are part of Illinois' SIP.

As already discussed, for an emission unit for which such a request is made, 35 IAC 201.261 requires a source to submit information describing the startup

procedure, duration and frequency of startups, type and quantity of emissions during startups, and efforts to minimize emissions, duration and frequency of startups. For the emission units that are the subject of these requests,[45] US Steel has submitted this information. US Steel has provided a description of the startup procedures for the subject emission units. Startups of the units are planned in advance. Startups are conducted in accordance with established procedures that have been developed to safely bring units into normal operation. For the subject units, US Steel has also provided information on the duration and frequencies of startups and the type and quantity of emissions during startups. While the duration of a startup may vary based on the length of time that an emission unit has been out of service, the nature of maintenance and repairs that were conducted, and event-specific factors, a standard series of steps is followed during each startup to resume normal operation. For each emission unit at the Granite City Works that is subject to such a request, US Steel has also submitted information, as required by 35 IAC 201.261, describing its efforts to minimize emissions, duration and frequency of startups.[46] Based on the Illinois EPA's review of the information that has been provided related to startup, the Illinois EPA concludes that US Steel has satisfied the informational requirements of 35 IAC 201.261.

Consistent with 35 IAC 201.262, US Steel has affirmatively demonstrated that all reasonable efforts have been made and will be made to minimize startup emissions, duration of individual startups and frequency of startups. As such, the Illinois EPA has concluded that the regulatory standard for authorizing claims related to startups has been satisfied. For the different groups of subject units, the Illinois EPA's review relative to the provisions of 35 IAC 201.262 is discussed in further detail below.

Unit-Specific Discussion for Startup of Coke Oven Batteries

The frequency of startups of the coke oven batteries is minimized by US Steel. Startup of the coke oven batteries is a rare event because of the damage to the coke ovens that results when a battery is idled and then resumes operation. First, the cooling of the ovens, when they are idled, leads to damage to the refractory brickwork due to contraction. Steel components in parts of the ovens also suffer damage due to contraction and warping. Then, upon resumption of operation, the heating of the ovens causes further damage due to thermal expansion and warping. Once a coke oven battery is put into service, the preferred way of operating is to never idle the battery. US Steel has a substantial economic incentive to avoid the idling of coke oven batteries and their subsequently startup. Following idling of a coke oven battery, there are costs for the repairs for damage that must be conducted prior to and during the actual startup of a battery. Additional costs may also be present in the subsequent years of operation following resumption of operation after an idling event. The idling and restart of a battery may result in deterioration of the battery that only gradually appears, leading to the need for additional repairs and maintenance to the ovens to maintain them in proper condition. Given the consequences of idling a coke oven battery, US Steel's two coke oven batteries

[45] The subject emission units are the coke oven processes, the blast furnace processes, the reheat furnaces in the hot strip mill and the boilers, for which startup is addressed, respectively, in Conditions 7.2.5-4, 7.4.5-2(b)(ii), 7.7.5(a) and 7.10.3(i) of the current permit.

[46] As related to the frequency of startup, US Steel has appropriately focused on the circumstances that lead to emission units being taken out of service. This is because outages of emission units are followed by startups, so that the frequency of startups is in practice determined by the frequency of outages.

at the Granite City Works are rarely idled. These batteries were last idled about three years ago, in late 2009 and early 2010, after operating for many years without ever being idled. When these batteries were idled, they were each idled for extended periods of time, with only a single startup for each battery when it was brought back into service.

The occurrence of excess emissions during startup of a coke oven battery is dictated by the inability to initially operate a coke oven battery in its normal configuration. Attempting to operate in a normal configuration would pose a significant threat to the safety of personnel and to the physical integrity of the gas collecting systems on the batteries. This is because the composition of the coke oven gas initially generated by the ovens would contain air so as to present a risk of explosion, rather than merely being flammable. In addition, a number of coking cycles are needed before the coking process in a battery is fully stabilized, with consistent temperatures and other operational conditions achieved in all of the ovens in the battery.

Emissions from startup will be minimized by appropriate measures. The procedures for startup of a coke oven battery provide for the gradual startup of a battery. Only a small number of ovens will be charged until collection of coke oven gas is initiated. Once this occurs, collection of coke oven gas from the initial ovens that are then charged will each only be delayed for short time to ensure that the level of air in the collected gas does not exceed a safe level. Startup emissions are also generally minimized by the maintenance and repair work performed prior to startup. Startup emissions are also minimized by other aspects of the startup procedures. For example, a battery will be brought as close to operating temperatures as possible by means of the underfire combustion system before coal is first charged to the battery. Emissions will also be minimized by appropriate staffing of the battery during startup, which, given the magnitude of the undertaking, necessarily involves the use of additional operating and maintenance personnel, including contract labor, and the presence of management and engineering staff to immediately address any problems as they arise. Necessary staff will initiate any and all appropriate corrective actions to reduce the magnitude and duration of excess emissions as practical. Additional equipment and supplies will also be staged as appropriate during startup. By employing extra staffing with overtime, maintaining a spare parts inventory and employing additional equipment such as cranes and other mobile equipment to expedite any necessary repairs, US Steel will also be prepared to address unforeseen developments that occur during a startup of a coke oven battery and to take appropriate actions to minimize the effect of those developments on the emissions that accompany startup of the battery.

US Steel has appropriately demonstrated for the coke oven batteries that all reasonable efforts will be made to minimize startup emissions, duration of individual startups and frequency of startups. As the regulatory standard for granting authorization to make claims of startup for the coke oven batteries continues to be met, the planned revised CAAPP permit would continue to authorize US Steel to make such claims.

Unit-Specific Discussion for Startup of Blast Furnace Processes

The frequency of startups of the blast furnaces is minimized by US Steel. Startup of a blast furnace is not a frequent event. This is because of the damage to a furnace that may result when a furnace is idled, the complexity of the startup of the furnace to bring a furnace back into production, and the interruption in routine operation of the blast furnace. US Steel has a

substantial incentive to continue operating the blast furnaces as it practical to do so. The cooling of the furnace leads to deterioration and possible damage of the refractory and other components of the furnace due to contraction. Once a blast furnace is put into service, the ideal way of operating would be to never idle the furnace. However, in practice it is necessary to periodically take blast furnaces out of service for inspections, maintenance and repair to facilitate continued safe, compliant and effective operation of the furnace, including certain regular inspections that are required as a condition of US Steel's insurance. In addition, low demand for steel will necessitate the idling of the blast furnaces if the demand for steel from the Granite City Works is below the level at which the furnaces are designed to safely and efficiently operate.

The occurrence of excess emissions during startups of the blast furnaces is a natural consequence of the design and operation of these furnaces. Until the furnace is brought up to normal operating temperature and pressures and the smelting process in the furnace is fully established, the furnace will not operate in a stable fashion. This must occur gradually. The rate at which a furnace can be brought up to normal operation is constrained by the need to let the physical structure of the furnace adjust to the increase in temperature and pressure. Otherwise, the stresses in various components of the furnace may cause damage to those components. It is also necessary to coordinate the operation of the various systems that are involved in the operation of the furnaces, including the stoves and blowers for the blast air and the charging systems for ore and flux. This also dictates a gradual startup, so that operational stability and control is maintained during startup. However, until the smelting process is fully established, with stable operation of the furnace at normal operating conditions, excess emissions may occur. These emissions may occur directly from the furnace, e.g., the relief vents on the furnace. Excess emissions also may occur indirectly, e.g., the normal separation of iron, slag and dissolved gases in the tapped material has not been completed, leading to the generation of additional emissions during tapping. These occurrences cannot be readily avoided during the startup of the furnace.

Emissions during startup of the blast furnaces are minimized by startup procedures that are designed to avoid the conditions that lead to excess emissions, as well as to provide the safe return of a furnace to normal service. Control equipment and control measures for the furnaces, including the control measures for tapping, are fully operational during startup. The furnaces are equipped with instrumentation to detect problems in the operation of the furnaces. This enables corrective measures to be promptly implemented. The regular preventative maintenance and repairs that US Steel conducts for the furnaces and their instrumentation facilitates consistent startups of the furnaces in accordance with established procedures.

US Steel has appropriately demonstrated for the blast furnace processes that all reasonable efforts will be made to minimize startup emissions, duration of individual startups and frequency of startups. As the regulatory standard for granting authorization to make claims of startup for these processes continues to be met, the planned revised CAAPP permit would continue to authorize US Steel to make such claims.

Unit-Specific Discussion for Startup of Hot Strip Mill (Reheat Furnaces)

The frequency of startups of the reheat furnaces is minimized by US Steel. While these furnaces are designed to be routinely taken in and out of service, each shutdown and startup cycle contributes to wear on a furnace. The

contraction and expansion that accompanies cooling and reheating of a furnace places stresses on the refractory and other components of the unit. Reheat furnaces, like those at the Granite City Works, are taken out of service when it is necessary or reasonable to do so. Reheat furnaces are taken out of service when they are not needed or cannot be efficiently operated to meet the production schedule of the rolling mill. These schedules are developed on a weekly basis. In circumstances when a reheat furnace would not be needed, continued operation of the furnace, without a shutdown and subsequent startup, would not act to minimize emissions, since the continued operation of the furnace with its associated emissions would be unnecessary. Reheat furnaces are also taken out of service to perform routine inspections, maintenance and repair and for other repairs that are necessary for the continued safe and proper functioning of the unit. While it is in US Steel's interest to manage outages for this purpose, reheat furnaces necessarily require relatively frequent maintenance, typically about every six weeks. This is because the furnaces heat heavy steel slabs to the elevated temperatures at which rolling is conducted. Heating is conducted in a series of zones to efficiently achieve a uniform temperature profile in each steel slab that is introduced into the furnaces. Regular maintenance is needed for the proper operation of the burners and combustion systems and the mechanisms that move the slabs through the furnace, as well as to repair refractory that has deteriorated or been damaged.

The occurrence of excess emissions during startups of the reheat furnaces at the Granite City Works is a natural consequence of the design of these units, even though only fired with gaseous fuels. Excess emissions occur during startup because the temperatures in these furnaces must be gradually increased or "ramped up" during startup. Excess emissions also occur during startup due to the inability of the burners in the furnaces to operate efficiently at the low firing rates that are present during startup. The rate at which these furnaces can be brought up to normal operation is constrained by the need to let the physical structure of the furnaces adjust to the increase in temperatures. Otherwise, the levels of thermal stress in the various components of a furnace may cause damage to those components. It is also necessary to coordinate the operation of the various burners in the different sections of these furnaces. This also dictates a gradual startup, so that operational stability is maintained during startup while the furnace transitions from initial operation to normal operation. Attempting to "immediately" begin operating a furnace within its design range for firing rate would pose a threat to the safety of personnel and to the physical integrity of the furnace. The physical integrity of the furnace would directly be put at risk. As the operational stability would be put at risk, an indirect threat would be posed to personnel and the furnace. The further consideration for the startup of these furnaces is that the burners in the furnaces are designed, appropriately, to function most effectively when they are operating in their normal operating range. It is inconsistent with such design for the burners to be as effective when operating below the normal range as necessarily occurs during startup of these furnaces. However, as already explained, operation below the normal operating range is inherent in the startup of these furnaces.

Emissions during startup of the reheat furnaces are minimized by startup procedures that facilitate good combustion during startup. In addition, the duration of startups is minimized by keeping as much heat as possible in the furnace after a shutdown. This acts to shorten the duration of the subsequent startup, also reducing the amount of fuel that must be fired during startup. Each furnace is equipped with appropriate operational instrumentation relative to combustion, including instrumentation for fuel flows, flame temperatures, fan amperage, and oxygen level in the exhaust. The operation of burners is

automatically adjusted to avoid loss of flame and flame safety trips, which would act to extend the duration of startup. Operation is also automatically adjusted to maintain good combustion. Transitions between fuels are staged to maintain stability of combustion in the furnace. Startup is overseen by operating personnel, who make adjustments to maintain proper combustion during startup. The regular preventative maintenance that US Steel conducts for the furnaces and their instrumentation facilitates consistent startups of the furnaces in accordance with established procedures.

US Steel has appropriately demonstrated for its reheat furnaces that all reasonable efforts will be made to minimize startup emissions, duration of individual startups and frequency of startups. As the regulatory standard for granting authorization to make claims of startup for these furnaces continues to be met, the planned revised CAAPP permit would continue to authorize US Steel to make such claims.

Unit-Specific Discussion for Startup of Boilers

The frequency of startups of boilers is minimized by US Steel. While boilers are designed to be routinely taken in and out of service, each shutdown and startup cycle contributes to wear on the boiler. While boilers do not operate at extreme temperatures, the contraction and expansion that accompanies cooling and reheating of a boiler places stresses on the refractory and other components of the boiler. Industrial boilers, like those at the Granite City Works, are taken out of service when it is necessary or reasonable to do so. Boilers are taken out of service to perform routine inspections, maintenance and repair and for other repairs that are necessary for the continued safe and proper functioning of a boiler. Boilers are also taken out of service when they are not needed or cannot be effectively or efficiently operated to meet the current steam requirements of the facility. In these circumstances, continued operation of the boiler, without a shutdown and subsequent startup, would not act to minimize emissions, since the continued operation of the boilers with its associated emissions would be unnecessary.

The occurrence of excess emissions during startups of the three boilers at the Granite City Works, is a natural consequence of the design of larger boilers, even when only fired with gaseous fuels. The boilers are fairly large, one having a design capacity of about 500 mmBtu/hr and the others each having a capacity of about 200 mmBtu/hr. Excess emissions occur during startup because the temperatures in and the load on the boilers must be gradually "ramped up" or increased during startup and because the burner systems in the boilers operate less efficiently at the low firing rates that are present during startup. The rate at which these boilers can be brought up to normal operation is constrained by the need to let the physical structure of the boiler adjust to the increase in temperatures. Otherwise, the levels of thermal stress in various components of the boiler may cause damage to those components. It is also necessary to coordinate the operation of the fuel, combustion air and feed water systems on a boiler. This also dictates a gradual startup. Operational stability must be maintained during startup while the boiler transitions from initial operation to normal operation, with firing of natural gas and coke oven gas and/or blast furnace gas. Attempting to "immediately" begin operating a boiler within its design range for firing rate and steam load would pose a significant threat to the safety of personnel and to the physical integrity of the boiler. The physical integrity of the boiler would directly be put at risk. As the operational stability would be put at risk, an indirect threat would be posed to personnel and the boiler. The further consideration for the startup of the boilers is that the combustion system in the boilers are designed,

appropriately, to function most effectively when a boiler is operating in its normal operating range. It follows that the burners will be less effective when operating below the normal range as necessarily occurs during startup of a boiler.[47] However, as already explained, operation below the normal operating range is inherent in the startup of a larger boiler.

Emissions during startup of the boilers are minimized by startup procedures that facilitate good combustion during startup. The boilers are equipped with instrumentation, including fuel flow meters, flame safeties, and oxygen meters, that enable good combustion to be maintained during startup. Startup is overseen by operating personnel, who make adjustments to maintain proper combustion during startup. The regular periodic maintenance for the boilers, including their instrumentation, facilitates consistent startups of the boilers in accordance with established procedures.

US Steel has appropriately demonstrated for the boilers that all reasonable efforts will be made to minimize startup emissions, duration of individual startups and frequency of startups. As the regulatory standard for granting authorization to make claims of startup for the boilers continues to be met, the planned revised CAAPP permit would continue to authorize US Steel to make such claims.

[47] It is also not practical to have separate smaller burners for startup, which are efficient at such lower loads. It would still be necessary to transition from those burners to the main burners during startup and the presence of those burners would further complicate and likely prolong the startup of a boiler.

ATTACHMENT: EMISSION FACTORS AND SUPPORTING INFORMATION

Material Handling - Section 7.1

Permit Condition 7.1.6(b)(i) and 7.6.6(a) - Ladle Metallurgy Material Handling

	Pollutant: PM/PM_{10}
Emission Factor:	0.00355 lbs/ton of steel
Control Device:	Baghouse #1
Origin of EF:	Calculation from AP-42, Fourth Edition, Table 7.5.1, Iron and Steel Production, Page 13.2.4-4, Fugitive Uncontrolled emissions, with a 99.8% control efficiency. a. 50% of Hot Metal transfer factor (0.19), b. EAF Charging, tapping and slagging (1.4), c. Conveyors #4, 5 and 6 (0.0286).
Update Methodology:	Refer to Conditions 7.1.7(b), 7.1.9(f), 7.6.9(c), 5.9.6(c) and 5.13 of the permit.

Additional Emissions Testing:
This baghouse will be tested in the future whereby this emission factor will be reviewed and may be updated.

Permit Condition 7.1.6(b)(ii) - Basic Oxygen Furnace Additive System

	Pollutant: PM/PM_{10}
Emission Factor:	0.00032 lbs/ton of steel
Control Device:	Trackhopper Baghouse
Origin of EF:	Calculated from AP-42, Page 13.2.4-4, Fugitive uncontrolled emissions, with a 99.9% control efficiency.
Update Methodology:	Refer to Conditions 7.1.7(b), 7.1.9(f), 5.9.6(c) and 5.13 of the permit.

Additional Emissions Testing:
This baghouse will be tested in the future whereby this emission factor will be reviewed and may be updated.

Permit Condition 7.1.6(b)(iii) - Flux Conveyor Operations

	Pollutant: PM/PM_{10}
Emission Factor:	0.0016 lbs/ton of steel
Control Device:	Bin Floor Baghouse
Origin of EF:	Calculated from AP-42, Page 13.2.4-4, Fugitive controlled emissions with a 99.3% control efficiency.
Update Methodology:	Refer to Conditions 7.1.7(b), 7.1.9(f), 5.9.6(c) and 5.13 of the permit.

Additional Emissions Testing:
This baghouse will be tested at a point in the future whereby this emission factor will be reviewed and may be updated.

Material Handling - Section 7.1 (continued)

Permit Condition 7.1.6(b)(iv) - Iron Pellet Screening

	Pollutant: PM/PM_{10}
Emission Factor:	0.00279 lbs/ton of iron pellets
Origin of EF:	Calculation from AP-42, Page 13.2.4-4, Fugitive uncontrolled emissions.
Update Methodology:	Refer to Conditions 7.1.9(f), 5.9.6(c) and 5.13 of the permit.

Iron Production - Section 7.4

Permit Condition 7.4.6(b) - Blast Furnace Casthouse Baghouse Exhaust

Pollutant: PM/PM_{10}

Emission Factor:	0.0703 lbs/ton of iron
Control Device:	Casthouse Baghouse
Origin of EF:	Calculated from AP-42, Table 7.5-1, Fourth Edition, Iron and Steel Production, with an overall 95% control efficiency.
Update Methodology:	Refer to Conditions 7.4.7(a) and (c), 7.4.9(i), 5.9.6(c) and 5.13 of the permit.

Additional Emissions Testing:
January 2010 Emissions Testing, measured rate of 0.0041 lbs/ton iron.
March 2012 ICR Emissions Testing, measured rate of 0.0199 lbs/ton iron.

Pollutant: SO_2

Emission Factor:	0.2006 lbs/ton of iron
Origin of EF:	July 1993 Emissions Testing.
Update Methodology:	Refer to Conditions 7.4.7(a) and (c), 7.4.9(i), 5.9.6(c) and 5.13 of the permit.

Additional Emissions Testing:
March 2012 ICR Emissions Testing, measured rate of 0.1903 lbs/ton iron.

Pollutant: NO_x

Emission Factor:	0.0144 lbs/ton of iron
Origin of EF:	July 1993 Emissions Testing.
Update Methodology:	Refer to Conditions 7.4.7(a) and (c), 7.4.9(i), 5.9.6(c) and 5.13 of the permit.

Additional Emissions Testing:
This pollutant will be tested prior to the expiration of the permit whereby this emission factor will be reviewed and may be updated.

Pollutant: VOM

Emission Factor:	0.0946 lbs/ton of iron
Origin of EF:	July 1993 Emissions Testing.
Update Methodology:	Refer to Conditions 7.4.7(a) and (c), 7.4.9(i), 5.9.6(c) and 5.13 of the permit.

Additional Emissions Testing:
This pollutant will be tested prior to the expiration of the permit whereby this emission factor will be reviewed and may be updated.

Permit Condition 7.4.6(c) - Blast Furnace Uncaptured Emissions

Pollutant: PM

Emission Factor:	0.031 lbs/ton of iron
Origin of EF:	Calculated from AP-42 Table 7.5-1, Fourth Edition, Iron and Steel Production, with a 95% capture efficiency and an adjustment factor for the presence of local hoods.
Update Methodology:	Refer to Conditions 7.4.9(i), 5.9.6(c) and 5.13 of the permit.

Iron Production - Section 7.4 (continued)

Pollutant: PM_{10}

Emission Factor:	0.0155 lbs/ton of iron
Origin of EF:	Calculated from AP-42, Table 7.5-2, Fourth Edition, Iron and Steel Production, using PM_{10}/TSP ratio = 50%.
Update Methodology:	Refer to Conditions 7.4.9(i), 5.9.6(c) and 5.13 of the permit.

Pollutant: SO_2

Emission Factor:	0.0104 lbs/ton of iron
Origin of EF:	July 1993 Emissions Testing on Casthouse baghouse, with a 95% capture efficiency.
Update Methodology:	Refer to Conditions 7.4.9(i), 5.9.6(c) and 5.13 of the permit.

Pollutant: NO_x

Emission Factor:	0.0007 lbs/ton of iron
Origin of EF:	July 1993 Emissions Testing on Casthouse baghouse, with a 95% capture efficiency.
Update Methodology:	Refer to Conditions 7.4.9(i), 5.9.6(c) and 5.13 of the permit.

Pollutant: VOM

Emission Factor:	0.0047 lbs/ton of iron
Origin of EF:	July 1993 Emissions Testing on Casthouse baghouse, with a 95% capture efficiency.
Update Methodology:	Refer to Conditions 7.4.9(i), 5.9.6(c) and 5.13 of the permit.

Permit Condition 7.4.6(d) - Blast Furnace Charging

Pollutant: PM/PM_{10}

Emission Factor:	0.0024 lbs/ton of iron pellets
Origin of EF:	AIRS Emissions Inventory, SCC #3-03-008-021.
Update Methodology:	Refer to Conditions 7.4.9(i), 5.9.6(c) and 5.13 of the permit.

Permit Condition 7.4.6(e) - Slag Pits

Pollutant: PM/PM_{10}

Emission Factor:	0.00417 lbs/ton of iron
Origin of EF:	Calculated from EPA Assessment of Atmospheric Emissions from Quenching of Blast Furnace Slag. Also, AP-42, Table 13.2.4-4, Fugitive Uncontrolled emissions. Summation of the following emission factors: a. Slag Quenching = 0.0026 lbs/ton iron, b. Slag Digging = 0.00157 lbs/ton iron.
Update Methodology:	Refer to Conditions 7.4.9(i), 5.9.6(c) and 5.13 of the permit.

Iron Production - Section 7.4 (continued)

Pollutant: SO_2

Emission Factor:	0.01 lbs/ton of iron
Origin of EF:	Calculated from EPA Assessment of Atmospheric Emissions from Quenching of Blast Furnace Slag.
Update Methodology:	Refer to Conditions 7.4.9(i), 5.9.6(c) and 5.13 of the permit.

Permit Condition 7.4.6(f) - Blast Furnace Iron Spout Baghouse Exhaust

Pollutant: PM/PM_{10}

Emission Factor:	0.02548 lbs/ton of iron
Control Device:	Iron Spout Baghouse
Origin of EF:	Calculated from AP-42, Fourth Edition, Table 7.5-1, Iron and Steel Production, with an overall 98% capture efficiency.
Update Methodology:	Refer to Conditions 7.4.7(a) and (c), 7.4.9(i), 5.9.6(c) and 5.13 of the permit.

Additional Emissions Testing:
September 2009 Emissions Testing, measured rate of 0.00434 lbs/ton iron.
January 2010 Emissions Testing, measured rate of 0.00334 lbs/ton iron.
December 2010 Emissions Testing, measured rate of 0.00822 lbs/ton iron.
March 2012 ICR Emissions Test, measured rate of 0.00507 lbs/ton iron.

Pollutant: SO_2

Emission Factor:	0.0073 lbs/ton of iron
Origin of EF:	July 1993 Emissions Testing.
Update Methodology:	Refer to Conditions 7.4.7(a) and (c), 7.4.9(i), 5.9.6(c) and 5.13 of the permit.

Additional Emissions Testing:
March 2012 ICR Emissions Test, measured rate of 0.0004 lbs/ton iron.

Steel Production - Section 7.5

Permit Condition 7.5.6(c) - Basic Oxygen Furnace ESP Exhaust

Pollutant: PM/PM_{10}

Emission Factor:	0.16 lbs/ton of steel
Control Device:	Electrostatic Precipitator
Origin of EF:	Average of March 1989, July 1990 and August 1993 Emissions Testing results.
Update Methodology:	Refer to Conditions 7.5.7(a) and (b), 7.5.9(f), 5.9.6(c) and 5.13 of the permit.

Additional Emissions Testing:
October 2009 Emissions Testing, measured rate of 0.0364 lbs/ton steel.
July 2012 Emissions Testing, measured rate of 0.035 lbs/ton steel.

Pollutant: NO_x

Emission Factor:	0.0389 lbs/ton of steel
Origin of EF:	August 1993 Emissions Testing.
Update Methodology:	Refer to Conditions 7.5.7(a) and (b), 7.5.9(f), 5.9.6(c) and 5.13 of the permit.

Additional Emissions Testing:
April 2012 Emissions Testing, measured rate of 0.1273 lbs/ton steel.

Pollutant: VOM

Emission Factor:	0.006 lbs/ton of steel
Origin of EF:	AIRS Emissions Inventory, SCC Codes 3-03-009-013, 3-03-009-016, 3-03-009-017 and 3-03-009-023.
Update Methodology:	Refer to Conditions 7.5.7(a) and (b), 7.5.9(f), 5.9.6(c) and 5.13 of the permit.

Additional Emissions Testing:
July 2012 Emissions Testing, measured rate of 0.0153 lbs/ton steel.

Pollutant: CO

Emission Factor:	8.993 lbs/ton of steel
Origin of EF:	August 1993 Emissions Testing.
Update Methodology:	Refer to Conditions 7.5.7(a) and (b), 7.5.9(f), 5.9.6(c) and 5.13 of the permit.

Additional Emissions Testing:
July 2012 Emissions Testing, measured rate of 3.761 lbs/ton steel.

Pollutant: Lead

Emission Factor:	0.1934 lbs/hour
Control Device:	Electrostatic Precipitator
Origin of EF:	AIRS Emissions Inventory, SCC Code 3-03-009-013 with a control efficiency of 99.8%.
Update Methodology:	Refer to Conditions 7.5.7(a) and (b), 7.5.9(f), 5.9.6(c) and 5.13 of the permit.

Additional Emissions Testing:
July 2012 Emissions Testing, measured rate of 0.0376 lbs/hour.

Steel Production - Section 7.5 (continued)

Permit Condition 7.5.6(d) - Basic Oxygen Furnace Roof Monitor

Pollutant: PM_{10}

Emission Factor:	0.066145 lbs/ton of steel
Origin of EF:	Calculated from AP-42, Fourth Edition, Table 7.5-1, Iron and Steel Production, with the following capture efficiencies: a. Charging = 95%, b. Refining = 99.9%, c. Tapping = 95%.
Update Methodology:	Refer to Conditions 7.5.9(f), 5.9.6(c) and 5.13 of the permit.

Pollutant: PM

Emission Factor:	0.0987 lbs/ton of steel
Origin of EF:	Calculated from AP-42, Fourth Edition, Table 7.5-1, Iron and Steel Production, as above using PM_{10}/TSP ratio = 67%.
Update Methodology:	Refer to Conditions 7.5.9(f), 5.9.6(c) and 5.13 of the permit.

Pollutant: Lead

Emission Factor:	0.0129 lbs/hour
Origin of EF:	AIRS Emissions Inventory, SCC Code 3-03-009-013, with a capture efficiency of 99.99%.
Update Methodology:	Refer to Conditions 7.5.9(f), 5.9.6(c) and 5.13 of the permit.

Permit Condition 7.5.6(e) - Desulfurization/Hot Metal Transfer Baghouse Exhaust

Pollutant: PM/PM_{10}

Emission Factor:	0.03721 lbs/ton of iron
Control Device:	Baghouse (Soda Ash)
Origin of EF:	Calculated from AP-42, Fourth Edition, Table 7.5-1, Iron and Steel Production, with an overall control efficiency of 96.6%.
Update Methodology:	Refer to Conditions 7.5.7(a) and (b), 7.5.9(f), 5.9.6(c) and 5.13 of the permit.

Additional Emissions Testing:
October 2009 Emissions Testing, measured rate of 0.0021 lbs/ton iron.
May 2012 MACT Emissions Testing, measured rate of 0.00127 lbs/ton iron.

Pollutant: VOM

Emission Factor:	0.001 lbs/ton of iron
Origin of EF:	AIRS Emissions Inventory, SCC Code 3-03-009-015.
Update Methodology:	Refer to Conditions 7.5.7(a) and (b), 7.5.9(f), 5.9.6(c) and 5.13 of the permit.

Additional Emissions Testing:
May 2012 MACT Emissions Testing, measured rate of 0.000187 lbs/ton iron.

Steel Production - Section 7.5 (continued)

Pollutant: Lead

Emission Factor:	0.0133 lbs/hour
Control Device:	Baghouse (Soda Ash)
Origin of EF:	AIRS Emissions Inventory, SCC Code 3-03-009-013, with an overall control efficiency of 96.6%.
Update Methodology:	Refer to Conditions 7.5.7(a) and (b), 7.5.9(f), 5.9.6(c) and 5.13 of the permit.

Additional Emissions Testing:
May 2012 MACT Emissions Testing, measured rate of 0.00167 lbs/hour.

Permit Condition 7.5.6(f) - Slag Skimming Baghouse Exhaust

Pollutant: PM/PM_{10}

Emission Factor:	0.005 lbs/ton of iron
Origin of EF:	Calculated from AP-42, Fourth Edition, Table 7.5-1, Iron and Steel Production, with a control efficiency of 97.5%.
Update Methodology:	Refer to Conditions 7.5.7(a) and (b), 7.5.9(f), 5.9.6(c) and 5.13 of the permit.

Additional Emissions Testing:
September 2009 Emissions Testing, measured rate of 0.00042 lbs/ton iron.
May 2012 MACT Emissions Testing, measured rate of 0.005 lbs/ton iron.
December 2012 Emissions Testing, measured rate of 0.0005 lbs/ton iron.

Permit Condition 7.5.6(g) - Argon Stir/LMF/Material Handling Baghouse Exhaust

Pollutant: PM/PM_{10}

Emission Factor:	0.00715 lbs/ton of steel
Control Device:	Baghouse #2
Origin of EF:	Calculated from AP-42, Fourth Edition, Table 7.5-2, Electric Arc Furnace Melting and Refining, with a control efficiency of 99.9%.
Update Methodology:	Refer to Conditions 7.5.9(f), 5.9.6(c) and 5.13 of the permit.

Additional Emissions Testing:
October 2009 Emissions Testing, measured rate of 0.000388 lbs/ton steel.
May 2012 ICR Emissions Testing, measured rate of 0.000436 lbs/ton steel.

Continuous Casting - Section 7.6

Permit Condition 7.6.6(a) - Ladle Metallurgy Material Handling

Pollutant: PM/PM_{10}

Refer to the discussion for Permit Condition 7.1.6(b)(i).

Permit Condition 7.6.6(b) - Caster Molds

Pollutant: PM/PM_{10}

Emission Factor:	0.006 lbs/ton of steel
Origin of EF:	Illinois EPA 1991 EIS PM/PM_{10} Report.
Update Methodology:	Refer to Conditions 7.6.9(c), 5.9.6(c) and 5.13 of the permit.

Pollutant: NO_x

Emission Factor:	0.05 lbs/ton of steel
Origin of EF:	AIRS Emissions Inventory, SCC Code 3-03-009-022.
Update Methodology:	Refer to Conditions 7.6.9(c), 5.9.6(c) and 5.13 of the permit.

Permit Condition 7.6.6(c) - Spray Chambers

Pollutant: PM/PM_{10}

Emission Factor:	0.00852 lbs/ton of steel
Origin of EF:	1981 Emissions Testing before a baghouse on this unit was removed (circa 1990), adjusted to not account for the baghouse based on 99.3% control efficiency.
Update Methodology:	Refer to Conditions 7.6.7(a), 7.6.9(c), 5.9.6(c) and 5.13 of the permit.

Permit Condition 7.6.6(d) - Slab Cutoff

Pollutant: PM/PM_{10}

Emission Factor:	0.0071 lbs/ton of steel
Origin of EF:	Illinois EPA 1991 EIS PM/PM_{10} Report.
Update Methodology:	Refer to Conditions 7.6.9(c), 5.9.6(c) and 5.13 of the permit.

Permit Condition 7.6.6(e) - Slab Ripping

Pollutant: PM/PM_{10}

Emission Factor:	0.00722 lbs/ton of steel.
Origin of EF:	Illinois EPA 1991 EIS PM/PM10 Report.
Update Methodology:	Refer to Conditions 7.6.9(c), 5.9.6(c) and 5.13 of the permit.

United States Steel Corporation
Granite City Works
1951 State Street
Granite City, IL 62040
618 451 3241
fax: 618 451 3707
email: djrintoul@uss.com

David J. Rintoul
General Manager

January 31, 2008

CERTIFIED MAIL NO.7007 0710 0005 1642 0547
RETURN RECEIPT REQUESTED

Mr. Edwin C. Bakowski, P. E.
Acting Manager, Permit Section
Division of Air Pollution Control
Illinois Environmental Protection Agency
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794

RE: Modification of Production
Increase Permit (No. 95010001)
Facility ID No.: 119813AAI

Dear Mr. Bakowski:

Enclosed please find an original and three copies of United States Steel Corporation's application to modify Permit No. 95010001 known as the Production Increase Permit. The application to modify is to correct the emission factors used to develop the original application and permit in light of newly identified information on emissions and emission factors. The proposed permit modification will increase SO_2 emission factors for the combustion of Blast Furnace Gas (BFG) and CO and VOM emission factors for the combustion of natural gas. No physical changes or changes in the method of operations are being proposed.

Submittal of this application including air quality modeling fulfills the requirements of condition D 4 (a) "Compliance Schedule for the Blast Furnace Gas SO_2 Emissions" as contained in Consent Order No. 05-CH-750 (ordered on December 18, 2007 by the Third Judicial Circuit, Madison County, Illinois).

Should you have questions or require further information, please do not hesitate to contact Larry Siebenberger at 618-451-3391.

Sincerely,

David J. Rintoul
General Manager

jm

Enclosure(s)

RECEIVED
IEPA
FEB 04 2008
COLLINSVILLE OFFICE

cc: Ray Pilapil
Bureau of Air
Section Manager, Compliance
Illinois EPA
1021 North Grand Avenue East
P. O. Box 19276
Springfield, IL 62794-9276
CERTIFIED MAIL NO.7007 0710 0005 1642 0554

Chris Pressnall
Division of Legal Counsel
Illinois EPA
1021 North Grand Avenue East
P. O. Box 19276
Springfield, IL 62794-9276
CERTIFIED MAIL NO.7007 0710 0005 1642 0561

Kristen Laughridge Gale
Assistant Attorney General
Environmental Bureau
500 South Second Street
Springfield, IL 62706
CERTIFIED MAIL NO.7007 0710 0005 1642 0578

Jeff Benbenek
Bureau of Air
Illinois EPA
2009 Mall Street
Collinsville, IL 62234
CERTIFIED MAIL NO.7007 0710 0005 1642 0585

David Smiga – USS
David W. Hacker - USS

United States Steel Corporation
Granite City Works
1951 State Street
Granite City, IL 62040
618 451 3241
fax: 618 451 3707
email: djrintoul@uss.com

David J. Rintoul
General Manager

119813 AAI
95010001
x 2-4-08
ck# 769009 U.S. STEEL CORP
Rec'd.
$8,050.00

January 31, 2008

CERTIFIED MAIL NO.7007 0710 0005 1642 0547
RETURN RECEIPT REQUESTED

Mr. Edwin C. Bakowski, P. E.
Acting Manager, Permit Section
Division of Air Pollution Control
Illinois Environmental Protection Agency
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794

RE: Modification of Production
Increase Permit (No. 95010001)
Facility ID No.: 119813AAI

Dear Mr. Bakowski:

Enclosed please find an original and three copies of United States Steel Corporation's application to modify Permit No. 95010001 known as the Production Increase Permit. The application to modify is to correct the emission factors used to develop the original application and permit in light of newly identified information on emissions and emission factors. The proposed permit modification will increase SO_2 emission factors for the combustion of Blast Furnace Gas (BFG) and CO and VOM emission factors for the combustion of natural gas. No physical changes or changes in the method of operations are being proposed.

Submittal of this application including air quality modeling fulfills the requirements of condition D 4 (a) "Compliance Schedule for the Blast Furnace Gas SO_2 Emissions" as contained in Consent Order No. 05-CH-750 (ordered on December 18, 2007 by the Third Judicial Circuit, Madison County, Illinois).

Should you have questions or require further information, please do not hesitate to contact Larry Siebenberger at 618-451-3391.

Sincerely,

David J. Rintoul
General Manager

jm

Enclosure(s)

RECEIVED
IEPA
FEB 05 2008

RECEIVED
STATE OF ILLINOIS
FEB 04 2008
Environmental Protection Agency
BUREAU OF AIR

United States Steel Corporation
Granite City Works
1951 State Street
Granite City, IL 62040
618 451 3241
fax: 618 451 3707
email: djrintoul@uss.com

David J. Rintoul
General Manager

January 31, 2008

CERTIFIED MAIL NO.7007 0710 0005 1642 0547
RETURN RECEIPT REQUESTED

Mr. Edwin C. Bakowski, P. E.
Acting Manager, Permit Section
Division of Air Pollution Control
Illinois Environmental Protection Agency
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794

RECEIVED
STATE OF ILLINOIS
FEB 04 2008
Environmental Protection Agency
BUREAU OF AIR

RE: Modification of Production
Increase Permit (No. 95010001)
Facility ID No.: 119813AAI

Dear Mr. Bakowski:

Enclosed please find an original and three copies of United States Steel Corporation's application to modify Permit No. 95010001 known as the Production Increase Permit. The application to modify is to correct the emission factors used to develop the original application and permit in light of newly identified information on emissions and emission factors. The proposed permit modification will increase SO_2 emission factors for the combustion of Blast Furnace Gas (BFG) and CO and VOM emission factors for the combustion of natural gas. No physical changes or changes in the method of operations are being proposed.

Submittal of this application including air quality modeling fulfills the requirements of condition D 4 (a) "Compliance Schedule for the Blast Furnace Gas SO_2 Emissions" as contained in Consent Order No. 05-CH-750 (ordered on December 18, 2007 by the Third Judicial Circuit, Madison County, Illinois).

Should you have questions or require further information, please do not hesitate to contact Larry Siebenberger at 618-451-3391.

Sincerely,

David J. Rintoul
General Manager

jm

Enclosure(s)

RECEIVED
IEPA
FEB 05 2008
COLLINSVILLE OFFICE

RECEIVED
STATE OF ILLINOIS
FEB 04 2008
Environmental Protection Agency
BUREAU OF AIR

Illinois Environmental Protection Agency
Division Of Air Pollution Control -- Permit Section
P.O. Box 19506
Springfield, Illinois 62794-9506

Application For Construction Permit (For CAAPP Sources Only)

For Illinois EPA use only	
ID number:	119813AAI
Permit number:	95010001
Date received:	2/4/08

This form is to be used by CAAPP sources to supply information necessary to obtain a construction permit. Please attach other necessary information and completed CAAPP forms regarding this con struction/modification project

Source Information

1. Source name.
United States Steel Corporation - Granite City Works

2. Source street address:
1951 State Street

3. City:	4. Zip code:
Granite City	62040

5. Is the source located within city limits? ☒ Yes ☐ No

6. Township name:	7. County:	8. ID number:
Granite City	Madison	119813AAI

Owner Information

9. Name.
United States Steel Corporation

10. Address:
600 Grant Street

11. City:	12. State:	13. Zip code:
Pittsburg	PA	15219

RECEIVED
STATE OF ILLINOIS
FEB 04 2008
Environmental Protection Agency
BUREAU OF AIR

Operator Information (if different from owner)

14. Name

15. Address:

16. City:	17. State:	18. Zip code:

Applicant Information

19. Who is the applicant?	20. All correspondence to. (check one)
☒ Owner ☐ Operator	☐ Owner ☐ Operator ☒ Source

21. Attention name and/or title for written correspondence:
Larry Siebenberger/ Environmental Manager

22. Technical contact person for application:	23. Contact person's telephone number:
Larry Siebenberger	(618) 451-3391

This Agency is authorized to require and you must disclose this information under 415 ILCS 5/39. Failure to do so could result in the application being denied and penalties under 415 ILCS 5 et seq. It is not necessary to use this form in providing this information. This form has been approved by the forms management center.

Summary Of Application Contents		
24.	Does the application address whether the proposed project would constitute a new major source or major modification under each of the following programs: a) Non-attainment New Source Review - 35 IAC Part 203; b) Prevention of Significant Deterioration (PSD) - 40 CFR 52.21; c) Hazardous Air Pollutants: Regulations Governing Constructed or Reconstructed Major Sources - 40 CFR Part 63?	☒ Yes ☐ No
25.	Does the application identify and address all applicable emissions standards, including those found in the following: a) Board Emission Standards - 35 IAC Chapter 1, Subtitle B; b) Federal New Source Performance Standards - 40 CFR Part 60; c) Federal Standards for Hazardous Air Pollutants - 40 CFR Parts 61 and 63?	☒ Yes ☐ No
26.	Does the application include a process flow diagram(s) showing all emission units and control equipment; and their relationship, for which a permit is being sought?	☒ Yes ☐ No
27.	Does the application include a complete process description for the emission units and control equipment for which a permit is being sought?	☒ Yes ☐ No
28.	Does the application include the information as contained in completed CAAPP forms for all appropriate emission units and air pollution control equipment, listing all applicable requirements and proposed exemptions from otherwise applicable requirements, and identifying and describing any outstanding legal actions by either the USEPA or the Illinois EPA? Note: The use of "APC" application forms is not appropriate for applications for CAAPP sources. CAAPP forms should be used to supply information.	☒ Yes ☐ No
29.	If the application contains TRADE SECRET information, has such information been properly marked and claimed, and have two separate copies of the application suitable for public inspection and notice been submitted, in accordance with applicable rules and regulations?	☐ Yes ☐ No ☒ Not Applicable, No TRADE SECRET information in this application

Note 1 - Answering "No" to any of the above may result in the application being deemed incomplete.

Signature Block

This certification must be signed by a responsible official. Applications without a signed certification will be returned as incomplete.

30. I certify under penalty of law that, based on information and belief formed after reasonable inquiry, the statements and information contained in this application are true, accurate and complete.

Authorized signature:

BY: _____
AUTHORIZED SIGNATURE

General Manager
TITLE OF SIGNATORY

David J. Rintoul
TYPED OR PRINTED NAME OF SIGNATORY

01 / 31 / 2008
DATE

Note 2- An operating permit for the construction/modification permitted in a construction permit must be obtained by applying for the appropriate revision to the source's CAAPP permit, if necessary.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF AIR POLLUTION CONTROL – PERMIT SECTION
P.O. BOX 19506
SPRINGFIELD, ILLINOIS 62794-9506

FEE DETERMINATION FOR CONSTRUCTION PERMIT APPLICATION

FOR AGENCY USE ONLY	
ID NUMBER:	
PERMIT #:	
COMPLETE ☐ INCOMPLETE ☐	DATE COMPLETE:
CHECK #:	ACCOUNT NAME:

THIS FORM IS TO BE USED BY ALL SOURCES TO SUPPLY FEE INFORMATION THAT MUST ACCOMPANY ALL CONSTRUCTION PERMIT APPLICATIONS. ***THIS APPLICATION MUST INCLUDE PAYMENT IN FULL TO BE DEEMED COMPLETE.*** MAKE CHECK OR MONEY ORDER PAYABLE TO THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY. SEND TO THE ADDRESS ABOVE. DO NOT SEND CASH. REFER TO INSTRUCTIONS (197-INST) FOR ASSISTANCE.

SOURCE INFORMATION

1) SOURCE NAME: US Steel-Granite City Works	
2) PROJECT NAME: Production Increase Mod	3) SOURCE ID NO. (IF APPLICABLE): 119813AAI
4) CONTACT NAME: Larry Siebenberger	5) CONTACT PHONE NUMBER: (618) 451-3391

FEE DETERMINATION

6) FILL IN THE FOLLOWING THREE BOXES AS DETERMINED IN SECTIONS 1 THROUGH 4 BELOW:

$ 0	+	$ 8,000	=	$ 8,000
SECTION 1 SUBTOTAL		SECTION 2, 3 OR 4 SUBTOTAL		GRAND TOTAL

SECTION 1: STATUS OF SOURCE / PURPOSE OF SUBMITTAL

7) YOUR APPLICATION WILL FALL UNDER ONLY ONE OF THE FOLLOWING SIX CATEGORIES DESCRIBED BELOW. CHECK THE BOX THAT APPLIES, ENTER THE CORRESPONDING FEE IN THE BOX TO THE RIGHT AND COPY THIS FEE INTO THE SECTION 1 SUBTOTAL BOX ABOVE. PROCEED TO APPLICABLE SECTIONS.

FOR PURPOSES OF THIS FORM:

- ***MAJOR SOURCE*** IS A SOURCE THAT IS REQUIRED TO OBTAIN A CAAPP PERMIT.
- ***SYNTHETIC MINOR* SOURCE** IS A SOURCE THAT HAS TAKEN LIMITS ON POTENTIAL TO EMIT IN A PERMIT TO AVOID CAAPP PERMIT REQUIREMENTS (E.G., FESOP).
- ***NON-MAJOR* SOURCE** IS A SOURCE THAT IS NOT A MAJOR OR SYNTHETIC MINOR SOURCE.

☒ EXISTING SOURCE WITHOUT STATUS CHANGE OR WITH STATUS CHANGE FROM SYNTHETIC MINOR TO MAJOR SOURCE OR VICE VERSA. ENTER $0 AND PROCEED TO SECTION 2.	
☐ EXISTING NON-MAJOR SOURCE THAT WILL BECOME SYNTHETIC MINOR OR MAJOR SOURCE. ENTER $5,000 AND PROCEED TO SECTION 4.	
☐ EXISTING MAJOR OR SYNTHETIC MINOR SOURCE THAT WILL BECOME NON-MAJOR SOURCE. ENTER $4,000 AND PROCEED TO SECTION 3.	$ 0 SECTION 1 SUBTOTAL
☐ NEW MAJOR OR SYNTHETIC MINOR SOURCE. ENTER $5,000 AND PROCEED TO SECTION 4.	
☐ NEW NON-MAJOR SOURCE. ENTER $500 AND PROCEED TO SECTION 3.	
☐ AGENCY ERROR. IF THIS IS A TIMELY REQUEST TO CORRECT AN ISSUED PERMIT THAT INVOLVES ONLY AN AGENCY ERROR AND IF THE REQUEST IS RECEIVED WITHIN THE DEADLINE FOR A PERMIT APPEAL TO THE POLLUTION CONTROL BOARD, THEN ENTER $0. SKIP SECTIONS 2, 3 AND 4. PROCEED DIRECTLY TO SECTION 5.	

RECEIVED
STATE OF ILLIN
FEB 04 2008
Environmental Protection
BUREAU OF AIR

SECTION 2: SPECIAL CASE FILING FEE

8) FILING FEE. IF THE APPLICATION ONLY ADDRESSES ONE OR MORE OF THE FOLLOWING, CHECK THE APPROPRIATE BOXES, ENTER $500 IN THE SECOND BOX UNDER FEE DETERMINATION ABOVE, SKIP SECTIONS 3 AND 4 AND PROCEED DIRECTLY TO SECTION 5. OTHERWISE, PROCEED TO SECTION 3 OR 4, AS APPROPRIATE.

- ☐ ADDITION OR REPLACEMENT OF CONTROL DEVICES ON PERMITTED UNITS
- ☐ PILOT PROJECTS/TRIAL BURNS BY A PERMITTED UNIT
- ☐ APPLICATIONS ONLY INVOLVING INSIGNIFICANT ACTIVITIES UNDER 35 IAC 201.210 (MAJOR SOURCES ONLY)
- ☐ LAND REMEDIATION PROJECTS
- ☐ REVISIONS RELATED TO METHODOLOGY OR TIMING FOR EMISSION TESTING
- ☐ MINOR ADMINISTRATIVE-TYPE CHANGE TO A PERMIT

THIS AGENCY IS AUTHORIZED TO REQUIRE AND YOU MUST DISCLOSE THIS INFORMATION UNDER 415 ILCS 5/39. FAILURE TO DO SO COULD RESULT IN THE APPLICATION BEING DENIED AND PENALTIES UNDER 415 ILCS 5 ET SEQ. IT IS NOT NECESSARY TO USE THIS FORM IN PROVIDING THIS INFORMATION. THIS FORM HAS BEEN APPROVED BY THE FORMS MANAGEMENT CENTER.

APPLICATION PAGE _____

SECTION 3: FEES FOR CURRENT OR PROJECTED NON-MAJOR SOURCES	
9) IF THIS APPLICATION CONSISTS OF A SINGLE NEW EMISSION UNIT OR NO MORE THAN TWO MODIFIED EMISSION UNITS, ENTER $500.	9)
10) IF THIS APPLICATION CONSISTS OF MORE THAN ONE NEW EMISSION UNIT OR MORE THAN TWO MODIFIED UNITS, ENTER $1,000.	10)
11) IF THIS APPLICATION CONSISTS OF A NEW SOURCE OR EMISSION UNIT SUBJECT TO SECTION 39.2 OF THE ACT (I.E., LOCAL SITING REVIEW); A COMMERCIAL INCINERATOR OR A MUNICIPAL WASTE, HAZARDOUS WASTE, OR WASTE TIRE INCINERATOR; A COMMERCIAL POWER GENERATOR; OR AN EMISSION UNIT DESIGNATED AS A COMPLEX SOURCE BY AGENCY RULEMAKING, ENTER $15,000.	11)
12) IF A PUBLIC HEARING IS HELD (SEE INSTRUCTIONS), ENTER $10,000.	12)
13) SECTION 3 SUBTOTAL (ADD LINES 9 THROUGH 12) TO BE ENTERED ON PAGE 1.	13)

SECTION 4: FEES FOR CURRENT OR PROJECTED MAJOR OR SYNTHETIC MINOR SOURCES			
Application Contains Modified Emission Units Only	14) FOR THE FIRST MODIFIED EMISSION UNIT, ENTER $2,000.	14) 2000	
	15) NUMBER OF ADDITIONAL MODIFIED EMISSION UNITS = 0 X $1,000.	15) 0	
	16) LINE 14 PLUS LINE 15, OR $5,000, WHICHEVER IS LESS.		16) 2000
Application Contains New And/Or Modified Emission Units	17) FOR THE FIRST NEW EMISSION UNIT, ENTER $4,000.	17) 0	
	18) NUMBER OF ADDITIONAL NEW AND/OR MODIFIED EMISSION UNITS = _____ X $1,000.	18) 0	
	19) LINE 17 PLUS LINE 18, OR $10,000, WHICHEVER IS LESS.		19) 0
Application Contains Netting Exercise	20) NUMBER OF INDIVIDUAL POLLUTANTS THAT RELY ON A NETTING EXERCISE OR CONTEMPORANEOUS EMISSIONS DECREASE TO AVOID APPLICATION OF PSD OR NONATTAINMENT NSR = 0 X $3,000.		20) 0
Additional Supplemental Fees	21) IF THE NEW SOURCE OR EMISSION UNIT IS SUBJECT TO SECTION 39.2 OF THE ACT (I.E., SITING); A COMMERCIAL INCINERATOR OR OTHER MUNICIPAL WASTE, HAZARDOUS WASTE, OR WASTE TIRE INCINERATOR; A COMMERCIAL POWER GENERATOR; OR ONE OR MORE OTHER EMISSION UNITS DESIGNATED AS A COMPLEX SOURCE BY AGENCY RULEMAKING, ENTER $25,000.		21) 0
	22) IF THE SOURCE IS A NEW MAJOR SOURCE SUBJECT TO PSD, ENTER $12,000.		22) 0
	23) IF THE PROJECT IS A MAJOR MODIFICATION SUBJECT TO PSD, ENTER $6,000.		23) 6000
	24) IF THIS IS A NEW MAJOR SOURCE SUBJECT TO NONATTAINMENT (NAA) NSR, ENTER $20,000.		24) 0
	25) IF THIS IS A MAJOR MODIFICATION SUBJECT TO NAA NSR, ENTER $12,000.		25) 0
	26) IF APPLICATION INVOLVES A DETERMINATION OF CLEAN UNIT STATUS AND THEREFORE IS NOT SUBJECT TO BACT OR LAER, ENTER $5,000 PER UNIT FOR WHICH A DETERMINATION IS REQUESTED OR OTHERWISE REQUIRED. _____ X $5,000.		26) 0
	27) IF APPLICATION INVOLVES A DETERMINATION OF MACT FOR A POLLUTANT AND THE PROJECT IS NOT SUBJECT TO BACT OR LAER FOR THE RELATED POLLUTANT UNDER PSD OR NSR (E.G., VOM FOR ORGANIC HAP), ENTER $5,000 PER UNIT FOR WHICH A DETERMINATION IS REQUESTED OR OTHERWISE REQUIRED. _____ X $5,000.		27) 0
	28) IF A PUBLIC HEARING IS HELD (SEE INSTRUCTIONS), ENTER $10,000.		28)
29) SECTION 4 SUBTOTAL (ADD LINES 16 AND LINES 19 THROUGH 28) TO BE ENTERED ON PAGE 1.			29) 8000

SECTION 5: CERTIFICATION

NOTE: APPLICATIONS WITHOUT A SIGNED CERTIFICATION WILL BE DEEMED INCOMPLETE.

30) I CERTIFY UNDER PENALTY OF LAW THAT, BASED ON INFORMATION AND BELIEF FORMED AFTER REASONABLE INQUIRY, THE INFORMATION CONTAINED IN THIS FEE APPLICATION FORM IS TRUE, ACCURATE AND COMPLETE.

BY: _____ (SIGNATURE) General Manager (TITLE OF SIGNATORY)

David Rintoul (TYPED OR PRINTED NAME OF SIGNATORY) 01 / 31 / 2008 (DATE)

APPLICATION PAGE _____

Printed on Recycled Paper
197-FEE

SR 1450

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

PRODUCTION INCREASE PERMIT

U.S. STEEL CORPORATION GRANITE CITY WORKS

Application to Modify

Permit No. 95010001

Prepared for

U.S. Steel Corporation Granite City Works
1951 State Street
Granite City, Illinois 62040

January 29, 2008

URS

URS Corporation
1001 Highlands Plaza Drive West, Suite 300
St. Louis, MO 63110
(314) 429-0100
Project #20236935.00400

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

List of Tables

List of Figures

TABLE OF CONTENTS

List of Appendices

The United States Steel Corporation Granite City Works (the Facility) is herein making application to modify Permit No. 95010001 known as the Production Increase Permit. The Facility is an integrated iron and steel manufacturing plant located in Granite City, Illinois as seen in **Figure 1-1** Site Location Map. The Facility is a major source as defined by 35 IAC 203.206.

This application to modify is to correct the emission factors used to develop the original application and permit in light of newly identified information on emissions and emission factors. The proposed permit modification will increase SO_2 emission factors for the combustion of BFG and CO and VOM emission factors for the combustion of natural gas. No physical changes to the operations at the facility are proposed. This modification strictly addresses deficiencies in the emission factors used in the original Production Increase Permit application and the Illinois Environmental Protection Agency (IEPA) issued permit (Permit No. 95010001).

This application includes a general facility description below. Section Two includes a discussion of relevant processes at the Granite City Works and the resulting changes to Permit No. 95010001 as a result of the proposed emission factors. Section Three contains a revised emissions analysis for the Production Increase Permit. Section Four includes an analysis of the regulatory requirements resulting from the revised Production Increase Permit emission factors. Section Five includes an updated and revised analysis of Best Available Control Technology (BACT) that takes into account the revised emissions estimates. The revised air quality modeling performed for the Production Increase Permit is presented in Section Six. Section Seven includes the additional impact analysis required as part of a Prevention of Significant Deterioration (PSD) application.

1.1 GENERAL FACILITY DESCRIPTION

The United States Steel – Granite City Works is located in Madison County, Illinois. The largest city near the facility is St. Louis, Missouri, which is located approximately 15 kilometers southwest of the Granite City mill. The latitude and longitude of the mill are approximately 38:41:55 and 90:08:42. The facility occupies approximately 1,100 acres of land in an area primarily used for industrial and agricultural purposes. A site location map is provided in **Figure 1-1**. A site map is provided in **Figure 1-2.**

The United States Steel – Granite City Works is owned and operated by United States Steel Corporation. The responsible official is David Rintoul, General Manager of Granite City Works.

The primary contact for questions regarding this application is Mr. Larry Siebenberger, Manager of Environmental Quality Control. His telephone number is 618-451-3391. The secondary contact for questions regarding this application is Mr. Robert Ribbing who may be reached at 618-451-4026.

The street address for the Facility is:

United States Steel – Granite City Works
1951 State Street
Granite City, Illinois 62040

In general, the Granite City Works receives raw materials by rail and truck, and produces steel coils of various sizes and finishes to meet customer needs. Products are shipped from the mill by rail and truck.

The Standard Industrial Classification (SIC) Code for the facility is 3312.

1.2 PERMITTING HISTORY

The Granite City Works submitted an application for a Clean Air Act Permit Program (CAAPP) permit in February 1996. IEPA is currently preparing the Facility's draft CAAPP Permit. Until the Granite City Works CAAPP permit is finalized the Facility operates under 30 separate operating permits for various units. Relevant operating permits are detailed below.

IEPA Permit Nos. 72080034 and 72080036 limit operations at the "A" and "B" Blast Furnaces, the Blast Furnace Casthouse, the BFG Scrubber and the Iron Spout and Casthouse Baghouses. These two permits allow the injection of intermediate light oil from the By-Products Plant and recycled oil from operations in the plant to be injected into both blast furnaces as alternative carbon sources.

In 1994 Granite City Works obtained a SO_2 Federally Enforceable State Operating Permit (FESOP) for combustion of Coke Oven Gas (COG) in certain fuel combustion units. The SO_2 FESOP (IEPA Permit No. 94120017) limited SO_2 emissions from COG combustion at all COG combustion units. SO_2 ambient air quality modeling for this application is dependent on the SO_2 limits in the SO_2 FESOP.

In late 1994, Granite City Works submitted a PSD permit application for a production increase at the Granite City Works. The Production Increase Permit Application showed the project would result in a significant increase in SO_2 and CO. The project netted out of PSD review for NO_x, PM, PM_{10} and VOC. The Production Increase Permit (IEPA Permit No. 95010001) was issued in 1996. This permit sets SO_2 emission limits for the Casthouse Baghouse (422 tons SO_2 per year), the uncaptured Casthouse Fugitives (21.94 tons SO_2 per year), the Slag Pits (15.83 tons SO_2 per year), and Iron Spout Baghouse (13.89 tons SO_2 per year).

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

2.1 BLAST FURNACES

The Facility has two blast furnaces, "A" Blast Furnace and "B" Blast Furnace. The blast furnace process is used to transform iron ore into raw molten iron. In the process iron ore, scrap and other metallics, coke and other carbon containing materials, limestone, and other fluxes (referred to as the burden) are loaded into the blast furnace where they slowly descend. Near the bottom of the furnace through the tuyeres, blast air is blown into the furnace and rises up through the burden. Blast air is high temperature air blown into the furnace in high volumes supporting the burden. At times, liquid materials such as oils or natural gas can be injected through the tuyeres with the hot blast as an additional source of carbon.

In the furnace, the hot blast air and the carbon in coke, oils, or natural gas react to form carbon monoxide. In the presence of carbon monoxide, the iron oxide in the iron ore reduces to metallic iron. In general, the reactions occurring in the Blast Furnace are described as follows:

$$Fe_2O_3 + 3\ CO \rightarrow 2\ Fe + 3\ CO_2$$

$$CO_2 + C \rightarrow 2\ CO$$

The result is molten iron, molten slag (calcium oxides and impurities), and a by-product gas rich in carbon monoxide called BFG. The BFG is collected at the top of the Blast Furnace and cleaned in a dust catcher and gas cleaning system. BFG is then utilized as a high volume, low heat content fuel at the Facility. BFG combustion is further described in Section 2.3 below.

Impurities in the Blast Furnace process include silica and sulfur. The majority of these materials are carried out of the process in the slag. Based on recent testing, US Steel estimates that approximately 80 % of the sulfur in the Blast Furnace Burden is bound up in the slag and transferred to the slag pits. Another 8 % of the sulfur remains in the iron and is removed prior to conversion of the iron to steel in the Basic Oxygen Furnace (BOF) Shop. Another 4 % of the sulfur is carried out in the flue dust and is removed by the dust catcher. An additional 8-9 % of the sulfur is removed in the BFG with 4 % being cleaned by the gas cleaning system and 4 to 5 % remaining in the BFG.

2.2 BLAST FURNACE CASTING

Iron and slag are cast through a tap hole drilled in the bottom of the furnace. Molten iron and slag pours through the tap hole into the trough. The iron and slag is separated and then flows through runners in the casthouse floor. Some of the runners are covered to minimize emissions. The runners direct the iron to a spout where the iron is poured into an iron ladle. The iron ladle is transported via train to the steel shop for conversion to steel. This process is called casting.

The molten slag flows through slag runners and is directed to a pit. While in the pit the slag is cooled using a water spray. Cooled slag is loaded via front-end loader to a truck and shipped off-site as a by-product material.

2.3 BLAST FURNACE GAS COMBUSTION

BFG has a low heat content ranging from under 60 to more than 100 million British thermal units per standard cubic foot of gas (MMBtu/scf). At the Granite City Works, BFG is permitted to be combusted in the Blast Furnace Stoves, Boilers 1-12, and the BFG Flare. Any BFG the Facility is unable to combust for usable heat in the Blast Furnace Stoves or Boilers is combusted in the BFG Flare. The Facility does not store or ship BFG off-site.

The BFG collected at the top of the Blast Furnaces is piped to a dust catcher and a gas cleaning system to remove particulate from the BFG. The Blast Furnace Permits (IEPA Nos. 72080034 & 72080036) require the dust removal system remove particulate to less than 0.01 grains per dry standard cubic foot (gr/dscf). After the bulk of the dust is removed, the BFG is piped to various combustion devices in the facility to be used as a fuel.

BFG has small amounts of sulfur bearing compounds that cause the creation of SO_x compounds during combustion. Analysis of BFG fuel samples indicates BFG sulfur levels currently range from 20 to 50 ppmv of sulfur compounds. As described previously, recent testing of the relationship between sulfur in the Blast Furnace burden and sulfur in the BFG indicates that as much as 5 % of the sulfur in the burden ends up in the BFG after the dust cleaning system. Based on typical sulfur levels for the Blast Furnaces, this results in emissions of SO_x of 16 lbs. per MMcf of BFG combusted.

2.4 CHANGES REQUIRED IN THE PRODUCTION INCREASE PERMIT

The Production Increase Permit (IEPA Permit No. 95010001) allows the facility to combust up to 30,800 million cubic feet (MMcf) of BFG per month and 185,030 MMcf of BFG per year resulting in up to 615.22 tons per year of SO_2 from all BFG combustion units. This limitation was based on an emission factor used for an ACME Steel Permit. Based on US Steel's own recent testing, US Steel now believes the ACME Steel emission factor does not accurately represent the nature of SO_2 emissions from BFG combustion at the Granite City Works either now or at the time of the permit issuance.

The ACME Steel SO_2 emission factor was used as the best available estimate of BFG SO_2 emissions available at the time. However, based on recently developed data, the ACME SO_2 factor underestimated both the actual emissions and the proposed emission increase identified in the Production Increase Permit application. Therefore, US Steel seeks to revise the Production

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Increase Permit (95010001) to account for US Steel's revised method for calculating the SO_2 emission rate from BFG combustion. This will increase the total allowable emissions of SO_2 on an annual basis from the combustion of BFG in the Production Increase Permit.

In accordance with this request for modification of the Production Increase Permit, US Steel has included a revised calculation of SO_2 emission increases from BFG combustion and a revised analysis of BACT. Revised ambient air quality modeling for the Production Increase Permit Application is presented in Section Six.

3.1 AFFECTED EMISSION UNITS

This application includes emission estimates for the seven (7) BFG combustion sources listed below:

BFG Combustion Sources

- Blast Furnace "A" Stoves
- Blast Furnace "B" Stoves
- Boilers 1-7
- Boilers 8-10
- Boiler 11
- Boiler 12
- Blast Furnace Gas Flare.

These sources will require changes to the BFG Combustion emission limit in the Production Increase Permit (IEPA Permit No. 95010001).

3.2 EMISSION FACTORS / PERMITTED LIMITS

The Production Increase Permit limits SO_2 emissions from the Blast Furnace Casting Sources as well as from the combined combustion of all BFG at the facility. The existing SO_2 limits in the Production Increase Permit are detailed below:

- Casthouse Baghouse — 422 tons SO_2 per year
- Uncaptured Casthouse Fugitives — 21.94 tons SO_2 per year
- Slag Pits — 15.83 tons SO_2 per year
- Iron Spout Baghouse — 13.89 tons SO_2 per year
- BFG Combustion (185,030 MMcf/yr) — 615.22 tons SO_2 per year

As discussed in Section 2.4, US Steel requests to revise the Production Increase Permit emission limits based on recent testing that shows that approximately 5 % of sulfur in the blast furnace burden travels with the BFG through the gas cleaning devices. Based on this calculation method, the Production Increase Permit should have based SO_2 emissions from BFG combustion on an emission factor of 16 lbs. SO_x / MMcf of BFG combusted. This emission factor is representative of the typical sulfur burden in the blast furnaces prior to and after the issuance of the Production Increase Permit.

3.3 EMISSIONS INCREASES

Average actual BFG combustion volumes prior to the Production Increase Permit Application were 121,039 million cubic feet (MMcf). The Production Increase Permit limits the total volume of BFG combustion to 185,030 MMcf. Using the recently calculated emission factor for BFG combustion of 16 lbs. SO_x per MMcf results in a potential emission increase of 511.93 tons SO_x per year from the combustion of BFG. This is the corrected increase for BFG combustion from the original Production Increase Permit Application of which 212.77 tons was previously accounted for in the Production Increase Permit. US Steel believes that the 16 lbs. SO_x per MMcf emission factor used here to develop the revised BFG emission increase should have been used in the 1994 Production Increase Permit and the associated increase has already occurred.

Using the revised emission factor and the permitted BFG consumption rate, the proposed Production Increase Permit limit for BFG combustion emissions of SO_2 is 1,480.24 tons per year.

An analysis of the actual BFG combustion SO_x emissions that have occurred since the Production Increase Permit indicates that the actual emissions increases are much lower than the 511.93 tons of SO_x per year potential increase. In fact, the actual emission increase that has occurred at the Granite City Works is lower than the 212.77 ton per year increase that was permitted in 1995. The table below compares the actual emissions since the Production Increase Permit (PIP) compared to the Pre-Production Increase Permit levels.

CO and VOM emission factors for the combustion of NG identified in the Production Increase Permit are from earlier revisions of AP-42. AP-42 factors for CO and VOM have increased to 84 and 5.5 lbs/MMscf. Based on the NG throughput permit limit in the Production Increase Permit of 1,346 MMscf per year, emissions of CO and VOM would be 56.53 and 3.70 tons per year, respectively. Even without considering baseline emissions, this would not result in a significant increase in either pollutant. Therefore, US Steel requests the permit be modified to include the revised emission factors and new permit limits.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Table 3-1: Revised Analysis of SO_x Emissions Changes Resulting from Production Increase Permit

Analysis Year	BFG Prod. (MMscf)	$S0_x$ Emission Factor (lbs./mmscf)	SO_x Emissions (tpy)	Actual Annual Change from Pre PIP Levels (tpy)
Pre-PIP	121,039	16.00	968.31	Baseline
1997	137,590	16.00	1100.72	132.41
1998	137,165	16.00	1097.32	129.01
1999	128,556	16.00	1028.45	60.14
2000	132,857	16.00	1062.86	94.54
2001	131,058	16.00	1048.46	80.15
2002	134,842	16.00	1078.74	110.42
2003	131,642	16.00	1053.14	84.82
2004	127,539	16.00	1020.31	52.00
2005	127,165	16.00	1017.32	49.01
2006	123,930	16.00	991.44	23.13

Note: BFG Production based on US Steel Granite City Works utility distribution spreadsheet for the years 1997 to 2006.

This section analyzes the federal and state air quality regulations potentially applicable to the Production Increase Permit application being revised. It also includes those regulatory exemptions that make potentially applicable rules inapplicable.

4.1 PRODUCTION INCREASE PERMIT APPLICATION

The change to the BFG combustion SO_2 emission rate in the Production Increase Permit application does not alter the applicable regulatory requirements analyzed in the original application. Based on the revised SO_2 emission increase calculation detailed in Section Three, this application contains all necessary information for a revised PSD analysis of the SO_2 emissions resulting from increased BFG production due to the production increase. As stated in Section One, the information required for the PSD analysis includes the analysis of BACT in Section Five and the additional impact analysis contained in Section Six. Ambient air quality modeling results are presented in Section Six.

Best Available Control Technology (BACT) is defined in 40 CFR 52 Subpart A Paragraph 52.21(b)(12) as an emissions limitation based on the maximum degree of reduction for each pollutant subject to regulation under the Act which would be emitted from any proposed major stationary source or major modification which the Administrator, on a case by case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant. In no event shall application of BACT result in emissions of any pollutant, which would exceed the emissions allowed by any applicable standard under 40 CFR Parts 60 and 61. If the Administrator determines that technological or economic limitations on the application of measurement methodology to a particular emissions unit would make the imposition of an emissions standard infeasible, a design, equipment, work practice, operational standard, or combination thereof, may be prescribed instead to satisfy the requirement for the application of BACT. Such standard shall, to the degree possible, set forth the emissions reduction achievable by implementation of such design, equipment, work practice or operation, and shall provide for compliance by means which achieve equivalent results.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

BACT is required for each regulated pollutant emitted from a major source in excess of significant emission rates. Individual BACT determinations are to be performed for each new or modified emission unit emitting the PSD pollutant. The BACT determination must address, for each regulated pollutant with a significant emission increase at the source, air pollution control technologies capable of reducing emissions of the pollutant.

Preparation of the BACT analysis included in this document incorporates the most recent "top-down" BACT guidance (EPA,1990) by United States Environmental Protection Agency (EPA) for PSD permit determinations. That is, for each pollutant, the most stringent emission limit potentially applicable for a given pollutant was considered and then compared to the proposed project to determine its technical and economic feasibility.

When the most stringent technically feasible emission limitation is not selected as BACT, justification must be provided in terms of adverse economic, environmental, or energy impacts. Several other factors may be considered in justification of rejecting more stringent controls, including:

A showing that utilizing the control would adversely impact the project's financial viability.

A showing that the costs associated with the control are significantly higher for this specific project than for other similar projects that have installed this control system or in general for controlling the pollutant.

A showing that those economic considerations outweigh the energy and environmental benefits.

5.1 SO_2 CONTROL TECHNOLOGY REQUIREMENTS AND APPLICABILITY

The sources of SO_2 emissions impacted by the revised production increase analysis include the Blast Furnace Stoves, the Blast Furnace Flare and Boilers 1 –12.

5.2 INHERENTLY LOWER-EMITTING PROCESSES/PRACTICES

5.2.1 Blast Furnace Gas Combustion Units

Under the Production Increase Permit, increased amounts of BFG combustion were identified as a by-product of the increased production of iron in the blast furnaces. The original Production Increase Permit was based on the BACT analysis showing that BFG is a low sulfur fuel as a result of the natural removal of sulfur in the blast furnace process (see Section Two). The revised estimate of SO_2 concentrations in BFG identified in this application does not alter that finding. BFG is still a low sulfur fuel with concentrations of H_2S on the order of 30 parts per million on a volume basis (ppmv) in the fuel. This is equivalent to less than 0.02 grains of H_2S per dry standard cubic foot of BFG (gr/dscf). For comparison pipeline natural gas (NG) has

sulfur levels of 0.002 gr/scf of NG, raw coke oven gas (COG) has sulfur levels of around 4 gr/dscf and desulfurized COG has sulfur levels of around 0.25 gr/dscf.

Due to the low concentrations of SO_2 and other pollutants in BFG and NG, these fuels are considered clean burning fuels. Although BFG emits higher levels of SO_2 than NG, substituting NG at combustion units burning BFG such as the Blast Furnace Stoves or Boilers results in the combustion of additional BFG at the flare. By combusting BFG at the Blast Furnace Stoves and Boilers in the largest quantities that operating conditions allow, the facility minimizes SO_2 emissions by limiting NG and fuel oil combustion requirements. Therefore, combustion of the BFG in the Blast Furnace Stoves and Boilers is inherently the lowest emitting practice on a plant-wide basis.

5.3 SO_2 CONTROL TECHNOLOGY OPTIONS

When dealing with SO_2 control in combustion devices the most widely utilized add-on controls are fuel sulfur removal technologies and post-combustion SO_2 removal technologies. However, because of the unique nature of BFG, there are no add-on SO_2 control technologies currently in use in the steel industry for SO_2 control at combustion units using process BFG.

In addition to BFG being a low sulfur fuel, BFG is a low Btu fuel (approximately 80 Btu/cubic feet). Because of its low Btu value, large volumes of BFG are necessary to produce the same amount of heat input as higher heat content fuels such as NG or fuel oil. The BFG produced by Granite City Works is produced and consumed in large volumes (approximately 500 MMscf per day at rated capacity) with low concentrations of sulfur compounds and low heat content. The high volume and low Btu value make the processing of this fuel or its exhaust very difficult.

As a result, no known use of fuel sulfur removal technologies have been identified for low sulfur fuels such as BFG. Because of the high volumes and low concentration of H_2S in BFG, the additional removal of fuel sulfur would be prohibitively expensive.

Additionally, due to the low heat value for BFG and the low H_2S concentration of the uncombusted fuel, exhaust gases from BFG combustion typically contain less than fifty (50) ppmv of SO_2. No instances of SO_2 control of exhaust gases has been identified for such low concentrations of SO_2 in stack gases.

Based on a review of the BACT/LAER clearinghouse, information obtained from the U.S. EPA Control Technology Group, and literature from the U.S. EPA Office of Air Quality Planning and Standards, no add-on BACT determination has been made for SO_2 emissions at BFG combustion sources. Due to the low concentrations of H_2S in BFG and SO_2 in combustion stacks, control of SO_2 emissions at BFG combustion units is not practiced in the steel industry.

A review of BACT determinations for other in-plant by-product fuel sources indicates that refinery fuel gas BACT determinations for four (4) refinery fuel gas combustion devices were based on the use of low sulfur fuel with H_2S concentrations of 0.1 gr/dscf or greater. No fuel sulfur removal technologies or post combustion controls were required for these BACT determinations. The refinery by-product fuels permitted in these BACT determinations all have higher fuel sulfur levels than BFG. These BACT determinations are shown in the table below.

Table 5-1: Previous BACT Determinations

RBLC ID	Fuel	Date	SO_2 limit (lb/mmBtu)	Additional Limit Information
TX-0415	Refinery Gas	3/4/1999	0.0035	Refinery gas limit: 160 PPMV hydrogen sulfide
TX-0375	Petro Refinery Gas	3/14/2002	0.025	Low S fuel: fuel gas with H_2S content no more than 0.1 gr/dscf over a 3 hr rolling basis
LA-0166	Refinery Gas	1/10/2002	0.027	Low sulfur refinery fuel gas equivalent to approximately 0.1 gr/dscf based on TX-0375
LA-0149	NG and Refinery Gas	10/21/1999	0.04	Use of low sulfur fuel equivalent to greater than 0.1 gr/dscf based on TX-0375

5.3.1 Infeasible Control Options

The permitted production increase resulted in increased BFG generation and corresponding increased BFG combustion in the BFG combustion sources. BFG and NG are considered clean fuels and are the preferred supplemental fuels for the increased combustion needs based on inherently lower emitting practices.

Because BFG is produced and consumed on-site in the Blast Furnace Stoves, Boilers or in the Blast Furnace Flare, substitution of BFG with a lower sulfur fuel in the Blast Furnace Stoves or Boilers is deemed infeasible. Substituting a lower sulfur fuel such as NG in these units does not reduce BFG combustion at the facility. All BFG produced at the Granite City Works is combusted. Substituting NG for BFG results in additional SO_2 emissions from NG combustion at those units and shifts SO_2 emissions from BFG combustion to the Blast Furnace Flare. Therefore, fuel substitution is considered infeasible.

Because of the high volumes and low concentrations of sulfur compounds in the BFG, fuel sulfur removal is deemed infeasible. No BACT analysis of by-product fuels has determined that fuel sulfur removal is feasible for a fuel sulfur level less than 0.1 gr/dscf. BFG has a fuel sulfur level of less than 0.02 gr/dscf and the removal of sulfur below this level is deemed infeasible.

Post combustion control of SO_2 from BFG combustion is deemed infeasible due to the high exhaust volumes and low SO_2 concentrations in stack gases. Removal of SO_2 at levels below the

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

existing fifty (50) ppmv could not be accomplished in an economical manner due to the extremely high exhaust volumes.

5.4 SELECTED BACT – SO_2

The BACT selected is the use of the inherently lower emitting practice of combusting BFG to the extent possible at BFG combustion units. No post combustion or fuel sulfur removal technologies are required.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

6.1 INTRODUCTION

Under the New Source Review (NSR) process, major stationary sources must demonstrate that undergoing a major modification will not cause or significantly contribute to an exceedance of the National Ambient Air Quality Standards (NAAQS). NSR also requires the source to demonstrate that emissions of specific pollutants such as SO_2 will not deteriorate the existing air quality above incremental amounts established by the Clean Air Act (CAA).

The Prevention of Significant Deterioration (PSD) program is a part of the NSR process that states have implemented for major new and modified sources of air pollution in regions currently in attainment of the NAAQS. An air quality impact assessment is one of the requirements which must be completed in order to receive a PSD permit to modify a source. The air quality analysis presented in this section satisfies the requirements in the Code of Federal Regulation 40 CFR 52.21(k) and 40 CFR 52.21(m).

6.2 HISTORY

The air quality impact assessment for the Production Increase Permit was performed for the SO_2 emission increase plant-wide in the original permit application as required under PSD. That air quality impact assessment has been revised for this application for a permit modification to show that no adverse air quality impacts have occurred or will occur as a result of the revised BFG combustion SO_2 emission rate proposed for the Production Increase Permit. Consequently, this section shows that despite the erroneous SO_2 emission rate identified in the original permit application, the Production Increase Project did not cause or significantly contribute to any exceedance of the NAAQS nor did it result in a deterioration of existing air quality above incremental amounts established by the CAA.

The permit application for the original Production Increase Permit relied in part on extensive dispersion modeling conducted by the Illinois Environmental Protection Agency (IEPA) in and around the Granite City Works (GCW). The purpose of the IEPA modeling was to demonstrate NAAQS attainment for SO_2 and particulate matter. The IEPA modeling successfully demonstrated NAAQS compliance based on Federally Enforceable State Operating Permit (FESOP) SO_2 emission rates for the Granite City Works. SO_2 emission rates included in the Production Increase Permit for the combustion of BFG (IEPA Permit No. 95010001) were no greater than the SO_2 FESOP limits (IEPA Permit No. 94120017) and therefore did not affect the SO_2 attainment demonstration modeling conducted by the IEPA. For this reason, the 1995 Production Increase Permit Application did not need to demonstrate NAAQS attainment for SO_2.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

The permit limits included in the SO_2 FESOP limited SO_2 emissions from the combustion of coke oven gas (COG) at each COG combustion unit. Because COG combustion results in higher SO_2 emissions than BFG combustion on an equivalent heat input basis, this permit effectively limited total SO_2 emissions from the facility. Replacing COG with BFG at emission units that burn both COG and BFG results in lower SO_2 emissions from those units because BFG has a much lower sulfur content. Because the Production Increase Permit affected only BFG production and BFG emissions and did not affect COG production or COG emissions, there was no need to repeat the SO_2 FESOP modeling NAAQS demonstration.

Although the revised SO_2 emission rates for BFG combustion in this application are higher than those rates used for developing limits in the Production Increase Permit, the revised BFG SO_2 emission rates are still much lower than the COG SO_2 emission rates on a lb/MMBtu basis. Therefore the BFG SO_2 emission rates will not affect the SO_2 emission limits in the SO_2 FESOP as COG combustion will still result in higher emissions than BFG. However, after preliminary discussions with IEPA, it was determined that a NAAQS demonstration would be required to modify the BFG SO_2 emission limit in addition to a revised PSD Increment analysis. As a result, this section of the application details the NAAQS demonstration and the PSD Increment analysis conducted.

In the discussion below, Granite City Works details the air quality modeling analysis that was conducted to demonstrate that the revised emission rates for the Production Increase Permit will not result in significant contributions to violations of the National Ambient Air Quality Standard nor any deterioration of existing air quality above SO_2 increment levels for Class II areas. The applicable SO_2 NAAQS and Class II area SO_2 increment levels are detailed in Table 6-1 below.

Table 6-1: National Ambient Air Quality Standards for SO_2 ($\mu g/m^3$)

Significance Level Or NAAQS	Averaging Period		
	3-hour	24-hour	Annual
Significance Level	25	5	1
NAAQS	1300	365	80
Class II Increment	512	91	20

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

6.2.1 Air Quality Analysis

The dispersion model used for assessing the air quality impacts from the facility is the USEPA's AERMOD (version 07026), which is incorporated into Beeline Software's modeling package BEEST (version 9.60a).

The AERMOD model was selected primarily for the following reasons:

- The EPA and IEPA have approved the general use of the model for air quality dispersion analysis because the model assumptions and methods are consistent with those in *Appendix W to Part 51 – Guideline of Air Quality Models* (EPA, 2005).
- The model calculates plume rise as a result of momentum, buoyancy, and variations of wind speed with height.
- Building downwash and wake effects as well as stack tip downwash are calculated and incorporated into the model.
- The AERMOD model is capable of predicting the impacts from stack, area, and volume sources that are spatially distributed over large areas and located in flat or gently rolling terrain.
- The outputs of the AERMOD model are appropriate for addressing compliance with NAAQS and PSD increments.

The model calculates concentrations due to point, area, and volume sources based on using the steady-state Gaussian plume equation for a continuous source in the horizontal and vertical stable conditions, and the non-Gaussian probability density function in the vertical dimension for unstable conditions.

AERMOD operates in three units. The first is AERMET, a meteorological data preprocessor that incorporates air dispersion based on planetary boundary layer turbulence structure and scaling concepts as discussed in Section 1.1. The next is AERMAP, a terrain data preprocessor that incorporates complex terrain using United States Geological Survey (USGS) Digital Elevation Data as discussed in Section 1.2. The final unit, AERMOD, is the air dispersion modeling unit as discussed in Section 1.3.

6.3 METEOROLOGICAL DATA PREPROCESSING

6.3.1 Dispersion Coefficients/Land Use Classification

The surface data collection point, St. Louis Lambert Airport, and the anchor location, US Steel – Granite City Works, are categorized as having urban and rural land characteristics for a 3 km

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

radius at each site according to *Appendix W to Part 51- Guideline on Air Quality Models* (EPA, 2005). The procedure to determine land-use sectors is described below:

> *Land Use Procedure: (1) Classify the land use within the total area, A_0, circumscribed by a 3 km radius circle about the source using the meteorological land use typing scheme proposed by Auer; (2) if land use types I1, I2, C1, R2, and R3 account for 50 percent or more of A_0, use urban dispersion coefficients; otherwise, use appropriate rural dispersion coefficients.* (Appendix W to Part 51- Guideline on Air Quality Models, USEPA, 2005)

Based on aerial photos, the area surrounding Lambert Airport was classified as possessing urban and rural characteristics. This area is categorized into two sectors. The first sector is to the east-southeast, which includes the runway. The area in this sector has a decreased surface roughness, a medium albedo, and a medium bowen ratio. The second sector appears to be more urban in nature and therefore has a high surface roughness, a medium albedo, and a high bowen ratio.

The basic site characteristics for US Steel – Granite City Works are similar to the Lambert site characteristics and both can be split into two sectors. One sector, to the east-southeast from 105 to 135 degrees, has a decreased surface roughness, a medium albedo, and a medium bowen ratio. The urban land-use albedo values, and the average of the bowen ratio and surface roughness values for urban and cultivated land use were selected for the first wind sector. The second sector was classified as urban with a high surface roughness, a medium albedo, and a high bowen ratio. Urban surface characteristics were selected for the second sector.

Tables 4-1 through 4-3 from the *User's Guide for the AERMOD Meteorological Preprocessor (AERMET)* identify surface characteristics by season. Section 4.7.7 of the guide identifies the seasons as on a latitude and vegetative growing cycle.

> *Spring refers to the period when vegetation is emerging or partially green and applies to the 1-2 months after the last killing frost. The term summer applies to the period when vegetation is lush. The term autumn refers to the period of the year when freezing conditions are common, deciduous trees are leafless, soils are bare after harvest, grasses are brown and no snow is present. Winter conditions apply to snow-covered surfaces and subfreezing temperatures.*

Therefore, the seasons were identified as the following months for the facility:

- Spring: March, April and May
- Summer: June, July, August, and September

- Autumn: October and November
- Winter: December, January and February.

Table 6-2 shows the surface albedo, bowen ratio, and surface roughness for each month and each sector of the 3 km radius from the facility.

Table 6-2: Dispersion Coefficient Input Parameters

Time Frequency	Wind Sector	Surface Albedo	Bowen Ratio	Surface Roughness
January	1	0.35	1.5	0.505
January	2	0.35	1.5	1
February	1	0.35	1.5	0.505
February	2	0.35	1.5	1
March	1	0.14	0.65	0.515
March	2	0.14	1	1
April	1	0.14	0.65	0.515
April	2	0.14	1	1
May	1	0.14	0.65	0.515
May	2	0.14	1	1
June	1	0.16	1.25	0.6
June	2	0.16	2	1
July	1	0.16	1.25	0.6
July	2	0.16	2	1
August	1	0.16	1.25	0.6
August	2	0.16	2	1
September	1	0.16	1.25	0.6
September	2	0.16	2	1
October	1	0.18	1.35	0.525
October	2	0.18	2	1
November	1	0.18	1.35	0.525
November	2	0.18	2	1
December	1	0.35	1.5	0.525
December	2	0.35	1.5	1

6.3.2 Meteorological Data

The *Guideline on Air Quality Models* (EPA, 2005) recommends the use of representative meteorological data for use in air quality modeling from the most recent readily available 5-year period.

Surface meteorological data was retrieved from www.webmet.com for the St. Louis Lambert Airport Weather Station, WBAN 13994, in SCRAM format for the years 1987 to 1991. The station location description is 38.752° latitude and 90.374° longitude.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

The St. Louis Lambert Airport Weather Station is approximately 11 miles north northwest of the facility. Because of the proximity, similar terrain, prevailing wind direction, and similar climate of this station compared to the facility, the St. Louis Lambert Airport Weather Station meteorological data is considered representative of meteorological conditions occurring at the facility.

Upper air data was retrieved from www.webmet.com for the Peoria Airport, WBAN 14842, in TD 6201 format for the years 1987 to 1991. The station location description is 40.667° latitude and 89.684° longitude.

Surface meteorological data was reviewed for quality assurance and quality control purposes in accordance with recommendations in the *Guideline on Air Quality Models* (EPA, 2005). Calm wind conditions were observed in the upper air meteorological data, however, no adjustment to wind data is required for the input of surface meteorological data into AERMOD. According to the guideline, "None of the observed wind speeds in a measured wind profile that are less than the threshold speed are used in construction of the modeled wind speed profile in AERMOD."

Meteorological Monitoring Guidance for Regulatory Modeling Applications (EPA, 2000) provides information for the treatment of missing or invalid data. Meteorological data must be 90% complete before substitution of any missing data. AERMET reviewed the surface meteorological variables of dry bulb temperature, wind direction, and wind speed for completeness and exceedance of upper and lower data limits. The surface meteorological data was more than 90% complete for all years and variables reviewed. No variables were missing for the surface meteorological data, however a limited amount of data did exceed upper and lower boundary limits. It was not necessary to treat the data that exceeded upper and lower limits since AERMET flags the data for processing in AERMOD.

AERMET reviewed the upper air meteorological variables of dry bulb temperature, wind speed, and dew point for completeness and exceedance of upper and lower data limits. As part of the QA AERMET also checks for calm winds, zero wind speeds, dew point greater than dry bulb temperature, and unusual (though possibly valid) lapse rates. Several variables were missing for the upper air data. However, the reviewed guidance is not applicable to upper air data, and therefore, missing and invalid upper air data was not treated. AERMET flags the missing and invalid upper air data for processing in AERMOD.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

6.4 TERRAIN DATA PROCESSING

Terrain data was obtained in DEM format from Micropath Corporation. This data was selected for use in AERMAP to calculate the base elevations for the sources, buildings, and receptors in UTM coordinates (zone 15 NAD 83 datum). AERMAP also calculates the local terrain maximum for the receptors based on the highest node exceeding the 10% slope from the receptor. The local terrain maximum and the base elevation of the receptor set a Gaussian terrain profile for the AERMOD calculations.

6.5 AERMOD OPTIONS

EPA regulatory default options including final plume rise, stack tip downwash, buoyancy-induced dispersion, default wind profile exponents, default temperature gradients, and calms processing were used for all model runs. The modeling runs were setup to include consideration of potential downwash effects in accordance with the algorithms used in the AERMOD model.

6.5.1 Downwash Considerations

The Building Profile Input Program Plume Rise Model Enhancement (BPIP-Prime) was used to calculate the downwash using wind direction specific building dimensions for the nearby buildings. Downwash considerations take into account air downwash caused by winds hitting nearby buildings and increasing pollutant concentrations near the source.

The building dimensions were obtained from US Steel – Granite City Works facility drawings or measured by Granite City Works personnel. When multiple buildings were in sufficient proximity to each other to create only narrow paths between large building complexes, only one building was modeled with an average building height to keep the complexity of the model to a minimum. Granite City Works provided stack heights.

6.5.2 Receptor Grid

For the AERMOD model runs, the receptor grid consisted of receptors spaced every 50 meters along the fence line of the plant property. In addition, a Cartesian receptor grid with the following spacing was developed:

- 100 meter spaced grid surrounding fenceline out to 400 meters from the east and west fencelines and 200 meters from the north and south fencelines.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

- 500 meters spacing from the fenceline out to approximately 3 kilometers (km) from the source.
- 1000 meter spacing from the fenceline out to the distance where the pollutant concentrations continually decrease.

6.6 NAAQS MODELING SOURCE PARAMETERS

6.6.1 U.S. Steel – Granite City Works Sources

Granite City Works' source stack parameters for point sources included in the NAAQS modeling are detailed in Table 6-3. Parameters for area sources included in the NAAQS modeling are detailed in Table 6-4. Stack parameters for each source were identified from previous modeling, engineering calculations, and stack test data as available. Sources venting through roof vents and open pits were modeled as area sources. Stack and area source locations were determined by super-imposing facility drawings on USGS quadrangles and verified using a handheld GPS unit when needed.

The initial modeled SO_2 rates are based on several conservative assumptions. Modeled SO_2 emission rates initially assume COG production is sufficient to meet maximum allowable inputs for all units using COG. It also assumes unlimited BFG production. Short term COG SO_2 emission rates also assume 454 grains H_2S per 100 SCF of COG which is assumed to be worst case non-desulfurized gas. Because of the conservative COG production assumptions, USS has modeled 2.8 times the amount of COG it can produce at maximum coke production levels. The detailed calculation of the emission rates used in the NAAQS demonstration modeling is included as Appendix C.

Table 6-3: Point Source Stack Parameters

Stack No.	Description	Easting (m)	Northing (m)	Base elevation (m)	Stack Height (m)	Stack Temp (K)	Exit Velocity (m/s)	Stack Diameter (m)
BF0007S	BFAStove	749824	4286804	126.5	70.6	533.2	26.8	2.1
BF0011S	BFGFlare	749794	4286836	126.5	45.7	1273.0	20.0	6.1
BF0111S	Newflare	749820	4286852	127.0	46.0	1273.0	20.0	6.0
BF0012S	BFBStove	749682	4286717	126.5	72.0	533.2	18.6	2.7
UT0053S	blrs1to7	749759	4286829	126.5	68.6	460.9	10.1	3.9
UT0054S	blrs8t10	749709	4286787	126.5	61.0	460.9	8.2	2.8
UT0059S	boil11	749885	4286880	126.5	46.9	510.0	21.8	1.9
UT0064S	boil12	749901	4286884	126.5	46.5	510.0	13.7	2.4
BP0097S	COGflare	749983	4286983	126.5	32.0	1273.0	20.0	4.3
CO0071S	BatAfire	750101	4286983	126.0	76.2	529.3	7.2	3.4
CO0092S	BatBfire	750110	4286988	126.0	76.2	529.3	7.2	3.4
FIN0016S	slabfur1	747734	4286764	126.2	27.6	616.5	19.0	2.4
FIN0028S	slabfur4	747701	4286703	126.5	58.5	781.0	18.1	4.2

Table 6-3: Point Source Stack Parameters

Stack No.	Description	Easting (m)	Northing (m)	Base elevation (m)	Stack Height (m)	Stack Temp (K)	Exit Velocity (m/s)	Stack Diameter (m)
FIN0020S	slabfur2	747721	4286747	126.3	27.6	616.5	19.0	2.4
FIN0024S	slabfur3	747707	4286734	126.4	27.4	616.5	19.0	2.4
BF0010S	Csthsbgh	749635	4286730	126.5	9.1	338.7	22.5	3.4
BF0150S	Ironspot	749840	4286813	126.5	19.2	323.7	13.1	2.1
BOF0149S	Ladldryr	748385	4286647	126.6	61.0	460.9	0.0	0.1
CC0084S	slabcut1	748622	4286606	126.5	16.8	460.9	0.0	0.1
CC0145S	slabcut2	748571	4286569	126.5	39.6	460.9	0.0	4.6
CO0069S	BatAPush	750080	4286982	126.0	6.0	326.5	30.3	1.2
CO0090S	BatBPush	750118	4287005	126.0	6.0	326.5	30.3	1.2

Table 6-4: Area Source Model Parameters

Stack No.	Description	Easting m	Northing m	Base Elevation m	Release Height m	Easterly Length m	Northerly Length m	Angle from North degrees	Vertical Dimension m
BF008S	BFAfugit	749710	4286731	126.49	70.62	37.00	4.57	-31.00	0.61
BF0013S	BFBfugit	749765	4286762	126.49	70.62	37.00	4.57	-31.00	0.61
BF0126S	slagpits	749697	4286749	126.49	0.00	101.00	10.00	-31.00	5.00

6.6.2 Illinois Background Sources

IEPA provided two SO_2 background source datasets to USS for inclusion in the NAAQS modeling. One dataset was for short-term modeling and the second dataset contained annualized emission rate data. Some of the data provided by IEPA was in UTM Zone 16 coordinates based on the NAD 27 coordinate datum. Previous modeling data developed for USS sources was based on the contemporary NAD 83 coordinate system using UTM Zone 15 coordinates because the Facility is located in Zone 15. Therefore, all IEPA background sources were changed to Zone 15 coordinates in the NAD 83 coordinate system to coincide with the USS data. The conversions to Zone 15 coordinates were verified using Google Earth when stacks could be identified and adjustments to stack locations were made if appropriate. The Illinois background sources and their short-term and long-term model parameters are detailed in Tables 6-5 and 6-6 below.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Table 6-5: IEPA Short-Term Background Source Data

Stack No.	Easting (m)	Northing (m)	Base elev. (m)	Stack Height (m)	Stack Temp. (K)	Exit Velocity (m/s)	Stack Diam. (m)	SO_2 Hourly (lb/hr)
8	747581	4307489	143.3	30.5	394.3	1.2	7.4	49.6
19	817745	4325793	179.8	152.4	449.3	17.3	8.8	93675.9
38	748685	4305573	131.0	106.7	416.5	19.8	4.6	7097.4
39	748685	4305573	131.0	76.2	449.8	15.4	4.7	541.0
40	748685	4305573	131.0	76.2	427.6	8.5	5.2	1924.0
41	770545	4231443	126.2	184.4	426.5	26.8	5.9	34008.7
42	770542	4231383	125.9	184.4	423.7	26.8	5.9	34062.5
44	770543	4231322	125.6	184.4	425.4	26.8	5.9	33488.6
51	705323	4369075	134.1	61.9	322.0	11.9	1.8	1668.0
97	747701	4281167	127.1	10.7	505.4	16.6	0.8	15.1
98	747701	4281167	127.1	10.1	505.4	14.3	0.9	15.1
101	746591	4276418	125.9	30.5	644.3	18.1	0.2	74.2
103	746690	4276292	124.7	14.3	338.7	0.0	0.6	44.2
106	746677	4276387	125.9	44.5	810.9	13.1	0.1	64.0
112	745515	4283326	125.0	13.7	745.9	15.6	4.3	14.9
114	745515	4283326	125.0	9.1	727.6	0.1	0.1	3.4
122	748603	4287235	128.5	14.6	449.8	3.0	0.8	1.6
123	748608	4287240	128.5	14.6	533.2	5.4	1.4	3.2
124	746451	4285723	126.5	18.3	505.4	9.3	0.6	4.4
126	750566	4282318	123.4	6.1	339.3	3.1	1.0	2.4
127	750566	4282318	123.4	7.9	710.9	26.3	0.3	0.7
128	750566	4282318	123.4	7.9	710.9	26.3	0.3	0.7
129	750566	4282318	123.4	7.9	710.9	26.3	0.3	0.7
130	750566	4282318	123.4	6.1	1255.4	17.4	0.2	0.3
131	750566	4282318	123.4	3.1	775.9	26.4	0.1	0.6
147	754993	4302512	135.0	76.2	555.4	9.8	4.6	80.8
148	754991	4302604	135.0	106.7	472.0	11.4	4.6	200.7
149	754991	4302604	135.0	106.7	672.0	1.6	4.6	54.0
150	754578	4302683	135.0	23.8	538.2	10.1	1.0	196.7
151	754991	4302604	135.0	106.7	672.0	14.3	4.6	184.4
152	755178	4302796	135.0	30.5	838.7	9.9	2.1	165.9
153	755073	4303009	135.1	45.7	699.8	7.2	2.3	86.9
155	754394	4303110	135.0	45.7	433.2	6.1	2.0	56.0
156	754394	4303110	135.0	56.4	432.6	6.7	2.4	93.5
157	754578	4302683	135.0	45.7	602.6	8.6	1.3	57.2
158	754495	4302990	135.0	95.1	472.0	10.9	4.3	3953.1
160	754595	4302900	135.0	45.7	649.8	8.0	1.8	120.0
166	754578	4302683	135.0	42.4	504.8	16.2	2.2	2249.1
170	754776	4302505	135.0	45.4	644.3	4.4	1.9	49.4
171	754776	4302505	135.0	54.6	605.4	7.3	1.9	87.4
175	754985	4302789	135.0	40.2	491.5	13.2	2.1	47.7
184	755187	4302487	135.0	45.7	699.8	8.8	2.4	49.0

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Table 6-5: IEPA Short-Term Background Source Data

Stack No.	Easting (m)	Northing (m)	Base elev. (m)	Stack Height (m)	Stack Temp. (K)	Exit Velocity (m/s)	Stack Diam. (m)	SO_2 Hourly (lb/hr)
185	755187	4302487	135.0	45.7	672.0	8.2	2.4	208.8
186	755187	4302487	135.0	45.7	672.0	4.3	2.4	121.0
193	754991	4302604	135.0	106.7	483.7	0.3	4.6	253.2
196	754495	4302990	135.0	95.1	483.7	0.4	4.3	196.1
208	754578	4302683	135.0	4.9	319.3	4.8	2.7	172.4
209	754598	4302463	133.8	41.5	799.8	7.7	3.2	116.8
210	754581	4302683	135.0	12.2	588.7	14.3	2.3	1553.4
211	754598	4302463	133.8	41.5	799.8	7.7	3.2	118.7
212	754598	4302463	133.8	10.1	294.0	0.1	0.1	57.9
221	762473	4266691	152.5	21.3	505.4	1.4	1.4	58.9
222	746418	4276345	125.9	29.3	315.4	15.2	0.8	630.2
228	747467	4287532	129.3	22.9	463.7	19.8	0.8	1.2
229	746360	4289240	125.9	9.1	294.0	0.1	0.1	1.0
251	748933	4286043	126.8	10.1	455.9	8.2	1.1	17.2
266	747087	4287451	129.2	11.6	394.3	9.3	2.5	4.0
267	747087	4287451	129.2	11.6	394.3	9.3	2.5	4.0
268	747087	4287451	129.2	24.1	672.0	2.2	0.9	1.7
269	747070	4287670	128.6	30.8	394.8	10.6	3.0	0.3
270	747087	4287451	129.2	25.0	535.9	9.6	1.9	0.2
272	754159	4283243	128.3	9.8	388.7	25.5	1.2	36.3

Table 6-6: IEPA Long-Term Background Source Data

Stack No.	Easting (m)	Northing (m)	Base elev. (m)	Stack Height (m)	Stack Temp. (K)	Exit Velocity (m/s)	Stack Diam. (m)	SO_2 Hourly (g/s)
19	817745	4325793	179.8	152.4	449.3	17.3	8.8	7305.5
38	748685	4305573	131.0	106.7	416.5	19.8	4.6	818.4
39	748685	4305573	131.0	76.2	449.8	15.4	4.7	20.9
40	748685	4305573	131.0	76.2	427.6	8.5	5.2	230.5
41	770545	4231443	126.2	184.4	426.5	26.8	5.9	4026.6
42	770542	4231383	125.9	184.4	423.7	26.8	5.9	3703.8
44	770543	4231322	125.6	184.4	425.4	26.8	5.9	4207.8
51	705323	4369075	134.1	61.9	322.0	11.9	1.8	189.4
101	746591	4276418	125.9	30.5	644.3	18.1	0.2	9.3
103	746690	4276292	124.7	14.3	338.7	0.0	0.6	5.6
106	746677	4276387	125.9	44.5	810.9	13.1	0.1	8.0
112	745515	4283326	125.0	13.7	745.9	15.6	4.3	1.9
122	748596	4287435	128.5	14.6	449.8	3.0	0.8	0.0
123	748601	4278440	128.5	14.6	533.2	5.4	1.4	0.0
124	746451	4285723	126.5	18.3	505.4	9.3	0.6	0.6

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Table 6-6: IEPA Long-Term Background Source Data

Stack No.	Easting (m)	Northing (m)	Base elev. (m)	Stack Height (m)	Stack Temp. (K)	Exit Velocity (m/s)	Stack Diam. (m)	SO_2 Hourly (g/s)
126	750566	4282318	123.4	6.1	339.3	3.1	1.0	0.3
127	750566	4282318	123.4	7.9	366.5	26.3	0.3	0.1
128	750566	4282318	123.4	7.9	699.8	26.3	0.3	0.1
129	750566	4282318	123.4	7.9	699.8	26.3	0.3	0.1
130	750566	4282318	123.4	6.1	1255.4	7.3	0.2	0.0
131	750566	4282318	123.4	3.1	775.9	26.4	0.1	0.1
147	754993	4302512	135.0	76.2	555.4	9.8	4.6	10.2
148	754991	4302604	135.0	106.7	472.0	11.4	4.6	25.2
149	754991	4302604	135.0	106.7	672.0	1.6	4.6	6.8
150	754578	4302683	135.0	23.8	538.2	10.1	1.0	24.7
151	754991	4302604	135.0	106.7	672.0	14.3	4.6	23.2
152	755178	4302796	135.0	30.5	838.7	9.9	2.1	20.8
153	755073	4303009	135.1	45.7	699.8	7.2	2.3	10.9
155	754394	4303110	135.0	45.7	433.2	6.1	2.0	7.0
156	754394	4303110	135.0	56.4	432.6	6.7	2.4	11.8
157	754578	4302683	135.0	45.7	602.6	8.6	1.3	7.2
158	754495	4302990	135.0	95.1	472.0	10.9	4.3	496.7
160	754595	4302900	135.0	45.7	649.8	8.0	1.8	15.1
166	754578	4302683	135.0	42.4	504.8	16.2	2.2	138.4
170	754776	4302505	135.0	45.4	644.3	4.4	1.9	6.2
171	754776	4302505	135.0	54.6	605.4	7.3	1.9	11.0
175	754985	4302789	135.0	40.2	491.5	13.2	2.1	6.0
184	755187	4302487	135.0	45.7	699.8	8.8	2.4	6.2
185	755187	4302487	135.0	45.7	672.0	8.2	2.4	26.2
186	755187	4302487	135.0	45.7	672.0	4.3	2.4	15.2
193	754991	4302604	135.0	106.7	483.7	0.3	4.6	31.8
196	754495	4302990	135.0	95.1	483.7	0.4	4.3	56.2
208	754578	4302683	135.0	4.9	319.3	4.8	2.7	21.7
209	754598	4302463	133.8	41.5	799.8	7.7	3.2	14.7
210	754581	4302683	135.0	12.2	588.7	14.3	2.3	178.1
211	754598	4302463	133.8	41.5	799.8	7.7	3.2	14.9
212	754598	4302463	133.8	10.1	294.0	0.1	0.1	7.3
222	746418	4276345	125.9	29.3	315.4	15.2	0.8	76.1
228	747467	4287532	129.3	22.9	463.7	19.8	0.8	0.2
229	746360	4289240	125.9	9.1	294.0	0.1	0.1	0.1
266	747087	4287451	129.2	11.6	394.3	9.3	2.5	0.4
267	747087	4287451	129.2	11.6	394.3	9.3	2.5	0.4
268	747087	4287451	129.2	24.1	672.0	1.4	0.9	0.2
269	747070	4287670	128.6	30.8	394.8	10.6	3.0	0.0
270	747087	4287451	129.2	25.0	535.9	9.6	1.9	0.0

6.6.3 Missouri Background Sources

Missouri background sources were requested from the Missouri Department of Natural Resources (MDNR). MDNR provided information on background sources in the out-state regions, however, MDNR indicated that modeling data on sources in the city and county of St. Louis would have to be provided separately by St. Louis City and St. Louis County. USS requested that St. Louis City and St. Louis County provide background and increment consuming SO_2 sources for PSD modeling and received only information on background sources. Background sources for St. Louis City and St. Louis County were then reviewed to screen out sources which did not meet IEPA's 10d=Q screening criteria.

The stack locations were verified using Google Earth when stacks could be identified and adjustments to stack locations were made if appropriate. Background sources located in the City of St. Louis meeting the IEPA screening criteria are shown in Table 6-7 below along with model data for both short term and long term averaging periods.

Table 6-7: City of St. Louis Background Source Data

Stack No.	Plant Name	Easting (m)	Northing (m)	Base elev. (m)	Stack Height (m)	Stack Temp. (K)	Exit Velocity (m/s)	Stack Diam. (m)	SO_2 Hourly (lb/hr)
MO000381	AB	742763	4275613	147.0	6.1	422.0	21.3	0.3	195.4
M0003151	AB	742763	4275613	147.0	53.3	373.7	9.3	2.0	0.0
M0003S15	AB	742763	4275613	147.0	53.3	373.7	9.3	2.0	63.8
M0003S05	AB	742763	4275613	147.0	68.6	449.8	5.6	3.0	115.3
M0003S01	AB	742763	4275613	147.0	68.6	438.7	6.5	3.0	974.5
M0003S02	AB	742763	4275613	147.0	68.6	460.9	5.8	3.0	1145.6
M0003S3A	AB	742763	4275613	147.0	22.9	449.8	143.7	0.9	155.2
M000305B	AB	742763	4275613	147.0	68.6	449.8	5.6	3.0	117.7
M0017F1	Mallinckrodt	744174	4283340	129.0	0.3	422.0	0.0	0.0	0.0
M0017F1A	Mallinckrodt	744174	4283340	129.0	0.3	422.0	0.0	0.0	1.5
M0017238	Mallinckrodt	744174	4283340	129.0	4.9	298.2	0.0	0.1	1.4
M001738A	Mallinckrodt	744174	4283340	129.0	4.9	298.2	0.0	0.1	0.0
M0017X3	Mallinckrodt	744174	4283340	129.0	13.7	338.7	21.3	0.6	0.0
M0017X2	Mallinckrodt	744174	4283340	129.0	13.7	338.7	21.3	0.6	0.0
M0017C02	Mallinckrodt	744174	4283340	129.0	27.4	522.0	4.1	1.5	59.8
M0017514	Mallinckrodt	744174	4283340	129.0	30.5	335.9	19.1	1.4	0.0
M0017F1B	Mallinckrodt	744174	4283340	129.0	0.3	422.0	0.0	0.0	0.0
M001751A	Mallinckrodt	744174	4283340	129.0	30.5	335.9	19.1	1.4	0.0
M0017C2A	Mallinckrodt	744174	4283340	129.0	27.4	522.0	4.1	1.5	0.2
M0017507	Mallinckrodt	744174	4283340	129.0	24.4	294.3	18.6	0.3	0.0
M0017X1	Mallinckrodt	744174	4283340	129.0	13.7	338.7	21.3	0.6	0.0
M0017F1C	Mallinckrodt	744174	4283340	129.0	0.3	422.0	0.0	0.0	3.0
M0017Z02	Mallinckrodt	744174	4283340	129.0	0.3	422.0	0.0	0.0	1.5

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Table 6-7: City of St. Louis Background Source Data

Stack No.	Plant Name	Easting (m)	Northing (m)	Base elev. (m)	Stack Height (m)	Stack Temp. (K)	Exit Velocity (m/s)	Stack Diam. (m)	SO_2 Hourly (lb/hr)
M0017260	Mallinckrodt	744174	4283340	129.0	3.1	691.5	0.0	0.1	1.8
M0017250	Mallinckrodt	744174	4283340	129.0	13.1	298.2	2.5	0.0	0.2
M0017C01	Mallinckrodt	744174	4283340	129.0	33.5	560.9	5.6	1.5	0.0
M001750A	Mallinckrodt	744174	4283340	129.0	24.4	294.3	18.6	0.3	0.0
M001750B	Mallinckrodt	744174	4283340	129.0	24.4	294.3	18.6	0.3	0.0
M0017UNK	Mallinckrodt	744174	4283340	129.0	0.3	422.0	0.0	0.0	1.5
M0017UNB	Mallinckrodt	744174	4283340	129.0	0.3	422.0	0.0	0.0	1.2
M0017C3B	Mallinckrodt	744174	4283340	129.0	53.3	427.6	1.1	2.7	116.4
M0017G02	Mallinckrodt	744174	4283340	129.0	0.3	422.0	0.0	0.0	0.8
M00386	Trigen	749013	4280218	129.0	54.9	444.3	2.6	3.2	207.2
M00385	Trigen	749013	4280218	129.0	56.7	444.3	2.6	4.0	173.4
M0038003	Trigen	749013	4280218	129.0	56.7	444.3	2.6	4.0	207.2
M00405	WashU	783300	4279600	165.0	21.0	440.9	15.6	1.1	17.0
M00401	WashU	783300	4279600	165.0	67.1	435.4	1.1	2.3	18.1
M00401A	WashU	783300	4279600	165.0	67.1	435.4	1.1	2.3	20.7
M00402	WashU	783300	4279600	165.0	53.3	455.4	3.5	2.7	31.6
M0053006	Bisselpoint	743527	4286283	130.0	21.0	449.8	10.8	1.2	0.0
M0053008	Bisselpoint	743527	4286283	130.0	6.7	422.0	3.7	0.7	0.0
M0053	Bisselpoint	743527	4286283	130.0	0.3	422.0	0.0	0.0	0.0
M0053001	Bisselpoint	743527	4286283	130.0	68.6	310.9	3.4	3.7	2.2
M0053007	Bisselpoint	743527	4286283	130.0	3.1	294.3	0.0	0.0	0.0
M0053009	Bisselpoint	743527	4286283	130.0	7.3	449.8	0.0	0.3	0.0
M005300A	Bisselpoint	743527	4286283	130.0	68.6	310.9	3.4	3.7	8.5
M0053004	Bisselpoint	743527	4286283	130.0	20.4	449.8	5.4	2.4	0.0
M005304A	Bisselpoint	743527	4286283	130.0	20.4	449.8	5.4	2.4	0.0
M005301A	Bisselpoint	743527	4286283	130.0	68.6	310.9	3.4	3.7	1.6
M005301B	Bisselpoint	743527	4286283	130.0	68.6	310.9	3.4	3.7	31.7
M005301C	Bisselpoint	743527	4286283	130.0	68.6	310.9	3.4	3.7	1.0
M005304B	Bisselpoint	743527	4286283	130.0	20.4	449.8	5.4	2.4	0.0
M005301D	Bisselpoint	743527	4286283	130.0	68.6	310.9	3.4	3.7	1.3
M0056S2	VA Medical Center	740795	4280645	158.0	15.2	410.9	10.7	0.6	26.4
M0056S3	VA Medical Center	740795	4280645	158.0	15.2	410.9	10.7	0.6	26.4
M007096	Astaris	737988	4270069	125.0	12.8	444.3	11.5	1.2	96.4
M007013	Astaris	737988	4270069	125.0	17.1	477.6	4.9	1.2	68.1
M00871	St. Louis State Hospital	736929	4276364	177.0	70.1	552.6	0.0	2.1	48.8
M00872	St. Louis State Hospital	736929	4276364	177.0	70.1	552.6	0.0	2.1	51.7
M0096NA	The PD George Co.	743180	4284976	128.0	0.3	422.0	0.0	0.0	0.0

Table 6-7: City of St. Louis Background Source Data

Stack No.	Plant Name	Easting (m)	Northing (m)	Base elev. (m)	Stack Height (m)	Stack Temp. (K)	Exit Velocity (m/s)	Stack Diam. (m)	SO_2 Hourly (lb/hr)
M009637	The PD George Co.	743180	4284976	128.0	10.7	365.9	1.8	0.5	0.0
M009620S	The PD George Co.	743180	4284976	128.0	0.3	422.0	0.0	0.0	0.0
M02003	St. Alexius Hospital	741572	4274960	159.0	3.1	422.0	0.0	1.5	0.8
M0204	BJC	737962	4279881	153.0	28.4	477.6	0.6	1.8	61.7
M020401	BJC	737962	4279881	153.0	61.0	405.4	5.4	0.9	66.1
M0204A	BJC	737962	4279881	153.0	28.4	477.6	0.6	1.8	135.0
M0391S12	Hermann Oak Leather Co.	743650	4284000	162.0	3.7	422.0	0.0	0.5	0.0
M0391	Hermann Oak Leather Co.	743650	4284000	162.0	0.3	422.0	0.0	0.0	0.0
M0391S8	Hermann Oak Leather Co.	743650	4284000	162.0	9.1	422.0	0.0	0.8	0.0
M0391S7	Hermann Oak Leather Co.	743650	4284000	162.0	0.3	422.0	0.0	0.0	0.0
M0391S6	Hermann Oak Leather Co.	743650	4284000	162.0	0.3	422.0	0.0	0.0	0.0
M0391S5	Hermann Oak Leather Co.	743650	4284000	162.0	11.6	422.0	17.6	0.5	0.0
M08093	PQ Corporation	739205	4285226	147.0	16.8	672.0	3.4	1.3	28.2
M13632	National Linen Service	745124	4276024	131.0	11.3	449.8	7.8	0.9	25.3
M13631	National Linen Service	745124	4276024	131.0	11.3	449.8	7.8	0.9	25.7
M15051	The Energy Center, SLU MS	740405	4278327	153.0	67.1	449.8	30.5	1.5	62.9
M15051A	The Energy Center, SLU MS	740405	4278327	153.0	67.1	449.8	30.5	1.5	26.0
M15051B	The Energy Center, SLU MS	740405	4278327	153.0	67.1	449.8	30.5	1.5	28.3

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Table 6-7: City of St. Louis Background Source Data

Stack No.	Plant Name	Easting (m)	Northing (m)	Base elev. (m)	Stack Height (m)	Stack Temp. (K)	Exit Velocity (m/s)	Stack Diam. (m)	SO_2 Hourly (lb/hr)
M15051C	The Energy Center, SLU MS	740405	4278327	153.0	67.1	449.8	30.5	1.5	62.3
M15051D	The Energy Center, SLU MS	740405	4278327	153.0	67.1	449.8	30.5	1.5	62.3
M15051E	The Energy Center, SLU MS	740405	4278327	153.0	67.1	449.8	30.5	1.5	66.0
M15051F	The Energy Center, SLU MS	740405	4278327	153.0	67.1	449.8	30.5	1.5	26.0
M15051G	The Energy Center, SLU MS	740405	4278327	153.0	67.1	449.8	30.5	1.5	62.3
M1505H	The Energy Center, SLU MS	740405	4278327	153.0	67.1	422.0	30.5	1.5	26.0
M15051I	The Energy Center, SLU MS	740405	4278327	153.0	67.1	449.8	30.5	1.5	28.3
M15051J	The Energy Center, SLU MS	740405	4278327	153.0	67.1	449.8	30.5	1.5	68.1
M17611	Nestle Purina Petcare Company	743952	4277911	147.0	24.4	466.5	0.0	0.6	26.1
M2013S2	Midco Industries, Inc.	740474	4279247	147.0	2.4	422.0	62.2	0.2	227.8
M2501	Metro Materials, Inc.	744309	4284455	147.0	0.3	422.0	0.0	0.0	0.0
M2802S1	SSM Cardinal Glennon Children's Hospital	738930	4278275	153.0	12.2	366.5	0.0	0.9	69.4

Background sources located in St. Louis County meeting the IEPA screening criteria are shown in Table 6-8 below along with model data for both short term and long term averaging periods. The stack locations were verified using Google Earth when stacks could be identified and adjustments to stack locations were made if appropriate.

Table 6-8: County of St. Louis Background Source Data

Stack No.	Plant Name	Easting (m)	Northing (m)	Base elev. (m)	Stack Height (m)	Stack Temp. (K)	Exit Velocity (m/s)	Stack Diam. (m)	SO_2 Hourly (lb/hr)
MO00101	Ameren UE	732717	4253746	125.0	76.2	422.0	27.3	3.4	1458.2
MO00102	Ameren UE	732717	4253746	125.0	76.2	422.0	27.3	3.4	1445.5
MO00103	Ameren UE	732717	4253746	125.0	106.7	422.0	30.8	4.3	2975.4
MO00104	Ameren UE	732717	4253746	125.0	106.7	422.0	33.2	4.9	3471.3
MO00106	Ameren UE	732717	4253746	125.0	9.8	366.5	31.6	3.7	455.3
MO001525	Ford	729612	4294972	162.0	22.3	422.0	1.5	2.3	127.2
MO001526	Ford	729612	4294972	162.0	22.3	422.0	1.5	2.3	127.2
MO00231	Ameren UE	713307	4284244	134.0	9.8	422.0	2.5	2.7	373.7
MO0042H1	Wash U	733589	4281264	165.0	53.3	422.0	1.5	2.7	16.9
MO0042H2	Wash U	733589	4281264	165.0	19.2	422.0	12.0	0.9	16.9
MO0042H3	Wash U	733589	4281264	165.0	14.9	422.0	9.0	0.6	16.9
MO004232	Wash U	733589	4281264	165.0	14.9	422.0	9.0	0.6	16.9
MO004233	Wash U	733589	4281264	165.0	14.9	422.0	9.0	0.6	16.9
MO0042H5	Wash U	733589	4281264	165.0	15.2	422.0	1.8	0.8	16.9
MO00651A	Lambert	727630	4292359	165.0	8.5	422.0	6.8	1.2	26.5
MO00651B	Lambert	730191	4290777	165.0	10.1	422.0	6.8	1.2	20.9
MO00652C	Lambert	727630	4292359	165.0	8.5	422.0	4.4	1.2	26.5
MO00652D	Lambert	730191	4290777	165.0	10.1	422.0	3.8	1.2	20.9
MO00653E	Lambert	727630	4292359	165.0	8.5	422.0	7.4	1.2	26.5
MO00653F	Lambert	730191	4290777	165.0	10.1	422.0	6.8	1.2	20.9
MO023001	Boeing	728612	4293255	165.0	24.7	422.0	11.8	0.8	53.5
MO023002	Boeing	728612	4293255	165.0	24.7	422.0	11.8	0.8	53.5
MO10291	DePaul Hospital	708045	4251188	135.0	13.7	422.0	6.7	0.9	572.4
MO129901	IBM	728564	4294449	165.0	9.1	366.5	48.9	0.5	56.9
MO129902	IBM	728564	4294449	165.0	9.1	366.5	48.9	0.5	56.9
MO129903	IBM	728564	4294449	165.0	9.1	366.5	48.9	0.5	56.9
MO129904	IBM	728564	4294449	165.0	9.1	366.5	48.9	0.5	56.9
MO129905	IBM	728564	4294449	165.0	9.1	366.5	48.9	0.5	56.9
MO129907	IBM	728564	4294449	165.0	0.6	366.5	48.9	0.5	56.9

The MDNR provided background source data was identified as for both short term and long term averaging periods. The MDNR background source model parameters are detailed in Table 6-9 below.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Table 6-9: Missouri Background Source Data

Stack No.	Plant Name	Easting (m)	Northing (m)	Base elev. (m)	Stack Height (m)	Stack Temp. (K)	Exit Velocity (m/s)	Stack Diam. (m)	SO_2 Hourly (lb/hr)
HERCP8	Doe Run 8	729600	4237680	125.0	167.6	350.4	17.7	6.1	10714.5
AMRIP1	Ameren Rush Island	739688	4223980	117.3	213.4	405.3	25.0	8.8	3799.3
AMRIP2	Ameren Rush Island	739688	4223980	117.3	76.2	577.5	7.6	1.5	3737.4
AMLAS1	Labadie	688436	4270455	148.0	213.4	444.2	28.0	6.2	3580.1
AMLAS2	Labadie	688436	4270455	148.0	213.4	444.2	28.0	6.2	3599.9
AMLAS3	Labadie	688436	4270455	148.0	213.4	444.2	28.0	6.2	3609.1
AMLAS4	Labadie	688436	4270455	148.0	213.4	444.2	28.0	6.2	3551.5
AMSPS1	Ameren Sioux	734264	4309907	130.0	182.9	427.5	29.3	5.8	8022.4
AMSPS2	Ameren Sioux	734264	4309907	130.0	182.9	427.5	29.3	5.8	7544.3
AMSPS3	Ameren Sioux	734264	4309907	130.0	64.6	435.9	15.2	1.4	84.0
MLC1	Mississippi Lime	756750	4205955	205.5	38.1	505.0	10.3	2.1	84.9
MLC2	Mississippi Lime	756750	4205955	205.5	38.1	505.0	10.3	2.1	84.9
MLC3	Mississippi Lime	756750	4205955	205.5	38.1	505.0	10.3	2.1	84.9
MLC4	Mississippi Lime	756750	4205955	205.5	38.1	505.0	10.3	2.1	84.9
GST700	GM	689495	4298990	128.0	76.2	458.1	0.1	3.0	653.3
HLCM049	Kiln	740331	4221466	128.6	158.5	384.2	14.0	5.6	595.2
HLCM115	Coal mill	740331	4221475	128.6	158.5	384.2	14.0	1.0	99.2

6.7 BACKGROUND SO_2 CONCENTRATIONS

Background SO_2 concentrations were developed from USEPA monitoring data available from the USEPA AirData website. Background SO_2 concentrations are based on average values for the second highest monitored 3-hour and 24-hour values over the 2004-2006 period from a monitoring site located in Wood River, IL (54 N. Walcott). Background for the annual averaging period was also determined from the mean annual concentrations for 2004-2006 at this monitor.

This location was chosen due to its proximity to Granite City, Il. Other potential monitoring sites which were excluded from use included the Wood River site at 1710 Vaughn Rd., South Roxana, IL (Michigan St.), the Granite City site and the East St. Louis Site. The Vaughn Rd. Wood River site was excluded due to its location to the north of a major petroleum refinery.

Likewise, the Michigan St. South Roxana site was not used to develop background SO_2 concentrations due to its location southeast of the same refinery. Because winds in the St. Louis region are predominantly out of the south and the west, these locations are largely downwind from the refinery. Therefore, the refinery is believed to affect the monitor values at these locations. Additionally, the refinery sources were included in the background sources supplied by IEPA. They were therefore included in the modeling and inclusion of these monitors to develop background concentrations may result in double counting resultant concentrations. The Granite City monitoring site was not chosen because that site was discontinued in 2001. The East St. Louis monitoring site was not chosen as it is believed to be influenced by a zinc refinery and chemical plants to the south which have been included in the background sources for the modeling.

The relevant monitor values and the resultant background values are shown in Table 6-10.

Table 6-10: Background Monitor Values and Proposed Background Values

Monitor Location	Year of Data	Monitor Values (ppm)		
		3-hr (high)	24-hr (High)	Annual Mean
54 N. Walcott	2004	0.041	0.018	0.004
54 N. Walcott	2005	0.052	0.016	0.004
54 N. Walcott	2006	0.037	0.011	0.003
Average		0.046	0.015	0.004
Background ($\mu g/m^3$)		119	40	11
Standard ($\mu g/m^3$)		1300	365	80

6.8 NAAQS MODELING RESULTS

The detailed results of each of the model runs are included in the sections below. USS GCW was able to meet SO_2 and NAAQS results for all three averaging periods.

6.8.1 NAAQS 3-Hour Averaging Period Model Results

The modeling was split into two runs in order to improve model run time. The near-field modeling contained the 100m and 500m grids described in section 6.5.2. The far-field modeling contained the 1000m grids described in section 6.5.2.

The results of the 3-hour model runs indicate that the Facility will not cause or significantly contribute to an exceedance of the 3-hour SO_2 ambient air quality standard when Slab Furnace 4 (Stack No. FIN0028s) is limited to 1,800 lbs. / 3-hours.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Using the conservative emission rate assumptions discussed in section 6.6.1 modeling of the 3-hour averaging period resulted in three receptors in the far-field receptor grid exceeding the 3-hour SO_2 NAAQS standard (1300 $\mu g/m^3$) in one or more years.

The model was run again with only the offending receptors. Each year was modeled individually in order to run the Events Model within AERMOD. The Events Model tracks any violation of a user-defined threshold concentration at any receptor, and then calculates individual contributions from each source to that violation, or "event." In this case the threshold was set at 1181 $\mu g/m^3$ (3-hour NAAQS standard of 1300 $\mu g/m^3$ minus background).

The Events Model output includes the contributions from each GCW source to each event. These contributions were summed to compare to the significance level. The significance level for the 3-hour NAAQS standard is 25 $\mu g/m^3$. Results of the 3-hour events modeling show no event had a GCW contribution greater than the significance level. Results from the 3-hour modeling are shown in Table 6-11.

Table 6-11: 3-hour Model Results ($\mu g/m^3$)

Year	Model Results High 2nd High	H2H with Background	NAAQS	Highest GCW Contribution to an Exceedance	Significance Level
1991	1877	1996	1300	< 1	25
1990	1876	1995	1300	< 1	25
1989	1961	2080	1300	< 1	25
1988	1915	2034	1300	< 1	25
1987	1953	2072	1300	< 1	25

6.8.2 24-Hour Averaging Period Model Results

The modeling was split into two runs in order to improve model run time. The near-field modeling contained the 100m and 500m grids described in section 6.5.2. The far-field modeling contained the 1000m grids described in section 6.5.2.

Using the conservative emission rate assumptions discussed in section 6.6.1, initial modeling of the 24-hour average SO_2 concentrations resulted in 15 receptors in the far-field grid violating the 24-hour NAAQS standard in one or more of the five years modeled. The model was run again with 500m grids around the offending receptors, resulting in 73 receptors. Each year was modeled individually in order to run the Events Model. In this case the threshold was set at 324 $\mu g/m^3$ (24-hour NAAQS standard of 365 $\mu g/m^3$ minus background). These initial results are presented in Table 6-12.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Table 6-12: Initial 24-hour Model Results ($\mu g/m^3$)

Year	Model Results High 2nd High	H2H with Background	NAAQS
1991	1305.3	1345.3	365
1990	1167.3	1207.3	365
1989	1115.2	1155.2	365
1988	1177.3	1217.3	365
1987	1240.1	1280.1	365

The Events Model output includes the contributions from each Granite City Works source to each event. These contributions were summed to compare to the significance level. The significance level for the 24-hour NAAQS standard is 5 $\mu g/m^3$. Reviewing the results of the 24-hour events model shows that of the 73 receptors exceeding NAAQS, 15 receptors had GCW contributions exceeding the significance level during events that exceeded the NAAQS standard.

Because initial modeling using the overly conservative assumptions described in section 6.6.1 resulted in modeling exceedances, USS developed less conservative assumptions for additional model runs. Additional model runs for the 24-hour averaging period were developed to remove the overly conservative assumption of unlimited COG availability. Because USS wishes to maintain the ability to shift COG to any unit modeling must show the worst case impacts from COG fuel use at this facility. In order to show the worst case impacts, four scenarios were developed, each containing the maximum potential COG production over a 24-hour period of 31.5 MMscf of COG. All four scenarios operate the coke oven batteries (A and B) at maximum COG underfire because this is necessary for maximum COG production. Scenario 1 diverts the remaining COG to the blast furnace stoves and the ladle dryer. Scenario 2 apportions the remaining COG to boilers 1-10. Scenario 3 distributes COG to the slab furnaces. Scenario 4 sends the remaining COG to boilers 11 and 12. The highest SO_2 emissions occur in scenario 3 because it maximizes BFG usage and minimizes NG usage (COG is approximately constant over the four scenarios). Since BFG has a higher sulfur contents than NG this results in the highest emissions. The emissions scenarios are presented in Table 6-13 (a) – (d).

Table 6-13: Emissions Scenarios for GCW Facility

(a) Scenario 1

Scenario 1	COG mmcf/day	BFG mmcf/day	NG mmcf/day
BFAStove	8.04	63.43	
BFGFlare		216.00	
BFGFlare2		216.00	
BFBStove	8.04	80.83	
blrs1to7		126.00	
blrs8to10		54.00	
boil11		67.50	
boil12		67.50	
COGflare			
BatAfire	7.50		
BatBfire	7.50		
slabfur1			7.73
slabfur4			9.12
slabfur2			7.73
slabfur3			7.73
Csthsbgh			
Ironspot			
Ladldryr	2.27		1.13
slabcut1			0.01
slabcut2			0.01
total:	33.34	891.27	33.45

(b) Scenario 2

Scenario 2	COG mmcf/day	BFG mmcf/day	NG mmcf/day
BFAStove		119.70	
BFGFlare		216.00	
BFGFlare2		216.00	
BFBStove		137.10	
blrs1to7	11.54	45.19	
blrs8to10	4.95	19.37	
boil11		67.50	
boil12		67.50	
COGflare			
BatAfire	7.5		
BatBfire	7.5		
slabfur1			7.73
slabfur4			9.12
slabfur2			7.73
slabfur3			7.73
Csthsbgh			
Ironspot			
Ladldryr			2.40
slabcut1			0.01
slabcut2			0.01
total:	31.49	888.36	34.72

(c) Scenario 3

Scenario 3	COG mmcf/day	BFG mmcf/day	NG mmcf/day
BFAStove		119.70	
BFGFlare		216.00	
BFGFlare2		216.00	
BFBStove		137.10	
blrs1to7		126.00	
blrs8to10		54.00	
boil11		67.50	
boil12		67.50	
COGflare			
BatAfire	7.5		
BatBfire	7.5		
slabfur1	2.6		6.25
slabfur4	9.7		3.71
slabfur2	2.6		6.25
slabfur3	2.6		6.25
Csthsbgh			
Ironspot			
Ladldryr			2.40
slabcut1			0.01
slabcut2			0.01
total:	32.58	1003.80	24.87

(d) Scenario 4

Scenario 4	COG mmcf/day	BFG mmcf/day	NG mmcf/day
BFAStove		119.70	
BFGFlare		216.00	
BFGFlare2		216.00	
BFBStove		137.10	
blrs1to7		126.00	
blrs8to10		54.00	
boil11	8.37	8.93	
boil12	8.37	8.93	
COGflare			
BatAfire	7.50		
BatBfire	7.50		
slabfur1			7.73
slabfur4			9.12
slabfur2			7.73
slabfur3			7.73
Csthsbgh			
Ironspot			
Ladldryr			2.40
slabcut1			0.01
slabcut2			0.01
total:	31.73	886.77	34.72

The model was put through four more iterations, each representing one of these GCW emissions scenarios. Results from modeling with 500m resolution grids around offending receptors were analyzed to identify which receptors had events with both a NAAQS exceedance and a GCW contribution greater than significance. This narrowed the receptor grid down to 15 receptors for the scenario modeling. Each year and each scenario were modeled, utilizing the Events Model to obtain individual source contributions for every exceedance of the NAAQS standard. Source contributions from all GCW emissions units were summed for each exceedance in each scenario. Scenario modeling results are presented in Table 6-14.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Table 6-14: 24-hour Scenario Modeling Results – Maximum GCW Contribution to NAAQS Exceedance Events (µg/m^3)

Year	Scenario 1	Scenario 2	Scenario 3	Scenario 4
1991	3.2	3.1	3.3	3.3
1990	4.1	3.9	4.3	4.5
1989	2.8	2.8	2.9	2.9
1988	2.7	2.6	3.0	2.9
1987	3.7	3.6	3.3	4.1

Even though there are receptors which violate the NAAQS standard, using these emission scenarios the GCW facility does not have a contribution to those exceedances beyond the designated significance level.

6.8.3 Annual Averaging Period Model Results

The modeling was split into two runs in order to improve model run time. The near-field modeling contained the 100m and 500m grids described in section 6.5.2. The far-field modeling contained the 1000m grids described in section 6.5.2.

Modeling of the far receptor grid in the annual averaging period results in eight receptors exceeding the standard of 80 µg/m^3. At each receptor exceeding the annual standard the GCW contribution was compared to the significance level of 1 µg/m^3. GCW source contributions at all offending receptors remain less than the significance level. A summary of annual average modeling results is presented in Table 6-15.

Table 6-15: Annual Average Model Results (µg/m^3)

Year	Annual average	Annual average with background	NAAQS	GCW Contribution	Significance Level
1991	188	199	80	< 1	1
1990	185	196	80	< 1	1
1989	201	212	80	< 1	1
1988	209	220	80	< 1	1
1987	208	219	80	< 1	1

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

6.9 INCREMENT MODELING SOURCE PARAMETERS

Granite City Works' source emissions in the increment modeling are based on the incremental increase in emissions from the pre-Production Increase Permit SO_2 emission levels. The Production Increase Permit resulted in increases in SO_2 emissions from four (4) process sources. These sources were the Casthouse Baghouse, the Blast Furnace Casthouse uncaptured roof fugitives, the slag pits, and the Iron Spout Baghouse. Each of these sources saw incremental increases in SO_2 emissions as a result of the Production Increase Permit and was included in the increment modeling. Because these process sources are not affected by the revised emission factor, they were modeled using the same incremental emission rates as were modeled originally.

For BFG combustion sources affected by the increase in BFG production and the revised emission factor, emission rates were based on the difference between emissions at the revised BFG combustion SO_2 emission rate and the pre-Production Increase Permit BFG combustion levels. Under the Production Increase Permit, BFG combustion is limited to 185,030 MMcf per year. At the revised emission rate of 16.00 lbs. SO_2 per MMscf, 185,030 MMscf per year equates to 337.95 lbs. SO_2 per hour for 8,760 hours. At the pre-Production Increase Permit BFG combustion levels of 121,039 MMcf per year and the revised SO_2 emission rate, SO_2 emissions were 221.08 lbs. SO_2 per hour for 8,760 hours. Taking the difference between these SO_2 emission rates results in an increase of 116.88 lbs. SO_2 per hour (14.73 grams per second).

Because of the difficulty in dividing this increase between all BFG combustion emission sources, the full increase of 116.88 lbs. SO_2 per hour was attributed to each BFG combustion emission source for initial model runs. Because there are seven (7) BFG combustion stacks, this is the equivalent of modeling an incremental increase seven times what is proposed in this application. Using this method, the air quality increment consumption modeling will grossly over-predict the incremental impact of the BFG SO_2 combustion sources. This initial modeling resulted in exceedances of the PSD increment for the 24 hour averaging period at a limited number of receptors in the years 1987 and 1991.

Additional modeling was then performed for these receptors and these years to determine the worst case increment consumption under less conservative assumptions than made during the initial 24-hour model. The additional model runs included all GCW process sources and IL and MO increment consuming sources. Additionally it was assumed that either the boilers, Blast Furnace Stoves, or the Blast Furnace Flare would consume all the excess BFG. The results of this modeling are detailed in the section below.

The increment consuming emission rates are shown with the stack information in tables 6-16 and 6-17 below.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Table 6-16: Initial Point Source Modeled Stack Parameters

Stack Number	Description	Easting m	Northing m	Base Elevation m	Stack Height m	Temp K	Exit Velocity m/s	Stack Diameter m	SO_2 Emission Rate g/s
BF0007S	BF A Stove	749824	4286804	126.49	70.62	533	26.84	2.13	14.727
BF0011S	BFG Flare	749794	4286837	126.49	45.72	1273	20	6.12	14.727
BF0012S	BF B Stove	749682	4286717	126.49	71.95	533	18.56	2.74	14.727
UT0053S	Boiler 1-7	749759	4286829	126.49	68.58	461	10.08	3.88	14.727
UT0054S	Boiler 8-10	749709	4286788	126.49	60.96	461	8.18	2.82	14.727
UT0059S	Boiler 11	749885	4286881	126.49	46.9	510	21.82	1.93	14.727
UT0064S	Boiler 12	749901	4286884	126.49	46.45	510	13.65	2.44	14.727
BF0010S	Casthouse Baghouse	749635	4286730	126.49	9.144	339	22.52	3.35	6.20
BF0150S	Iron Spout Baghouse	749840	4286814	126.49	19.2	324	13.12	2.13	0.18
BOF0149S	Ladle dryer	748385	4286647	126.56	60.96	461	0	0.09	0.06

Table 6-17: Area Source Modeled Parameters

Stack Number	Description	Easting m	Northing m	Base Elevation m	Release Height m	Easterly Length m	Northerly Length m	Angle from North deg.	Vertical Dimension m	SO_2 Emission Rate g/s
BF008S	BF A roof	749710	4286732	126.49	70.62	37	4.57	-31	0.61	0.16
BF0013S	BF B roof	749765	4286763	126.49	70.62	37	4.57	-31	0.61	0.16
BF0126S	Slag pits	749697	4286750	126.49	0	101	10	-31	5	0.16

6.9.1 IEPA and MDNR Increment Consuming Sources

At the time of the original application of the Production Increase Permit, no previous increment consuming sources had been identified. For this modification, stack and emission data on all increment consuming SO_2 sources were requested from IEPA and MDNR for the increment analysis. IEPA and MDNR have provided increment source data, however, the City and County Air Pollution Control Agencies' representatives refused to provide increment consuming source data. Based on multiple conversations with MDNR and county representatives, increment consuming source data would have to be developed independently by individually reviewing city and county air permits to determine what sources consumed increment.

URS reviewed lists of St. Louis City and St. Louis County Air Permits issued since the SO_2 baseline date (December 30, 1982) provided by IEPA. The permit listings were cross-referenced by permit date and permitted unit to facilities meeting IEPA screening criteria. Only facilities

with permitted SO_2 increases that met the IEPA screening criteria were included in the increment modeling. These sources are shown in the tables for Missouri Sources below.

Tables 6-18, 6-19 and **6-20** include information for Illinois and Missouri (short term and long term), respectively, on increment consuming sources for their jurisdictions included in the PSD increment analysis.

Table 6-18: Illinois Increment Consuming Source Parameters

IEPA Source No.	Easting m	Northing m	Base Elevation m	Stack Height m	Temp K	Exit Velocity m/s	Stack Diameter m	SO_2 Emission Rate g/s
23	754159	4283243	128.3	9.75	388.7	25.52	1.19	4.57
100	745515	4283326	125	44.81	477.6	14.92	0.7	1.12
188	746360	4289240	125.9	9.14	294	0.1	0.1	0.13
P0506	745606	4283663	125.1	18.29	720	31.5	2.9	8.21
P0507	745607	4283653	125	18.29	720	31.5	2.9	8.21

Note: All increment consuming source parameters were provided by the state of Illinois and as requested by IEPA, permitted emission rates were modeled for increment consuming emission rates for this analysis.

Table 6-19: Missouri Short-Term Increment Consuming Source Parameters

Stack No.	Description	Easting m	Northing m	Base elev m	Stack height m	Temp K	Exit Velocity m/s	Stack diam m	SO_2 g/s
MO023001	Boeing	728092	4293232	165	7.5	422.0	710.2	0.81	6.74
MO023002	Boeing	728092	4293232	165	7.5	422.0	710.2	0.81	6.74
MO023003	Boeing	728092	4293232	165	7.9	422.0	868.7	0.91	33.00
MO023004	Boeing	728092	4293232	165	7.9	422.0	868.7	0.91	33.00
MO023005	Boeing	728092	4293232	165	7.9	422.0	868.7	0.91	33.00
M0017X3	Mallinckrodt Inc.	744174	4283340	129	4.2	338.7	1275.6	0.61	0.00
M0017X2	Mallinckrodt Inc.	744174	4283340	129	4.2	338.7	1275.6	0.61	0.00
M0017C02	Mallinckrodt Inc.	744174	4283340	129	8.4	522.0	243.8	1.52	7.53
M0017514	Mallinckrodt Inc.	744174	4283340	129	9.3	335.9	1143.0	1.37	0.01
M001751A	Mallinckrodt Inc.	744174	4283340	129	9.3	335.9	1143.0	1.37	0.01
M0017C2A	Mallinckrodt Inc.	744174	4283340	129	8.4	522.0	243.8	1.52	0.03
M0017507	Mallinckrodt Inc.	744174	4283340	129	7.4	294.3	1114.3	0.30	0.00
M0017X1	Mallinckrodt	744174	4283340	129	4.2	338.7	1275.6	0.61	0.00

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Table 6-19: Missouri Short-Term Increment Consuming Source Parameters

Stack No.	Description	Easting m	Northing m	Base elev m	Stack height m	Temp K	Exit Velocity m/s	Stack diam m	SO_2 g/s
	Inc.								
M0017250	Mallinckrodt Inc.	744174	4283340	129	4.0	298.2	151.5	0.05	0.03
M0017C01	Mallinckrodt Inc.	744174	4283340	129	10.2	560.9	333.8	1.52	0.01
M001750A	Mallinckrodt Inc.	744174	4283340	129	7.4	294.3	1114.3	0.30	0.00
M001750B	Mallinckrodt Inc.	744174	4283340	129	7.4	294.3	1114.3	0.30	0.00
M0017C3B	Mallinckrodt Inc.	744174	4283340	129	16.3	427.6	66.1	2.74	14.67
M00386	Trigen-St Louis Energy Corporation	749013	4280218	129	16.7	444.3	153.9	3.20	26.11
M00385	Trigen-St Louis Energy Corporation	749013	4280218	129	17.3	444.3	153.9	3.96	21.84
M0038003	Trigen-St Louis Energy Corporation	749013	4280218	129	17.3	444.3	153.9	3.96	26.11
M13632	National Linen Service	745124	4276024	131	3.4	449.8	470.9	0.91	3.18
M13631	National Linen Service	745124	4276024	131	3.4	449.8	470.9	0.91	3.24
AMSPS	Amerensioux	734994	431086	130	182.9	428.0	29.3	5.79	152.97
MLC1	misslime1	756750	4205955	205.5	23.2	519.0	4.0	3.23	6.43
MLC2	misslime2	756750	4205955	205.5	23.2	469.0	5.7	3.35	6.43
HLCM049	Kiln	740331	4221466	128.6	158.5	384.0	14.0	5.63	75.00
HLCM115	coalmill	740331	4221475	128.6	158.5	384.0	14.0	1.03	12.50

Table 6-20: Missouri Long-Term Increment Consuming Source Parameters

Stack No.	Description	Easting m	Northing m	Base elev m	Stack height m	Temp K	Exit velocity m/s	Stack diam m	SO_2 g/s
MO023001	Boeing	728092	4293232	165	7.5	422.0	710.2	0.81	6.74
MO023002	Boeing	728092	4293232	165	7.5	422.0	710.2	0.81	6.74
MO023003	Boeing	728092	4293232	165	7.9	422.0	868.7	0.91	33.00
MO023004	Boeing	728092	4293232	165	7.9	422.0	868.7	0.91	33.00
MO023005	Boeing	728092	4293232	165	7.9	422.0	868.7	0.91	33.00
M0017X3	Mallinckrodt Inc.	744174	4283340	129	4.2	338.7	1275.6	0.61	0.00

Table 6-20: Missouri Long-Term Increment Consuming Source Parameters

Stack No.	Description	Easting m	Northing m	Base elev m	Stack height m	Temp K	Exit velocity m/s	Stack diam m	SO_2 g/s
M0017X2	Mallinckrodt Inc.	744174	4283340	129	4.2	338.7	1275.6	0.61	0.00
M0017C02	Mallinckrodt Inc.	744174	4283340	129	8.4	522.0	243.8	1.52	7.53
M0017514	Mallinckrodt Inc.	744174	4283340	129	9.3	335.9	1143.0	1.37	0.01
M001751A	Mallinckrodt Inc.	744174	4283340	129	9.3	335.9	1143.0	1.37	0.01
M0017C2A	Mallinckrodt Inc.	744174	4283340	129	8.4	522.0	243.8	1.52	0.03
M0017507	Mallinckrodt Inc.	744174	4283340	129	7.4	294.3	1114.3	0.30	0.00
M0017X1	Mallinckrodt Inc.	744174	4283340	129	4.2	338.7	1275.6	0.61	0.00
M0017250	Mallinckrodt Inc.	744174	4283340	129	4.0	298.2	151.5	0.05	0.03
M0017C01	Mallinckrodt Inc.	744174	4283340	129	10.2	560.9	333.8	1.52	0.01
M001750A	Mallinckrodt Inc.	744174	4283340	129	7.4	294.3	1114.3	0.30	0.00
M001750B	Mallinckrodt Inc.	744174	4283340	129	7.4	294.3	1114.3	0.30	0.00
M0017C3B	Mallinckrodt Inc.	744174	4283340	129	16.3	427.6	66.1	2.74	14.67
M00386	Trigen-St Louis Energy Corporation	749013	4280218	129	16.7	444.3	153.9	3.20	26.11
M00385	Trigen-St Louis Energy Corporation	749013	4280218	129	17.3	444.3	153.9	3.96	21.84
M0038003	Trigen-St Louis Energy Corporation	749013	4280218	129	17.3	444.3	153.9	3.96	26.11
M13632	National Linen Service	745124	4276024	131	3.4	449.8	470.9	0.91	3.18
M13631	National Linen Service	745124	4276024	131	3.4	449.8	470.9	0.91	3.24
AMSPS	Amerensioux	734994	431086	130	182.9	427.5	29.3	5.79	1.15
MLC1	misslime1	756750	4205955	205.5	23.2	519.2	4	3.23	6.42
MLC2	misslime2	756750	4205955	205.5	23.2	468.7	5.7	3.35	6.42
HLCM49	Kiln	740331	4221466	128.6	158.5	384.15	14	5.63	75.00
HCM115	coalmill	740331	4221475	128.6	158.5	384.15	14	1.03	12.50

6.9.2 PSD Increment Consumption Model Results

The results of the PSD increment consumption modeling analysis show that the SO_2 increments are not exceeded in the 3-hour or annual averaging periods when modeling is performed utilizing the revised production increase BFG SO_2 emission rate. The highest high concentration modeled for each averaging period and for each year is shown in Table 6-21 below compared to the allowable Class II SO_2 increment levels.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Table 6-21: Initial PSD SO_2 Increment Modeling Results

Year	Maximum Modeled SO_2 Concentrations ($\mu g/m^3$)		
	3-hr Ave.	24-hr Ave.	Annual Ave.
1987	143	94	14
1988	210	87	15
1989	143	90	13
1990	142	86	17
1991	141	91	14
Increment	512	91	20

Because a limited number of receptors in the 1987 and the 1991 model runs met or exceeded the 24-hour increment, additional runs were conducted for those receptors and those years. The additional model runs assumed the full incremental increase in SO_2 was emitted from each source in a group of sources instead of all sources as was modeled in the initial model run. Source groups modeled were the boilers, blast furnace stoves and the blast furnace flare. These groups were combined with the incremental emissions from the GCW process sources and the MO and IL increment consuming sources. The source groups and the modeled emission rates are shown in Table 6-22.

Table 6-22: Additional PSD Increment Modeling SO_2 Emission Rates

Group	Stack Number	Description	SO_2 Emission Rate g/s
Blast Furnace Stove Group	BF0007S	BF A Stove	14.727
	BF0012S	BF B Stove	14.727
Boiler Group	UT0053S	Boiler 1-7	14.727
	UT0054S	Boiler 8-10	14.727
	UT0059S	Boiler 11	14.727
	UT0064S	Boiler 12	14.727
BFG Flare Group	BF0011S	BFG Flare	14.727

Results from modeling using the above grouped source approach are shown in Table 6-23.

Table 6-23: Additional 24-hour PSD Increment Modeling Results

Year	Highest 24-Hour Increment Model Result (µg/m^3)		
	Boiler Group	Blast Furnace Group	BFG Flare Group
1991	79	60	60
1987	80	55	55
Increment	91	91	91

The results in Table 6-23 show the revised Production Increase Permit BFG emission rates will not result in exceedances of the 24-hour PSD increment.

The electronic modeling files are included in this application under Appendix D of this application in two CDs. The modeling files or this project have been separated into folders based on averaging periods, receptor grids, and details of the model runs. A description of the model runs in each folder is below.

SO2 NAAQS and PSD increment modeling files

FOLDERS:

- 3hr
  - SO2 modeling at the 3-hour averaging time
  - Using the near-field receptor grid

- 3hr-far
  - SO2 modeling at the 3-hour averaging time
  - Using the far-field receptor grid

- 24hr
  - SO2 modeling at the 24-hour averaging time
  - Using the near-field receptor grid

- 24hr-far
  - SO2 modeling at the 24-hour averaging time
  - Using the far-field receptor grid

- 24hr-far events
  - Subset of the 24hr-far modeling, utilizing a 500m grid around receptors exceeding NAAQS
  - Used Events Modeling to look at individual source contributions to exceedances

- 24hr-far-scenarios
  - Scenario modeling of SO2 at the 24-hr averaging period
  - Four different GCW emissions scenarios based on maximum COG production levels
  - Used Events Modeling to look at individual source contributions to NAAQS exceedances

- Annual
  - SO2 modeling of annual average concentrations
  - Using the near-field receptor grid

- Annual-far
  - SO2 modeling of annual average concentrations
  - Using the far-field receptor grid

- Increment modeling
  - SO2 increment modeling of the 3hr, 24hr and annual averaging periods
  - Both near and far grids in same model run

- Incrmt24
  - Additional modeling of the 24hr averaging period based on maximum increase in BFG production

FILE EXTENSION: DESCRIPTION

.BST: BEEST session file

.BND: contains information about fencelines, building and stack names for display

.DTA: model input data file

.GRF: master graphics file for display

.LST: model output list file

.MAX: maxi file specified in BEEST

.PRW: source and building data for BPIP-PRIME

.RUN: contains runtime information needed by AerMod

.SO: output file from BPIP-PRIME

.SUM: summary form of .SO file

.TAB: verbose form of .SO file

.USF: summary of model output created by BEEST

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

The original Production Increase Permit application concluded that the Production Increase Permit would not produce any adverse affects. It based this conclusion on the analysis required under 40 CFR 52.21(o). That analysis included a review of the additional impacts on the following:

1. Impacts on soils and vegetation that would result from the modification.
2. Impacts on air quality and visibility in Class I areas within 100 km of the project.
3. Impacts on endangered species.
4. Socioeconomic Impacts.

The analysis of these additional impacts resulting from the production increase has been reanalyzed in this application to determine to what extent, if any, it has been affected by the revised BFG combustion emission rate requested in this permit modification application. The review of the conclusions in the original Production Increase Permit application indicates that no additional adverse impacts would result from the requested revision of the IEPA issued Production Increase Permit. The analysis is detailed in the sections below.

7.1 SOILS AND VEGETATION ANALYSIS

Soils and vegetation analysis applies only to those areas in which there is vegetation of significant commercial or recreational value. There are no vegetation or soil types in the Granite City area which would be harmed by the proposed incremental increase in concentrations of SO_2 below the NAAQS. Therefore, no soils or vegetation analysis are required for the proposed revisions to the Production Increase Permit.

7.2 CLASS I AREA AIR QUALITY IMPACT ANALYSIS

The nearest Federal Class I area to the Granite City Works is the Mingo Junction National Wilderness Area approximately 210 km southwest of the facility. The next closest Class I area is Hercules-Glades approximately 330 km southwest of the Granite City Works mill. The distances from these Class I areas to the facility is greater than 100 km. Therefore, no air quality impact is to be expected and no analyses were performed to evaluate air quality impacts within the wilderness areas.

7.3 CLASS I AREA VISIBILITY IMPACT ANALYSIS

The nearest Federal Class I area to the Granite City Works is the Mingo Junction National Wilderness Area approximately 210 km southwest of the facility. The next closest Class I area is Hercules-Glades approximately 330 km southwest of the Granite City Works mill. The distances

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

from these Class I areas to the facility is greater than 200 km. Therefore, no visibility impact is to be expected and no analyses were performed to evaluate visibility impacts within the wilderness areas.

7.4 IMPACTS ON ENDANGERED SPECIES

Twenty-one (21) species are listed as endangered (11 species) or threatened (10 species) which are local to Madison County Illinois. These species are listed in **Table 7-1** below. None of these species are known, likely, or presumed to have habitat in or near this industrial facility. Because the proposed modification to the Production Increase Permit is a result of an error in the emission factor used to calculate the original permitted limit, the emissions changes resulting from the proposed modification have already occurred in the project area. No impacts to threatened or endangered species are known to have occurred since the permit was issued as a result of the SO_2 emissions from the facility. As a result, no impacts are expected to occur to any endangered or threatened species as a result of this permit modification.

Table 7-1: Illinois Endangered Species Specific to Madison County, IL

SCIENTIFIC NAME	COMMON NAME	ENDANGERED OR THREATENED
Acipenser fulvescens	Lake Sturgeon	Endangered Fish
Ammocrypta clarum	Western Sand Darter	Endangered Fish
Boltonia decurrens	Decurrent False Aster	Threatened Plant
Crotalus horridus	Timber Rattlesnake	Threatened Reptile
Egretta caerulea	Little Blue Heron	Endangered Bird
Ellipsaria lineolata	Butterfly	Threatened invertebrate
Falco peregrinus	Peregrine Falcon	Threatened Bird
Gallinula chloropus	Common Moorhen	Threatened Bird
Haliaeetus leucocephalus	Bald Eagle	Threatened Bird
Ixobrychus exilis	Least Bittern	Threatened Bird
Notropis boops	Bigeye Shiner	Endangered Fish
Nyctanassa violacea	Yellow-crowned Night Heron	Endangered Bird
Nycticorax nycticorax	Black-crowned Night Heron	Endangered Bird
Pseudacris streckeri illinoensis	Illinois Chorus Frog	Threatened Amphibian
Scaphirhynchus albus	Pallid Sturgeon	Endangered Fish
Silene regia	Royal Catchfly	Endangered Plant
Sistrurus catenatus	Eastern Massassauga	Endangered Reptile
Spiranthes vernalis	Spring Ladies' Tresses	Endangered Plant
Tradescantia bracteata	Prairie Spiderwort	Threatened Plant
Tropidoclonion lineatum	Lined Snake	Threatened Reptile
Xanthocephalus xanthocephalus	Yellow-headed Blackbird	Endangered Bird

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

7.5 SOCIOECONOMIC IMPACTS

The production increase at the Granite City Works has had a positive economic impact for the facility and the surrounding community. The industrial infrastructure surrounding the facility has been established over the many years of operation of the facility and will be unaffected by the proposed modification to the Production Increase Permit. Although the modification will not result in any additional employment or other positive socioeconomic impacts, no negative impacts are expected to result from the additional SO_2 emissions allowable under the proposed modification.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF AIR POLLUTION CONTROL -- PERMIT SECTION
P.O. BOX 19506
SPRINGFIELD, ILLINOIS 62794-9506

FOR APPLICANT'S USE
Revision #: _____
Date: ____ / ____ / ____
Page _____ of _____
Source Designation:
BFG Combustion

FUEL COMBUSTION EMISSION UNIT DATA AND INFORMATION

FOR AGENCY USE ONLY
ID NUMBER:
EMISSION POINT #:
DATE:

SOURCE INFORMATION

1) SOURCE NAME: United States Steel - Granite City Works

2) DATE FORM PREPARED:

3) SOURCE ID NO. (IF KNOWN): 119813AAI

GENERAL INFORMATION

4) NAME OF EMISSION UNIT: BFG Combustion Units (Boilers, Blast Air Stoves, and Flare)

5) NAME OF PROCESS: BFG Combustion

6) DESCRIPTION OF PROCESS: BFG Combustion to produce usable heat or flare when necessary

7) DESCRIPTION OF ITEM OR MATERIAL PRODUCED OR ACTIVITY ACCOMPLISHED: Produce steam or usable heat

8) FLOW DIAGRAM DESIGNATION OF EMISSION UNIT: BFG Combustion Units

9) MANUFACTURER OF EMISSION UNIT (IF KNOWN): Various

10) MODEL NUMBER (IF KNOWN):

11) SERIAL NUMBER (IF KNOWN):

12) DATES OF COMMENCING CONSTRUCTION, OPERATION AND/OR MOST RECENT MODIFICATION OF THIS EMISSION UNIT (ACTUAL OR PLANNED)

a) CONSTRUCTION (MONTH/YEAR): Various

b) OPERATION (MONTH/YEAR):

c) LATEST MODIFICATION (MONTH/YEAR):

13) DESCRIPTION OF MODIFICATION (IF APPLICABLE):

Revise BFG Combustion SO2 limit in Production Increase Permit based on new data indicating previous emission factor used to develop limit was incorrect.

THIS AGENCY IS AUTHORIZED TO REQUIRE THIS INFORMATION UNDER ILLINOIS REVISED STATUTES, 1991, AS AMENDED 1992, CHAPTER 111 1/2, PAR. 1039.5. DISCLOSURE OF THIS INFORMATION IS REQUIRED UNDER THAT SECTION. FAILURE TO DO SO MAY PREVENT THIS FORM FROM BEING PROCESSED AND COULD RESULT IN THE APPLICATION BEING DENIED. THIS FORM HAS BEEN APPROVED BY THE FORMS MANAGEMENT CENTER.

FOR APPLICANT'S USE

APPLICATION PAGE _____

14) DOES THE EMISSION UNIT HAVE MORE THAN ONE MODE OF OPERATION? ☐ YES ☒ NO

IF YES, EXPLAIN AND IDENTIFY WHICH MODE IS COVERED BY THIS FORM (NOTE: A SEPARATE PROCESS EMISSION UNIT FORM 240-CAAPP MUST BE COMPLETED FOR EACH MODE):

15) PROVIDE THE NAME AND DESIGNATION OF ALL AIR POLLUTION CONTROL EQUIPMENT CONTROLLING THIS EMISSION UNIT, IF APPLICABLE (FORM 260-CAAPP AND THE APPROPRIATE 260-CAAPP ADDENDUM FORM MUST BE COMPLETED FOR EACH ITEM OF AIR POLLUTION CONTROL EQUIPMENT):

None

16) WILL EMISSIONS DURING STARTUP EXCEED EITHER THE ALLOWABLE EMISSION RATE PURSUANT TO A SPECIFIC RULE, OR THE ALLOWABLE EMISSION LIMIT AS ESTABLISHED BY AN EXISTING OR PROPOSED PERMIT CONDITION? ☐ YES ☒ NO

IF YES, COMPLETE AND ATTACH FORM 203-CAAPP, "REQUEST TO OPERATE WITH EXCESS EMISSIONS DURING STARTUP OF EQUIPMENT".

17) PROVIDE ANY LIMITATIONS ON SOURCE OPERATION AFFECTING EMISSIONS OR ANY WORK PRACTICE STANDARDS (E.G., ONLY ONE UNIT IS OPERATED AT A TIME):

BFG Combustion facility wide limited to 185,030 million cubic feet per year.

OPERATING INFORMATION

18) ATTACH THE CALCULATIONS, TO THE EXTENT THEY ARE AIR EMISSION RELATED, FROM WHICH THE FOLLOWING OPERATING INFORMATION, MATERIAL USAGE INFORMATION AND FUEL USAGE DATA WERE BASED AND LABEL AS EXHIBIT 240-1. REFER TO SPECIAL NOTES OF FORM 202-CAAPP.

19a) MAXIMUM OPERATING HOURS	HOURS/DAY: 24	DAYS/WEEK: 7	WEEKS/YEAR: 52	
b) TYPICAL OPERATING HOURS	HOURS/DAY: 24	DAYS/WEEK: 7	WEEKS/YEAR: 52	
20) ANNUAL THROUGHPUT	DEC-FEB(%):	MAR-MAY(%):	JUN-AUG(%):	SEP-NOV(%):

FIRING RATE INFORMATION

21a) RATED OR DESIGN HEAT INPUT CAPACITY (MILLION BTU/HR): Various

b) IS MORE THAN ONE FUEL FIRED AT A TIME? ☒ YES ☐ NO

IF YES, EXPLAIN:

21c) IF HEAT INPUT CAPACITY IS 100 MILLION BTU/HOUR OR GREATER, PROVIDE FURNACE VOLUME (CUBIC FEET)
NOTE: FURNACE VOLUME IS DEFINED AS THAT VOLUME BOUNDED BY THE FRONT FURNACE WALL WHERE THE BURNER IS LOCATED, THE FURNACE SIDE WATERWALL, AND EXTENDING TO THE LEVEL JUST BELOW OR IN FRONT OF THE FIRST ROW OF CONVECTION PASS TUBES.

	NATURAL GAS	FUEL OIL	COAL	OTHER
d) SINGLE FUEL (MAXIMUM - MILLION BTU/HOUR)				
e) SINGLE FUEL (TYPICAL - MILLION BTU/HOUR)				
f) COMBINED FUEL (TYPICAL - MILLION BTU/HOUR) (IF APPLICABLE)				

NATURAL GAS FIRING

22a) CURRENT ORIGIN OF NATURAL GAS:
☐ PIPELINE (FIRM CONTRACT) ☐ BY-PRODUCT, SPECIFY ORIGIN:
☐ PIPELINE (INTERRUPTIBLE SUPPLY CONTRACT) ☐ OTHER, - SPECIFY: _____

b) TYPICAL HEAT CONTENT (BTU/SCF):
1000

c) MAXIMUM CONSUMPTION	SCF/MONTH:	SCF/YEAR:
d) TYPICAL CONSUMPTION	SCF/MONTH:	SCF/YEAR:

OIL FIRING

23a) OIL TYPE (CHECK ONE):
☐ NO. 1 ☐ NO. 2 ☐ NO. 4 ☐ NO. 5 ☐ NO. 6
☐ OTHER, SPECIFY (INCLUDE GENERATOR OR SUPPLIER): _____

b) TYPICAL HEAT CONTENT: _____
☐ BTU/LB - OR - ☐ BTU/GAL

c) IS OIL USED ONLY AS A RESERVE FUEL? ☐ YES ☐ NO

d) TYPICAL SULFUR CONTENT AS FIRED (WT %):

e) TYPICAL ASH CONTENT AS FIRED (WT %):

f) MAXIMUM CONSUMPTION	GAL/MONTH:	GAL/YEAR:
g) TYPICAL CONSUMPTION	GAL/MONTH:	GAL/YEAR:

h) FIRING DIRECTION:
☐ HORIZONTAL ☐ TANGENTIAL ☐ OTHER, SPECIFY:

SOLID FUEL FIRING

*24a) SOLID FUEL TYPE (CHECK ALL THAT APPLY): ☐ SUB-BITUMINOUS COAL ☐ LIGNITE COAL ☐ BITUMINOUS COAL ☐ ANTHRACITE COAL ☐ OTHER, SPECIFY:

b) TYPICAL HEAT CONTENT AS FIRED (BTU/LB):	c) TYPICAL MOISTURE CONTENT AS FIRED (WT %):
d) TYPICAL SULFUR CONTENT AS FIRED (WT %):	e) TYPICAL ASH CONTENT AS FIRED (WT %):
f) TYPICAL FINES CONTENT (% LESS THAN 1/8 INCH):	g) IS THE COAL CLEANED? ☐ YES ☐ NO

h) HOW MUCH COAL REFUSE IS IN THE FUEL? (WT %):

i) MAXIMUM CONSUMPTION	TON/MONTH:	TON/YEAR:
j) TYPICAL CONSUMPTION	TON/MONTH:	TON/YEAR:

k) FIRING TYPE (CHECK ONE):
☐ TRAVELING GRATE ☐ SPREADER STOKER % REINJECTION:
☐ CYCLONE ☐ PULVERIZED, TYPE (CIRCLE ONE): WET BOTTOM DRY BOTTOM
☐ HORIZONTALLY OPPOSED ☐ OTHER, SPECIFY: _____

*NOTE: IF REQUIRED, SUBMIT COPIES OF THOSE PORTIONS OF COAL SUPPLY CONTRACTS WHICH SET FORTH THE SPECIFICATIONS OF THE FUEL AND THE DURATION OF THE CONTRACT. IF THE ACTUAL FUEL FIRED IS A BLEND OF COAL, SUBMIT APPROPRIATE PORTIONS OF ALL FUEL CONTRACTS AND STATE THE MANNER BY WHICH THE FUELS ARE BLENDED AND ACTUALLY FIRED. ATTACH AND LABEL AS EXHIBIT 240-2.

OTHER FUEL FIRING

25a) OTHER FUEL FIRING

	TYPE	SUPPLIER
a)	Blast Furnace Gas	By-Product Fuel (GCW)
b)		

b) TYPICAL HEAT CONTENT (SPECIFY UNITS): a) 80	c) TYPICAL NITROGEN CONTENT AS FIRED (WT %):
d) TYPICAL SULFUR CONTENT AS FIRED (WT %): a) 0.00005	e) TYPICAL ASH CONTENT AS FIRED (WT %):

f) MAXIMUM CONSUMPTION	(SPECIFY UNITS/MONTH): 30800 MMcf (all units)	(SPECIFY UNITS/YEAR): 185030 MMcf (all units)
g) TYPICAL CONSUMPTION	(SPECIFY UNITS/MONTH):	(SPECIFY UNITS/YEAR):

APPLICABLE RULES

26) PROVIDE ANY SPECIFIC EMISSION STANDARD(S) AND LIMITATION(S) SET BY RULE(S) WHICH ARE APPLICABLE TO THIS EMISSION UNIT (E.G., PARTICULATE MATTER, IAC 212.206, <= 0.10 LBS/MMBTU):

REGULATED AIR POLLUTANT(S)	EMISSION STANDARD(S)	REQUIREMENT(S)

27) PROVIDE ANY SPECIFIC RECORDKEEPING RULE(S) WHICH ARE APPLICABLE TO THIS EMISSION UNIT:

REGULATED AIR POLLUTANT(S)	RECORDKEEPING RULE(S)	REQUIREMENT(S)

28) PROVIDE ANY SPECIFIC REPORTING RULE(S) WHICH ARE APPLICABLE TO THIS EMISSION UNIT:

REGULATED AIR POLLUTANT(S)	REPORTING RULE(S)	REQUIREMENT(S)

29) PROVIDE ANY SPECIFIC MONITORING RULE(S) WHICH ARE APPLICABLE TO THIS EMISSION UNIT:

REGULATED AIR POLLUTANT(S)	MONITORING RULE(S)	REQUIREMENT(S)

30) PROVIDE ANY SPECIFIC TESTING RULES AND/OR PROCEDURES WHICH ARE APPLICABLE TO THIS EMISSION UNIT :

REGULATED AIR POLLUTANT(S)	TESTING RULE(S)	REQUIREMENT(S)

31) DOES THE EMISSION UNIT QUALIFY FOR AN EXEMPTION FROM AN OTHERWISE APPLICABLE RULE? ☐ YES ☒ NO

IF YES, THEN LIST BOTH THE RULE FROM WHICH IT IS EXEMPT AND THE RULE WHICH ALLOWS THE EXEMPTION. PROVIDE A DETAILED EXPLANATION JUSTIFYING THE EXEMPTION. INCLUDE DETAILED SUPPORTING DATA AND CALCULATIONS. ATTACH AND LABEL AS EXHIBIT 240-3, OR REFER TO OTHER ATTACHMENT(S) WHICH ADDRESS AND JUSTIFY THIS EXEMPTION.

COMPLIANCE INFORMATION

32) IS THE EMISSION UNIT IN COMPLIANCE WITH ALL APPLICABLE REQUIREMENTS? ☒ YES ☐ NO

IF NO, THEN FORM 294-CAAPP "COMPLIANCE PLAN/SCHEDULE OF COMPLIANCE – ADDENDUM FOR NON COMPLYING EMISSION UNITS" MUST BE COMPLETED AND SUBMITTED WITH THIS APPLICATION.

33) EXPLANATION OF HOW INITIAL COMPLIANCE IS TO BE, OR WAS PREVIOUSLY, DEMONSTRATED:

Stack Testing

34) EXPLANATION OF HOW ONGOING COMPLIANCE WILL BE DEMONSTRATED:

Fuel Sulfur Content Testing and Engineering Calculations

TESTING, MONITORING, RECORDKEEPING AND REPORTING

35a) LIST THE PARAMETERS THAT RELATE TO AIR EMISSIONS FOR WHICH RECORDS ARE BEING MAINTAINED TO DETERMINE FEES, RULE APPLICABILITY OR COMPLIANCE. INCLUDE THE UNIT OF MEASUREMENT, THE METHOD OF MEASUREMENT, AND THE FREQUENCY OF SUCH RECORDS (E.G., HOURLY, DAILY, WEEKLY):

PARAMETER	UNIT OF MEASUREMENT	METHOD OF MEASUREMENT	FREQUENCY
BFG flow	MMcf	flowmeter	monthly

35b) BRIEFLY DESCRIBE THE METHOD BY WHICH RECORDS WILL BE CREATED AND MAINTAINED. FOR EACH RECORDED PARAMETER INCLUDE THE METHOD OF RECORDKEEPING, TITLE OF PERSON RESPONSIBLE FOR RECORDKEEPING, AND TITLE OF PERSON TO CONTACT FOR REVIEW OF RECORDS:

PARAMETER	METHOD OF RECORDKEEPING	TITLE OF PERSON RESPONSIBLE	TITLE OF CONTACT PERSON
BFG Flow	Log		

c) IS COMPLIANCE OF THE EMISSION UNIT READILY DEMONSTRATED BY REVIEW OF THE RECORDS? ☒ YES ☐ NO

IF NO, EXPLAIN:

d) ARE ALL RECORDS READILY AVAILABLE FOR INSPECTION, COPYING AND SUBMITTAL TO THE AGENCY UPON REQUEST? ☒ YES ☐ NO

IF NO, EXPLAIN:

36a) DESCRIBE ANY MONITORS OR MONITORING ACTIVITIES USED TO DETERMINE FEES, RULE APPLICABILITY OR COMPLIANCE:

None

b) WHAT PARAMETER(S) IS(ARE) BEING MONITORED (E.G., OPACITY)?

c) DESCRIBE THE LOCATION OF EACH MONITOR (E.G., IN STACK MONITOR):

36d) IS EACH MONITOR EQUIPPED WITH A RECORDING DEVICE? ☐ YES ☐ NO

IF NO, LIST ALL MONITORS WITHOUT A RECORDING DEVICE:

e) IS EACH MONITOR REVIEWED FOR ACCURACY ON AT LEAST A QUARTERLY BASIS? ☐ YES ☐ NO

IF NO, EXPLAIN:

f) IS EACH MONITOR OPERATED AT ALL TIMES THE ASSOCIATED EMISSION UNIT IS IN OPERATION? ☐ YES ☐ NO

IF NO, EXPLAIN:

37) PROVIDE INFORMATION ON THE MOST RECENT TESTS, IF ANY, IN WHICH THE RESULTS ARE USED FOR PURPOSES OF THE DETERMINATION OF FEES, RULE APPLICABILITY OR COMPLIANCE. INCLUDE THE TEST DATE, TEST METHOD USED, TESTING COMPANY, OPERATING CONDITIONS EXISTING DURING THE TEST AND A SUMMARY OF RESULTS. IF ADDITIONAL SPACE IS NEEDED, ATTACH AND LABEL AS EXHIBIT 240-4:

TEST DATE	TEST METHOD	TESTING COMPANY	OPERATING CONDITIONS	SUMMARY OF RESULTS
None				

38) DESCRIBE ALL REPORTING REQUIREMENTS AND PROVIDE THE TITLE AND FREQUENCY OF REPORT SUBMITTALS TO THE AGENCY:

REPORTING REQUIREMENTS	TITLE OF REPORT	FREQUENCY
None		

(39)EMISSION INFORMATION

REGULATED AIR POLLUTANT		☒ [1]ACTUAL EMISSION RATE / ☐ [1]UNCONTROLLED EMISSION RATE					ALLOWABLE BY RULE EMISSION RATE			[2]PERMITTED EMISSION RATE	
		LBS PER HOUR (LBS/HR)	TONS PER YEAR (TONS/YR)	[3]OTHER TERMS	[3]OTHER TERMS	[4]DM	[5]RATE (UNITS)	APPLICABLE RULES	TONS PER YEAR (TONS/YR)	RATE (UNITS)	TONS PER YEAR (TONS/YR)
CARBON MONOXIDE (CO)	MAXIMUM:						( )	G g			
	TYPICAL:						( )				
LEAD	MAXIMUM:						( )				
	TYPICAL:						( )				
NITROGEN OXIDES (NOx)	MAXIMUM:						( )				
	TYPICAL:						( )				
PARTICULATE MATTER (PART)	MAXIMUM:						( )				
	TYPICAL:						( )				
PARTICULATE MATTER <= 10 MICROMETERS (PM10)	MAXIMUM:						( )				
	TYPICAL:						( )				
SULFUR DIOXIDE (SO2)	MAXIMUM:		1480.24				( )				1480.24
	TYPICAL:		1100.00				( )				
VOLATILE ORGANIC MATERIAL (VOM)	MAXIMUM:						( )				
	TYPICAL:						( )				
OTHER, SPECIFY: _____	MAXIMUM:						( )				
	TYPICAL:						( )				
EXAMPLE: PARTICULATE MATTER	*MAXIMUM:*	*5.00*	*21.9*	*0.3 GR/DSCF*		*1*	*6.0 (LBS/HR)*	*212.321*	*26.28*	*5.5 LBS/HR*	*22*
	TYPICAL:	*4.00*	*14.4*	*0.24 GR/DSCF*		*4*	*5.5 (LBS/HR)*	*212.321*	*19.60*		

IMPORTANT: ATTACH CALCULATIONS, TO THE EXTENT THEY ARE AIR EMISSIONS RELATED, ON WHICH EMISSIONS WERE DETERMINED AND LABEL AS EXHIBIT 240-5.

[1]CHECK UNCONTROLLED EMISSION RATE BOX IF CONTROL EQUIPMENT IS USED, OTHERWISE CHECK AND PROVIDE THE ACTUAL EMISSION RATE TO ATMOSPHERE, INCLUDING INDOORS. SEE INSTRUCTIONS.
[2]PROVIDE THE EMISSION RATE THAT WILL BE USED AS A PERMIT SPECIAL CONDITION. THIS LIMIT WILL BE USED TO DETERMINE THE PERMIT FEE.
[3]PLEASE PROVIDE ANY OTHER EMISSION RATE WHICH IS COMMONLY USED, REQUIRED BY A SPECIFIC LIMITATION OR THAT WAS MEASURED (E.G. PPM, GR/DSCF, ETC.)
[4]DM - DETERMINATION METHOD: 1) STACK TEST, 2) MATERIAL BALANCE, 3) STANDARD EMISSION FACTOR (AP-42 OR AIRS), 4) ENGINEERING ESTIMATE, 5) SPECIAL EMISSION FACTOR (NOT AP-42 OR AIRS)
[5]RATE - ALLOWABLE EMISSION RATE SPECIFIED BY MOST STRINGENT APPLICABLE RULE.

(40) HAZARDOUS AIR POLLUTANT EMISSION INFORMATION

HAP INFORMATION		☐ [1]ACTUAL EMISSION RATE ☐ [1]UNCONTROLLED EMISSION RATE				ALLOWABLE BY RULE	
NAME OF HAP EMITTED	[2]CAS NUMBER		POUNDS PER HOUR (LBS/HR)	TONS PER YEAR (TONS/YR)	[3]OTHER TERMS	[4]DM	[5]RATE OR STANDARD	APPLICABLE RULE
		MAXIMUM:						
		TYPICAL:						
		MAXIMUM:						
		TYPICAL:						
		MAXIMUM:						
		TYPICAL:						
		MAXIMUM:						
		TYPICAL:						
		MAXIMUM:						
		TYPICAL:						
		MAXIMUM:						
		TYPICAL:						
		MAXIMUM:						
		TYPICAL:						
		MAXIMUM:						
		TYPICAL:						
EXAMPLE:		MAXIMUM:	*10.0*	*1.2*		*2*	*98% by wt control device*	*GFR 61:*
Benzene	*71432*	TYPICAL:	*8.0*	*0.8*		*2*	*leak-tight trucks*	*61.302(b),(d)*

IMPORTANT: ATTACH CALCULATIONS, TO THE EXTENT THEY ARE AIR EMISSIONS RELATED, ON WHICH EMISSIONS WERE DETERMINED AND LABEL AS EXHIBIT 240-6.

[1]PROVIDE UNCONTROLLED EMISSIONS IF CONTROL EQUIPMENT IS USED. OTHERWISE, PROVIDE ACTUAL EMISSIONS TO THE ATMOSPHERE, INCLUDING INDOORS. CHECK BOX TO SPECIFY.
[2]CAS - CHEMICAL ABSTRACT SERVICE NUMBER.
[3]PLEASE PROVIDE ANY OTHER EMISSION RATE WHICH IS COMMONLY USED, REQUIRED BY A SPECIFIC LIMITATION OR THAT WAS MEASURED (E.G., PPM, GR/DSCF, ETC.).
[4]DM - DETERMINATION METHOD: 1) STACK TEST, 2) MATERIAL BALANCE, 3) STANDARD EMISSION FACTOR (AP-42 OR AIRS, 4) ENGINEERING ESTIMATE, 5) SPECIAL EMISSION FACTOR (NOT AP-42 OR AIRS).
[5]RATE - ALLOWABLE EMISSION RATE OR STANDARD SPECIFIED BY MOST STRINGENT APPLICABLE RULE.

EXHAUST POINT INFORMATION

THIS SECTION SHOULD NOT BE COMPLETED IF EMISSIONS ARE EXHAUSTED THROUGH AIR POLLUTION CONTROL EQUIPMENT.

41) FLOW DIAGRAM DESIGNATION OF EXHAUST POINT:

42) DESCRIPTION OF EXHAUST POINT (STACK, VENT, ROOF MONITOR, INDOORS, ETC.). IF THE EXHAUST POINT DISCHARGES INDOORS, DO NOT COMPLETE THE REMAINING ITEMS.

43) DISTANCE TO NEAREST PLANT BOUNDARY FROM EXHAUST POINT DISCHARGE (FT):

44) DISCHARGE HEIGHT ABOVE GRADE (FT):

45) GOOD ENGINEERING PRACTICE (GEP) HEIGHT, IF KNOWN (FT):

46) DIAMETER OF EXHAUST POINT (FT): NOTE: FOR A NON CIRCULAR EXHAUST POINT, THE DIAMETER IS 1.128 TIMES THE SQUARE ROOT OF THE AREA.

47) EXIT GAS FLOW RATE	a) MAXIMUM (ACFM):	b) TYPICAL (ACFM):
48) EXIT GAS TEMPERATURE	a) MAXIMUM (°F):	b) TYPICAL (°F):

49) DIRECTION OF EXHAUST (VERTICAL, LATERAL, DOWNWARD):

50) LIST ALL EMISSION UNITS AND CONTROL DEVICES SERVED BY THIS EXHAUST POINT:

	NAME	FLOW DIAGRAM DESIGNATION
a)		
b)		
c)		
d)		
e)		

THE FOLLOWING INFORMATION NEED ONLY BE SUPPLIED IF READILY AVAILABLE.

51a) LATITUDE:	b) LONGITUDE:	
52) UTM ZONE:	b) UTM VERTICAL (KM):	c) UTM HORIZONTAL (KM):

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF AIR POLLUTION CONTROL -- PERMIT SECTION
P.O. BOX 19506
SPRINGFIELD, ILLINOIS 62794-9506

FOR APPLICANT'S USE
Revision #: _____
Date: ____ / ____ / ____
Page _____ of _____
Source Designation:
Boilers 1-10

FUEL COMBUSTION EMISSION UNIT DATA AND INFORMATION

FOR AGENCY USE ONLY
ID NUMBER:
EMISSION POINT #:
DATE:

SOURCE INFORMATION

1) SOURCE NAME:
United States Steel - Granite City Works

2) DATE FORM PREPARED:

3) SOURCE ID NO. (IF KNOWN): 119813AAI

GENERAL INFORMATION

4) NAME OF EMISSION UNIT:
NG Combustion Units (Boilers, Blast Air Stoves, Ladle Dryers and BFG Flare)

5) NAME OF PROCESS:
NG Combustion

6) DESCRIPTION OF PROCESS:
NG Combustion to produce usable heat

7) DESCRIPTION OF ITEM OR MATERIAL PRODUCED OR ACTIVITY ACCOMPLISHED:
Produce steam or usable heat

8) FLOW DIAGRAM DESIGNATION OF EMISSION UNIT:
NG Combustion Units

9) MANUFACTURER OF EMISSION UNIT (IF KNOWN):

10) MODEL NUMBER (IF KNOWN):

11) SERIAL NUMBER (IF KNOWN):

12) DATES OF COMMENCING CONSTRUCTION, OPERATION AND/OR MOST RECENT MODIFICATION OF THIS EMISSION UNIT (ACTUAL OR PLANNED)

a) CONSTRUCTION (MONTH/YEAR):
~1920s

b) OPERATION (MONTH/YEAR):

c) LATEST MODIFICATION (MONTH/YEAR):

13) DESCRIPTION OF MODIFICATION (IF APPLICABLE):
Revise NG combustion emission factors for VOM and CO used to develop limits in Production Increase Permit to reflect changes in AP-42 emission factors.

THIS AGENCY IS AUTHORIZED TO REQUIRE THIS INFORMATION UNDER ILLINOIS REVISED STATUTES, 1991, AS AMENDED 1992, CHAPTER 111 1/2, PAR. 1039.5. DISCLOSURE OF THIS INFORMATION IS REQUIRED UNDER THAT SECTION. FAILURE TO DO SO MAY PREVENT THIS FORM FROM BEING PROCESSED AND COULD RESULT IN THE APPLICATION BEING DENIED. THIS FORM HAS BEEN APPROVED BY THE FORMS MANAGEMENT CENTER.

FOR APPLICANT'S USE

APPLICATION PAGE _____

14) DOES THE EMISSION UNIT HAVE MORE THAN ONE MODE OF OPERATION? ☐ YES ☒ NO

IF YES, EXPLAIN AND IDENTIFY WHICH MODE IS COVERED BY THIS FORM (NOTE: A SEPARATE PROCESS EMISSION UNIT FORM 240-CAAPP MUST BE COMPLETED FOR EACH MODE):

15) PROVIDE THE NAME AND DESIGNATION OF ALL AIR POLLUTION CONTROL EQUIPMENT CONTROLLING THIS EMISSION UNIT, IF APPLICABLE (FORM 260-CAAPP AND THE APPROPRIATE 260-CAAPP ADDENDUM FORM MUST BE COMPLETED FOR EACH ITEM OF AIR POLLUTION CONTROL EQUIPMENT):

None

16) WILL EMISSIONS DURING STARTUP EXCEED EITHER THE ALLOWABLE EMISSION RATE PURSUANT TO A SPECIFIC RULE, OR THE ALLOWABLE EMISSION LIMIT AS ESTABLISHED BY AN EXISTING OR PROPOSED PERMIT CONDITION? ☐ YES ☒ NO

IF YES, COMPLETE AND ATTACH FORM 203-CAAPP, "REQUEST TO OPERATE WITH EXCESS EMISSIONS DURING STARTUP OF EQUIPMENT".

17) PROVIDE ANY LIMITATIONS ON SOURCE OPERATION AFFECTING EMISSIONS OR ANY WORK PRACTICE STANDARDS (E.G., ONLY ONE UNIT IS OPERATED AT A TIME):

BFG Combustion facility wide limited to 185,030 million cubic feet per year.
NG combustion in the boilers, BF Stoves, Ladle Dryers and BFG flare limited to 1,346 million cubic feet per year.

OPERATING INFORMATION

18) ATTACH THE CALCULATIONS, TO THE EXTENT THEY ARE AIR EMISSION RELATED, FROM WHICH THE FOLLOWING OPERATING INFORMATION, MATERIAL USAGE INFORMATION AND FUEL USAGE DATA WERE BASED AND LABEL AS EXHIBIT 240-1. REFER TO SPECIAL NOTES OF FORM 202-CAAPP.

19a) MAXIMUM OPERATING HOURS	HOURS/DAY: 24	DAYS/WEEK: 7	WEEKS/YEAR: 52
b) TYPICAL OPERATING HOURS	HOURS/DAY: 24	DAYS/WEEK: 7	WEEKS/YEAR: 52

20) ANNUAL THROUGHPUT	DEC-FEB(%):	MAR-MAY(%):	JUN-AUG(%):	SEP-NOV(%):

FIRING RATE INFORMATION

21a) RATED OR DESIGN HEAT INPUT CAPACITY (MILLION BTU/HR): 60 each

b) IS MORE THAN ONE FUEL FIRED AT A TIME? ☒ YES ☐ NO

IF YES, EXPLAIN:

Units can fire NG or BFG. During BFG firing, NG or COG is required for pilot flame to maintain combustion.

21c) IF HEAT INPUT CAPACITY IS 100 MILLION BTU/HOUR OR GREATER, PROVIDE FURNACE VOLUME (CUBIC FEET)
NOTE: FURNACE VOLUME IS DEFINED AS THAT VOLUME BOUNDED BY THE FRONT FURNACE WALL WHERE THE BURNER IS LOCATED, THE FURNACE SIDE WATERWALL, AND EXTENDING TO THE LEVEL JUST BELOW OR IN FRONT OF THE FIRST ROW OF CONVECTION PASS TUBES.

	NATURAL GAS	FUEL OIL	COAL	OTHER
d) SINGLE FUEL (MAXIMUM - MILLION BTU/HOUR)				
e) SINGLE FUEL (TYPICAL - MILLION BTU/HOUR)				
f) COMBINED FUEL (TYPICAL - MILLION BTU/HOUR) (IF APPLICABLE)				

NATURAL GAS FIRING

22a) CURRENT ORIGIN OF NATURAL GAS:
☒ PIPELINE (FIRM CONTRACT) ☐ BY-PRODUCT, SPECIFY ORIGIN:
☐ PIPELINE (INTERRUPTIBLE SUPPLY CONTRACT) ☐ OTHER, - SPECIFY:

b) TYPICAL HEAT CONTENT (BTU/SCF):
1000

c) MAXIMUM CONSUMPTION	SCF/MONTH: 225,000,000	SCF/YEAR: 1,346,000,000
d) TYPICAL CONSUMPTION	SCF/MONTH:	SCF/YEAR:

OIL FIRING

23a) OIL TYPE (CHECK ONE):
☐ NO. 1 ☐ NO. 2 ☐ NO. 4 ☐ NO. 5 ☐ NO. 6
☐ OTHER, SPECIFY (INCLUDE GENERATOR OR SUPPLIER):

b) TYPICAL HEAT CONTENT:
☐ BTU/LB - OR - ☐ BTU/GAL

c) IS OIL USED ONLY AS A RESERVE FUEL? ☐ YES ☐ NO

d) TYPICAL SULFUR CONTENT AS FIRED (WT %):

e) TYPICAL ASH CONTENT AS FIRED (WT %):

f) MAXIMUM CONSUMPTION	GAL/MONTH:	GAL/YEAR:
g) TYPICAL CONSUMPTION	GAL/MONTH:	GAL/YEAR:

h) FIRING DIRECTION:
☐ HORIZONTAL ☐ TANGENTIAL ☐ OTHER, SPECIFY:

SOLID FUEL FIRING

*24a) SOLID FUEL TYPE (CHECK ALL THAT APPLY):
☐ SUB-BITUMINOUS COAL ☐ LIGNITE COAL ☐ BITUMINOUS COAL
☐ ANTHRACITE COAL ☐ OTHER, SPECIFY:

b) TYPICAL HEAT CONTENT AS FIRED (BTU/LB):	c) TYPICAL MOISTURE CONTENT AS FIRED (WT %):
d) TYPICAL SULFUR CONTENT AS FIRED (WT %):	e) TYPICAL ASH CONTENT AS FIRED (WT %):
f) TYPICAL FINES CONTENT (% LESS THAN 1/8 INCH):	g) IS THE COAL CLEANED? ☐ YES ☐ NO

h) HOW MUCH COAL REFUSE IS IN THE FUEL? (WT %):

i) MAXIMUM CONSUMPTION	TON/MONTH:	TON/YEAR:
j) TYPICAL CONSUMPTION	TON/MONTH:	TON/YEAR:

k) FIRING TYPE (CHECK ONE):
☐ TRAVELING GRATE ☐ SPREADER STOKER % REINJECTION:
☐ CYCLONE ☐ PULVERIZED, TYPE (CIRCLE ONE): WET BOTTOM DRY BOTTOM
☐ HORIZONTALLY OPPOSED ☐ OTHER, SPECIFY: _____

*NOTE: IF REQUIRED, SUBMIT COPIES OF THOSE PORTIONS OF COAL SUPPLY CONTRACTS WHICH SET FORTH THE SPECIFICATIONS OF THE FUEL AND THE DURATION OF THE CONTRACT. IF THE ACTUAL FUEL FIRED IS A BLEND OF COAL, SUBMIT APPROPRIATE PORTIONS OF ALL FUEL CONTRACTS AND STATE THE MANNER BY WHICH THE FUELS ARE BLENDED AND ACTUALLY FIRED. ATTACH AND LABEL AS EXHIBIT 240-2.

OTHER FUEL FIRING

25a) OTHER FUEL FIRING

	TYPE	SUPPLIER
a)		
b)		

b) TYPICAL HEAT CONTENT (SPECIFY UNITS): a) 80	c) TYPICAL NITROGEN CONTENT AS FIRED (WT %):
d) TYPICAL SULFUR CONTENT AS FIRED (WT %): a) 0.00005	e) TYPICAL ASH CONTENT AS FIRED (WT %):

f) MAXIMUM CONSUMPTION	(SPECIFY UNITS/MONTH):	(SPECIFY UNITS/YEAR):
g) TYPICAL CONSUMPTION	(SPECIFY UNITS/MONTH):	(SPECIFY UNITS/YEAR):

APPLICABLE RULES

26) PROVIDE ANY SPECIFIC EMISSION STANDARD(S) AND LIMITATION(S) SET BY RULE(S) WHICH ARE APPLICABLE TO THIS EMISSION UNIT (E.G., PARTICULATE MATTER, IAC 212.206, <= 0.10 LBS/MMBTU):

REGULATED AIR POLLUTANT(S)	EMISSION STANDARD(S)	REQUIREMENT(S)

27) PROVIDE ANY SPECIFIC RECORDKEEPING RULE(S) WHICH ARE APPLICABLE TO THIS EMISSION UNIT:

REGULATED AIR POLLUTANT(S)	RECORDKEEPING RULE(S)	REQUIREMENT(S)

28) PROVIDE ANY SPECIFIC REPORTING RULE(S) WHICH ARE APPLICABLE TO THIS EMISSION UNIT:

REGULATED AIR POLLUTANT(S)	REPORTING RULE(S)	REQUIREMENT(S)

29) PROVIDE ANY SPECIFIC MONITORING RULE(S) WHICH ARE APPLICABLE TO THIS EMISSION UNIT:

REGULATED AIR POLLUTANT(S)	MONITORING RULE(S)	REQUIREMENT(S)

30) PROVIDE ANY SPECIFIC TESTING RULES AND/OR PROCEDURES WHICH ARE APPLICABLE TO THIS EMISSION UNIT :

REGULATED AIR POLLUTANT(S)	TESTING RULE(S)	REQUIREMENT(S)

31) DOES THE EMISSION UNIT QUALIFY FOR AN EXEMPTION FROM AN OTHERWISE APPLICABLE RULE? ☐ YES ☒ NO

IF YES, THEN LIST BOTH THE RULE FROM WHICH IT IS EXEMPT AND THE RULE WHICH ALLOWS THE EXEMPTION. PROVIDE A DETAILED EXPLANATION JUSTIFYING THE EXEMPTION. INCLUDE DETAILED SUPPORTING DATA AND CALCULATIONS. ATTACH AND LABEL AS EXHIBIT 240-3, OR REFER TO OTHER ATTACHMENT(S) WHICH ADDRESS AND JUSTIFY THIS EXEMPTION.

COMPLIANCE INFORMATION

32) IS THE EMISSION UNIT IN COMPLIANCE WITH ALL APPLICABLE REQUIREMENTS? ☒ YES ☐ NO

IF NO, THEN FORM 294-CAAPP "COMPLIANCE PLAN/SCHEDULE OF COMPLIANCE – ADDENDUM FOR NON COMPLYING EMISSION UNITS" MUST BE COMPLETED AND SUBMITTED WITH THIS APPLICATION.

33) EXPLANATION OF HOW INITIAL COMPLIANCE IS TO BE, OR WAS PREVIOUSLY, DEMONSTRATED:

Engineering Calculations

34) EXPLANATION OF HOW ONGOING COMPLIANCE WILL BE DEMONSTRATED:

TESTING, MONITORING, RECORDKEEPING AND REPORTING

35a) LIST THE PARAMETERS THAT RELATE TO AIR EMISSIONS FOR WHICH RECORDS ARE BEING MAINTAINED TO DETERMINE FEES, RULE APPLICABILITY OR COMPLIANCE. INCLUDE THE UNIT OF MEASUREMENT, THE METHOD OF MEASUREMENT, AND THE FREQUENCY OF SUCH RECORDS (E.G., HOURLY, DAILY, WEEKLY):

PARAMETER	UNIT OF MEASUREMENT	METHOD OF MEASUREMENT	FREQUENCY
NG flow	MMcf	flowmeter	monthly

35b) BRIEFLY DESCRIBE THE METHOD BY WHICH RECORDS WILL BE CREATED AND MAINTAINED. FOR EACH RECORDED PARAMETER INCLUDE THE METHOD OF RECORDKEEPING, TITLE OF PERSON RESPONSIBLE FOR RECORDKEEPING, AND TITLE OF PERSON TO CONTACT FOR REVIEW OF RECORDS:

PARAMETER	METHOD OF RECORDKEEPING	TITLE OF PERSON RESPONSIBLE	TITLE OF CONTACT PERSON
NG Flow	Log		

c) IS COMPLIANCE OF THE EMISSION UNIT READILY DEMONSTRATED BY REVIEW OF THE RECORDS? ☒ YES ☐ NO

IF NO, EXPLAIN:

d) ARE ALL RECORDS READILY AVAILABLE FOR INSPECTION, COPYING AND SUBMITTAL TO THE AGENCY UPON REQUEST? ☒ YES ☐ NO

IF NO, EXPLAIN:

36a) DESCRIBE ANY MONITORS OR MONITORING ACTIVITIES USED TO DETERMINE FEES, RULE APPLICABILITY OR COMPLIANCE:

None

b) WHAT PARAMETER(S) IS(ARE) BEING MONITORED (E.G., OPACITY)?

c) DESCRIBE THE LOCATION OF EACH MONITOR (E.G., IN STACK MONITOR):

36d) IS EACH MONITOR EQUIPPED WITH A RECORDING DEVICE? ☐ YES ☐ NO

IF NO, LIST ALL MONITORS WITHOUT A RECORDING DEVICE:

e) IS EACH MONITOR REVIEWED FOR ACCURACY ON AT LEAST A QUARTERLY BASIS? ☐ YES ☐ NO

IF NO, EXPLAIN:

f) IS EACH MONITOR OPERATED AT ALL TIMES THE ASSOCIATED EMISSION UNIT IS IN OPERATION? ☐ YES ☐ NO

IF NO, EXPLAIN:

37) PROVIDE INFORMATION ON THE MOST RECENT TESTS, IF ANY, IN WHICH THE RESULTS ARE USED FOR PURPOSES OF THE DETERMINATION OF FEES, RULE APPLICABILITY OR COMPLIANCE. INCLUDE THE TEST DATE, TEST METHOD USED, TESTING COMPANY, OPERATING CONDITIONS EXISTING DURING THE TEST AND A SUMMARY OF RESULTS. IF ADDITIONAL SPACE IS NEEDED, ATTACH AND LABEL AS EXHIBIT 240-4:

TEST DATE	TEST METHOD	TESTING COMPANY	OPERATING CONDITIONS	SUMMARY OF RESULTS

38) DESCRIBE ALL REPORTING REQUIREMENTS AND PROVIDE THE TITLE AND FREQUENCY OF REPORT SUBMITTALS TO THE AGENCY:

REPORTING REQUIREMENTS	TITLE OF REPORT	FREQUENCY

(39) EMISSION INFORMATION

☒ [1]ACTUAL EMISSION RATE
☐ [1]UNCONTROLLED EMISSION RATE

REGULATED AIR POLLUTANT		LBS PER HOUR (LBS/HR)	TONS PER YEAR (TONS/YR)	[3]OTHER TERMS	[3]OTHER TERMS	[4]DM	ALLOWABLE BY RULE EMISSION RATE: [5]RATE (UNITS)	APPLICABLE RULES	TONS PER YEAR (TONS/YR)	[2]PERMITTED EMISSION RATE: RATE (UNITS)	TONS PER YEAR (TONS/YR)
CARBON MONOXIDE (CO)	MAXIMUM:		56.532				( )				56.54
	TYPICAL:						( )				
LEAD	MAXIMUM:						( )				
	TYPICAL:						( )				
NITROGEN OXIDES (NOx)	MAXIMUM:						( )				
	TYPICAL:						( )				
PARTICULATE MATTER (PART)	MAXIMUM:						( )				
	TYPICAL:						( )				
PARTICULATE MATTER <= 10 MICROMETERS (PM10)	MAXIMUM:						( )				
	TYPICAL:						( )				
SULFUR DIOXIDE (SO2)	MAXIMUM:						( )				
	TYPICAL:						( )				
VOLATILE ORGANIC MATERIAL (VOM)	MAXIMUM:		3.702				( )				3.71
	TYPICAL:						( )				
OTHER, SPECIFY: _____	MAXIMUM:						( )				
	TYPICAL:						( )				
EXAMPLE: PARTICULATE MATTER	MAXIMUM:	*5.00*	*21.9*	*0.3 GR/DSCF*		*1*	*6.0 (LBS/HR)*	*212.321*	*26.28*	*5.5 LBS/HR*	*22*
	TYPICAL:	*4.00*	*14.4*	*0.24 GR/DSCF*		*4*	*5.5 (LBS/HR)*	*212.321*	*19.80*		

IMPORTANT: ATTACH CALCULATIONS, TO THE EXTENT THEY ARE AIR EMISSIONS RELATED, ON WHICH EMISSIONS WERE DETERMINED AND LABEL AS EXHIBIT 240-5.

[1]CHECK UNCONTROLLED EMISSION RATE BOX IF CONTROL EQUIPMENT IS USED, OTHERWISE CHECK AND PROVIDE THE ACTUAL EMISSION RATE TO ATMOSPHERE, INCLUDING INDOORS. SEE INSTRUCTIONS.
[2]PROVIDE THE EMISSION RATE THAT WILL BE USED AS A PERMIT SPECIAL CONDITION. THIS LIMIT WILL BE USED TO DETERMINE THE PERMIT FEE.
[3]PLEASE PROVIDE ANY OTHER EMISSION RATE WHICH IS COMMONLY USED, REQUIRED BY A SPECIFIC LIMITATION OR THAT WAS MEASURED (E.G. PPM, GR/DSCF, ETC.)
[4]DM - DETERMINATION METHOD: 1) STACK TEST, 2) MATERIAL BALANCE, 3) STANDARD EMISSION FACTOR (AP-42 OR AIRS), 4) ENGINEERING ESTIMATE, 5) SPECIAL EMISSION FACTOR (NOT AP-42 OR AIRS)
[5]RATE - ALLOWABLE EMISSION RATE SPECIFIED BY MOST STRINGENT APPLICABLE RULE.

(40) HAZARDOUS AIR POLLUTANT EMISSION INFORMATION

HAP INFORMATION		☐ [1]ACTUAL EMISSION RATE ☐ [1]UNCONTROLLED EMISSION RATE				ALLOWABLE BY RULE	
NAME OF HAP EMITTED	[2]CAS NUMBER		POUNDS PER HOUR (LBS/HR)	TONS PER YEAR (TONS/YR)	[3]OTHER TERMS	[4]DM	[5]RATE OR STANDARD	APPLICABLE RULE
		MAXIMUM:						
		TYPICAL:						
		MAXIMUM:						
		TYPICAL:						
		MAXIMUM:						
		TYPICAL:						
		MAXIMUM:						
		TYPICAL:						
		MAXIMUM:						
		TYPICAL:						
		MAXIMUM:						
		TYPICAL:						
		MAXIMUM:						
		TYPICAL:						
		MAXIMUM:						
		TYPICAL:						
EXAMPLE:		MAXIMUM:	*10.0*	*1.2*		*2*	*98% by wt control device*	*CFR 61*
Benzene	*71432*	TYPICAL:	*8.0*	*0.8*		*2*	*leak-tight trucks*	*61.302(b)(d)*

IMPORTANT: ATTACH CALCULATIONS, TO THE EXTENT THEY ARE AIR EMISSIONS RELATED, ON WHICH EMISSIONS WERE DETERMINED AND LABEL AS EXHIBIT 240-6.

[1]PROVIDE UNCONTROLLED EMISSIONS IF CONTROL EQUIPMENT IS USED. OTHERWISE, PROVIDE ACTUAL EMISSIONS TO THE ATMOSPHERE, INCLUDING INDOORS. CHECK BOX TO SPECIFY.
[2]CAS - CHEMICAL ABSTRACT SERVICE NUMBER.
[3]PLEASE PROVIDE ANY OTHER EMISSION RATE WHICH IS COMMONLY USED, REQUIRED BY A SPECIFIC LIMITATION OR THAT WAS MEASURED (E.G., PPM, GR/DSCF, ETC.).
[4]DM - DETERMINATION METHOD: 1) STACK TEST, 2) MATERIAL BALANCE, 3) STANDARD EMISSION FACTOR (AP-42 OR AIRS, 4) ENGINEERING ESTIMATE, 5) SPECIAL EMISSION FACTOR (NOT AP-42 OR AIRS).
[5]RATE - ALLOWABLE EMISSION RATE OR STANDARD SPECIFIED BY MOST STRINGENT APPLICABLE RULE.

EXHAUST POINT INFORMATION

THIS SECTION SHOULD NOT BE COMPLETED IF EMISSIONS ARE EXHAUSTED THROUGH AIR POLLUTION CONTROL EQUIPMENT.

41) FLOW DIAGRAM DESIGNATION OF EXHAUST POINT:

42) DESCRIPTION OF EXHAUST POINT (STACK, VENT, ROOF MONITOR, INDOORS, ETC.). IF THE EXHAUST POINT DISCHARGES INDOORS, DO NOT COMPLETE THE REMAINING ITEMS.

43) DISTANCE TO NEAREST PLANT BOUNDARY FROM EXHAUST POINT DISCHARGE (FT):

44) DISCHARGE HEIGHT ABOVE GRADE (FT):

45) GOOD ENGINEERING PRACTICE (GEP) HEIGHT, IF KNOWN (FT):

46) DIAMETER OF EXHAUST POINT (FT): NOTE: FOR A NON CIRCULAR EXHAUST POINT, THE DIAMETER IS 1.128 TIMES THE SQUARE ROOT OF THE AREA.

47) EXIT GAS FLOW RATE	a) MAXIMUM (ACFM):	b) TYPICAL (ACFM):
48) EXIT GAS TEMPERATURE	a) MAXIMUM (°F):	b) TYPICAL (°F):

49) DIRECTION OF EXHAUST (VERTICAL, LATERAL, DOWNWARD):

50) LIST ALL EMISSION UNITS AND CONTROL DEVICES SERVED BY THIS EXHAUST POINT:

	NAME	FLOW DIAGRAM DESIGNATION
a)		
b)		
c)		
d)		
e)		

THE FOLLOWING INFORMATION NEED ONLY BE SUPPLIED IF READILY AVAILABLE.

51a) LATITUDE:	b) LONGITUDE:	
52) UTM ZONE:	b) UTM VERTICAL (KM):	c) UTM HORIZONTAL (KM):

APPENDIX B

Existing Permits

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

217/782-2113

REVISED
OPERATING PERMIT

PERMITTEE

U.S. Steel Granite City
Attn: Larry Siebenberger
Route 203 and 20th Street
Granite City, Illinois 62040

Application No.: 95010001 I.D. No.: 119813AAI
Applicant's Designation: Date Received: April 29, 2002
Subject: Production Increase, Renewal
Date Issued: June 25, 2002 Expiration Date: June 25, 2007
Location: Southeastern Granite City

Permit is hereby granted to the above-designated Permittee for an increase in the allowable production rate of iron (from 2,372,500 to 3,165,000 net tons per year) and steel (from 2,774,000 to 3,580,000 net tons per year) as described in the above-referenced application. This permit is subject to standard conditions attached hereto and the following special conditions:

1. Prior to issuance of this permit, a draft of this permit has undergone a public notice and comment period, and a public hearing was held.

BLAST FURNACE OPERATIONS

2a. Total combined production of hot metal (a.k.a., iron) from blast furnaces A and B shall not exceed 9,849 net tons per day, averaged over any calendar month, and;

b. Total combined production of hot metal from blast furnaces A and B shall not exceed 3,165,000 net tons per year.

3a. Particulate emissions from the blast furnace casthouse baghouse and iron spout baghouse shall not exceed 0.010 gr/dscf, pursuant to 35 Ill. Adm. Code 212.445(b)(1).

b. The opacity of emissions from the blast furnace casthouse baghouse and the iron spout baghouse shall not exceed 10% on a 6 minute rolling average basis, pursuant to 35 Ill. Adm. Code 212.445(b)(1).

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

4a. Emissions of particulate matter from any opening in the blast furnace casthouse shall not exceed 20% opacity on a 6-minute rolling average basis beginning from initiation of the opening of the tap hole up to the point where iron and slag stops flowing in the troughs, pursuant to 35 Ill. Adm. Code 212.445(a)(2).

5. Emissions from Blast Furnace operations shall not exceed the limits in attached Tables 1 and 5.

BASIC OXYGEN FURNACE SHOP

6a. Total combined production of liquid steel from the Basic Oxygen Furnaces (BOFs) shall not exceed 11,000 net tons per day, averaged over any calendar month, and;

b. Total combined production of liquid steel from the BOFs shall not exceed 3,580,000 net tons per year.

7. The emissions of PM-10 from the BOF ESP stack for the total of all BOF processes (i.e., operations from the beginning of the charging process through the end of the tapping process) shall not exceed 60.0 lbs/hr and 0.225 lbs per ton of steel in process, pursuant to 35 Ill. Adm. Code 212.458(b)(23).

8. Visible emissions from any opening in the BOF shop (e.g., roof monitor) shall not exceed 20% on a 3 minute rolling average basis.

9a. The Permittee shall determine the opacity from the openings BOF shop on at least a weekly basis. Observations shall be conducted for at least an hour or the entire BOF cycle, whichever is greater.

b. The Permittee shall determine the opacity from the BOF ESP stack for at least one hour on any normal work day (i.e., Monday through Friday) that the continuous opacity monitor on the BOF ESP stack has an outage that exceeds two consecutive hours and is still down. The readings shall commence as soon as possible after the opacity monitor has been down for two consecutive hours. If meteorological conditions or lack of visibility preclude these observations from being conducted, then this shall be noted in the log book.

c. The opacity shall be determined in accordance with the observation procedures set out in 40 CFR Part 60, Appendix

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

A, Method 9 including the requirement that readings be taken by a certified observer.

d. These determinations shall be recorded in a log book, which at a minimum shall include the date and time of observations, name and title of observer, individual opacity readings, calculated opacity so as to determine compliance with Section 212.123, and calculated opacity relative to 20% opacity on a three minute rolling average basis.

10. The Permittee shall follow the BOF operating procedures and requirements specified in attachment A. These requirements are designed to ensure proper operation of the BOF control system. These procedures shall be posted in the BOF pulpit (a.k.a., control room).

11. Flame suppression shall be used and maintained during the entire tapping process.

12a. The stack gas pulpit set point of the BOF ESP control system shall be set in accordance with the following, so as to establish sufficient particulate matter capture efficiency of the charging and primary hoods:

i. Set point requirements while only a single BOF vessel is in operation;

A. Minimum set point during charging process: 550,000 cfm;

B. Minimum set point during refining process: 650,000 cfm;

C. Minimum set point during tapping process: 200,000 cfm (until one minute after completing alloy addition);

b. i. During dual operation of BOF vessels (a.k.a., overlapping BOF operation) the minimum set point shall be 700,000 cfm.

iii. Overlapping operations of the BOF vessels is allowed under the following conditions:

A. The hot metal charge of the second vessel shall be initiated and completed during the time between completion of the blow and start of tap on the first vessel while sufficient

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

draft at the ESP capture system is established and maintained for both vessels.

B. The charge and/or blow on one vessel shall not begin until sufficient draft has been established at the associated ESP capture system (a.k.a., doghouse) and the alloy addition at the vessel tapping has been completed for a least 1 minute.

C. Sufficient draft at the ESP capture system of the vessel being tapped shall be maintained for at least 1 minute after alloy addition has been completed. After such period, the capture system draft may be transferred over to the other vessel in order to satisfy condition (A) above.

D. Only overlapping of the hot metal charge of the second vessel after the end of blow and prior to onset of tap of the first vessel and overlapping of tapping of the first vessel, after alloy addition, and the hot metal charge and/or blow on the second vessel are allowed.

E. Condition B and C above shall be part of the Standard Operating Procedure (SOP) of the BOF vessels.

c. The BOF capture system shall be operated at the above minimum set points until and unless the Agency approves a lower minimum set point based on a demonstration that a better level of particulate matter control will occur, except for purposes of emissions testing as related to the set point.

d. The Permittee shall calibrate, operate, and maintain a continuous strip chart recorder of the ESP stack gas flow rate as measured by the stack gas flow meter during ESP use.

e. The Permittee shall record for each steel production cycle the various stack gas flow rates for each process (i.e., for each charge, each refine, each tap) of each steel production cycle. That is, the Permittee shall be able to distinguish the measured flow rate of stack gas during each production cycle.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

f. The stack gas flow meter shall be calibrated on at least a quarterly basis.

13a. The Permittee shall operate and maintain the waste gas suction monitor system that continually measures and records for each process (i.e., for each charge, each refine, each tap) of each steel production cycle the static pressure in the main downcommer duct of the ESP emissions capture and transport system.

b. The waste gas suction monitoring system shall be used as a mechanism to ensure sufficient draft is maintained in the emissions capture hoods and transport ducts so as to maximize emissions capture and transport and minimize uncaptured emissions and emission leaks.

c. The monitoring system shall be operated and maintained to ensure accurate and useful data.

d. The Permittee shall continuously record the static pressure in the main downcommer duct of the ESP emissions capture and transport system.

14a. The Permittee shall visually inspect at least monthly all visible BOF vessel enclosures, hooding and ducts used to capture and transport emissions for the BOF ESP control system.

b. A log shall maintained of these inspections which includes observations of the physical appearance of the capture system and any noted deficiencies (e.g., the presence of any holes in ductwork or hoods, flow constrictions caused by dents or accumulated dust in ductwork, and fan erosion).

c. Any leaks or areas otherwise noted to be in need of repair, shall be repaired as soon as practicable.

15a. The Permittee shall operate, maintain, and repair the BOF ESP in a manner that assures compliance with the conditions of this permit.

b. An adequate inventory of spare parts for the BOF ESP shall be maintained.

16. Written operating procedures for the BOF ESP shall be maintained and updated describing proper normal process and equipment operating parameters, monitoring and instrumentation for measuring control equipment operating

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

parameters, control equipment inspection and maintenance practices, and the availability of spare parts from inventory, local suppliers and other sources.

17. The Permittee shall keep operating records, a maintenance log, and inspection log for the BOF ESP and associated control systems which includes the following:

a. Operating time of the BOF;

b. Operating time of the capture systems and performance parameters, including air flow and fan amperage through the fan motors, gas temperature at inlet to ESP, damper settings, and steam injection rate;

c. Operating time of the ESP and performance parameters, including voltage and amperage of each transformer/rectifier set, number of sections in use;

d. All routine and nonroutine maintenance performed, including dates and duration of outages, inspection schedule and findings, leaks detected, repair actions, and replacements.

18. Emissions from the BOF Shop shall not exceed the limits in attached Tables 2 and 5.

Note: For purposes of this permit, a BOF cycle is defined as the period from the beginning of the charging process through the end of the tapping process. The cycle is comprised of three main processes which are charging, refining, and tapping.

CONTINUOUS CASTING OPERATIONS

19. The continuous casting operations shall comply with 35 Ill. Adm. Code 212.450 and 212.458(b)(8).

20. Emissions from the continuous casting operations shall not exceed the limits in Tables 3 and 5.

FUEL COMBUSTION

21. Total fuel usage for blast furnace stoves (A and B), boiler house boilers (1-10), blast furnace boilers (11 and 12), ladle drying preheaters and blast furnace gas flares shall not exceed the following limits:

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

a. Natural Gas usage: 225 million ft^3 per month and 1,346 million ft^3 per year;

b. Blast Furnace Gas (BFG) usage: 30,800 million ft^3 per month and 185,030 million ft^3 per year;

c. Fuel Oil usage: 60 thousand gallons per month and 365 thousand gallons per year.

22. Emissions from the fuel combustion units listed above shall not exceed the limits in Tables 4 and 5.

ON-SITE FUGITIVE DUST CONTROL

(Refer to Attachment B for a table which summarizes the required on-site fugitive dust roadway control measures and maps indicating the referred to road segments)

23. The Permittee shall immediately initiate and maintain the on-site fugitive dust control measures specified in this permit so as eliminate dust spillage on in-plant and out-of-plant roadways.

24a. The Permittee shall sweep or flush at least every day the paved access area below the BOF ESP where ESP dust collection bags are used, stored and transported.

b. The Permittee shall implement a housekeeping program for the non-roadway areas below and around the BOF ESP. This program shall, at a minimum, contain the following:

i. The ground and other accessible areas where dust may gather shall be swept or cleaned at least every day;

ii. Cleaning shall be performed in such a manner as to minimize the escape of dust into the atmosphere;

iii. Dust collection bags shall be inspected at least daily for rips, tears, or insecure connection to the discharge chutes of the ESP hoppers;

iv. Dust collection bags shall be inspected after removal from, and connection to, the discharge chutes of the ESP hoppers;

v. Ripped or torn bags shall be taken out of service and transported as soon as practicable in a covered truck.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

25. Fugitive emissions of particulate matter from any roadway or parking area shall not exceed an opacity of 5%, pursuant to 35 Ill. Adm. code 212.316(e)(1).

26a. UNPAVED ROADS: On unpaved roads that are part of normal traffic patterns as identified in attachment B (including roads B, C, E, N, F-F, and CS(2)) the Permittee shall apply a chemical dust suppressant at least three times a month, with the following exceptions:

i. Road segment G-G, which shall be sprayed at least quarterly;

ii. Road segments P, V, Z, D-D, E-E, and H, which shall be sprayed at least 4 times per month until paving is completed. Paving shall be completed on these roads no later than July 31, 1996;

iii. Road segment L, which shall be sprayed at least 4 times per month.

b. All other unpaved roads shall be treated as necessary.

c. Applications of suppressant may be less frequent than specified above if weather conditions, i.e., precipitation or temperature, interfere with the schedule for spraying, provided each such instance shall be recorded in accordance with the daily records for on-site fugitive dust control required by this permit.

27a. PAVED ROADWAYS AND AREAS: Paved roadways and areas shall be maintained in good condition.

b. On paved roadways and other areas, the Permittee shall sweep or flush as follows:

i. Road segments D, K, M, F, G, J, R, and O shall be swept or flushed at least daily;

ii. Road segments P, V, W, X, Z, D-D, E-E, and CS(1) shall be swept or flushed at least five days per week;

iii. Road segments S and T shall be swept or flushed at least every other day;

iv. Road segments A and H shall be swept or flushed at least once per month;

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

v. All gate areas leading from the Steelworks area shall be swept or flushed at least daily;

vi. All gate areas leading from the iron making area shall be swept or flushed at least five times per week.

28. The above on-site dust control measures shall be conducted to maximize their effectiveness by performing said measures when the roads or areas are not normally obstructed by parked vehicles and by preferentially using filter sweeping (e.g., Enviro-Whirl sweeper) for the gate areas, the roads and areas surrounding the BOF and BOF ESP, and other key areas.

29. The Permittee shall maintain daily records relative to the on-site fugitive dust control program which includes the following information as a minimum:

a. The date (and time for the gate areas) each road or area was treated;

b. The manner in which the road or area was treated (i.e., filter sweep, conventional sweep, suppressant spray or flush);

c. Detailed information for use of dust suppressant, including but not limited to the application rate, dilution ratio, type of suppressant used, and the number of gallons of suppressant applied;

d. Observations, if any, concerning the condition of the roadway, e.g., presence of parked vehicles, detection of potholes;

e. The amount of precipitation and temperature recorded for each day, and if determination was made to suspend application of suppressant, include name and title of person who made determination to suspend application and explanation;

f. Any and all suspensions or deviations from the designated control procedures, with date, description, and explanation for suspension of application.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

OFF-SITE FUGITIVE DUST CONTROL

30. The Permittee or the Permittee's Agent shall sweep or flush the following Granite City street road areas:

a. At least weekly, the quarter mile segment of Madison Avenue in front of the 16th street gate (i.e., 1/8 of a mile in either direction);

b. At least weekly, segment of 20th street between Lee and Quincy roads;

c. At least monthly, segment of 20th street between Madison and Route 203 (a.k.a. Edwardsville Road).

PM-10 CONTINGENCY MEASURES

31. The Permittee shall comply with the additional control measures (e.g., PM-10 contingency plan) required by 35 Ill Adm. Code Part 212 Subpart U.

COMPLIANCE DETERMINATIONS

32a. Compliance with the daily limits of this permit shall be determined from a monthly total of the relevant daily data divided by the number of days in the month.

b. Compliance with the monthly limits of this permit (e.g., fuel usage) shall be determined by direct comparison of monthly data to the applicable limit.

c. i. Compliance with the annual limits of this permit shall be determined based on a calendar year.

ii. A. Compliance with the production limits in conditions 2(b) and 6(b) shall also be determined on a month by month basis by showing that the actual production of iron and steel from the plant did not exceed the scheduled rate of production for a month given in the most recent production schedule provided to the Agency that shows compliance with the following requirements.

B. If no production schedule is submitted to the Agency by the Permittee for a particular year, the scheduled monthly production of iron and steel shall be set at one twelfth of the

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

annual production limits in conditions 2(b) and 6(b).

C. 1. The Permittee may submit a schedule for iron and steel production for each month of the calendar year. Such schedule shall provide the scheduled monthly iron and steel production for each month and the total of such scheduled production shall not exceed the annual production limits in conditions 2(b) and 6(b). This schedule shall be submitted each year no later than December 15th of the preceding year.

2. During the course of the year, the Permittee may submit a revised production schedule which accounts for actual production levels which were below that scheduled for the previous months, provided that in no case shall the scheduled production for prior months in such a revised schedule be lowered to less than actual production levels or raised. Such revised schedule shall be submitted to the Agency no later than 15 days after the first day of the month for which scheduled production has been raised. Such schedule shall be accompanied by data on actual production in preceding months.

33a. Compliance with opacity limits and measurements of opacity shall be made by opacity readings taken in accordance with the observation procedures set out in 40 CFR Part 60, Appendix A, Method 9.

b. The Permittee shall have at least two employees or agents experienced in making opacity readings to the extent that it is reasonably possible to do so, who shall be able to make the opacity readings required by this permit.

34a. Blast furnace hot metal production shall be measured at the BOF hot metal transfer station, and adjusted by documented slag and iron losses.

b. BOF liquid steel production shall be initially measured by a scale equipped crane and adjusted based upon documented steel production analysis of the continuous casters.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

c. BFG usage shall be calculated based on the total BFG produced per net ton hot metal (NTHM) derived by the following formula and adjusted per analysis of documented BFG consumptions:

$$\text{mmft}^3 \text{ BFG per month} = \frac{(4.585277 \text{ NTHM/day} + 498.191)}{80} \times \begin{pmatrix}\text{Number of} \\ \text{days in} \\ \text{that month}\end{pmatrix}$$

d. Natural gas usage shall be determined by metered volumes.

e. Fuel oil usage shall be determined by tank height differentials.

RECORD KEEPING

35. The Permittee shall keep records of the following items and such other items which may be appropriate to allow the Agency to review compliance:

a. Blast Furnace hot metal production (total combined daily, monthly and annual in tons), including documentation on iron and slag losses;

b. BOF liquid steel production (total combined daily, monthly and annual in tons), including documentation on adjustments made due to production analysis and losses;

c. Fuel usage as follows; Usage of natural gas and BFG (total combined million ft^3 per month and year, each) and fuel oil (total combined gallons/month and year) for the blast furnace stoves (A and B), boiler house boilers (1-10), blast furnace boilers (11 and 12), ladle drying preheaters and blast furnace gas flares.

36. All records and logs required by this permit shall be retained at a readily accessible location at the source for at least three years from the date of entry and shall be made available for inspection and copying by the Agency and USEPA upon request. Any records retained in a computer shall be capable of being retrieved and printed on paper during normal source office hours so as to be able to respond to an Agency request for records during the course of a source inspection.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

TESTING

37. The special conditions of this permit supplement the special conditions of any existing operating permits for this source, and supersede such conditions in cases where a conflict exists.

38a. The following tests shall be performed by no later than August 6, 1997 to demonstrate compliance with the conditions of this permit.

i. Fuel Combustion Units testing: The emissions of particulate matter from boiler #12 while burning blast furnace gas shall be measured. This test shall be designed to verify compliance with the requirements of this permit and the emission factor used (i.e., 2.9 lbs particulate emitted per mmcf BFG burned);

b. The test shall be performed by an approved independent testing service during conditions which are representative of maximum emissions and at the maximum production rates allowed, or as close to such rates as reasonable if the Permittee demonstrates to the Agency prior to testing that testing at such production rates within the time constraints of an Agency request to test is not practicable.

c. i. The following methods and procedures shall be used for the testing, unless another method is approved by the Agency: Refer to 40 CFR 60, Appendix A for USEPA test methods;

Location of sample points	USEPA Method 1
Gas flow and velocity	USEPA Method 2
Particulate Matter	USEPA Method 5

ii. All particulate measured shall be considered PM-10 unless emissions are tested by an appropriate USEPA test method for measurement of PM-10, as specified in 35 Ill. Adm. Code 212.110(e).

d. At least 30 days prior to the actual date of testing, a written test plan shall be submitted to the Agency for review and approval. This plan shall be describe the specific procedures for testing, including as a minimum:

i. The persons who will be performing sampling and analysis and their experience with similar tests;

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

ii. The specific conditions under which testing will be performed including a discussion of why these conditions will be representative of maximum emissions and the means by which operating parameters for the source and the emissions capture and control system will be determined;

iii. The specific determinations of emissions and operation which are intended to be made, including sampling and monitoring locations;

iv. The test methods which will be used, with the specific analysis methods;

v. Any proposed use of an alternative test method, with detailed justification;

vii. The format and content of the Source Test Report.

e. The Agency shall be notified before these tests to enable the Agency to observe these tests. Notification for the expected date of testing shall be submitted a minimum of thirty (30) days prior to the expected date. Notification of the actual and expected time of testing shall be submitted a minimum of five (5) working days prior to the actual date of the test. The Agency may at its discretion accept notifications with shorter advance notice provided that the Agency will not accept such notifications if it interferes with the Agency's ability to observe testing.

f. The Final Report of these tests shall include as a minimum:

i. A tabular summary of results which includes:

- Process weight rate and/or fuel usage rate
- Production rate
- Allowable emission limit
- Measured emission rate
- Determined emission factor
- Compliance demonstrated - Yes/No
- Any other pertinent information

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

ii. Description of test methods and procedures used, including description of sampling train, analysis equipment, and test schedule;

iii. Detailed description of test conditions, including,

- Pertinent process information (e.g. fuel or raw material consumption)

- Control equipment information, i.e. equipment condition and operating parameters during testing;

iv. Data and calculations, including copies of all raw data sheets and records of laboratory analyses, sample calculations, and data on equipment calibration;

g. Copies of the Final Report for these tests shall be submitted to the Agency within 14 days after the test results are compiled and finalized.

h. Submittals of information shall be made as follows:

i. Notice of Test - one copy to Source Emission Test Specialist, one copy to Regional Office, and one copy to Permit Section;

ii. Final Report - one copy to Source Emission Test Specialist, one copy to Regional Office, and one copy to Permit Section.

Pertinent Addresses are:

Illinois Environmental Protection Agency
Division of Air Pollution Control
9511 West Harrison
Des Plaines, Illinois 60016

Illinois Environmental Protection Agency
Division of Air Pollution Control
Regional Office
2009 Mall Street
Collinsville, Illinois 62234

Illinois Environmental Protection Agency
Division of Air Pollution Control
Attn: Permit Section
P.O. Box 19506

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Springfield, Illinois 62794-9506

REPORTING

39. If there is an exceedance of the requirements of this permit as determined by the records required by this permit, the Permittee shall submit a report to the Agency's Compliance Unit in Springfield, Illinois within 30 days after the exceedance. The report shall include the emissions released in accordance with the record keeping requirements, a copy of the relevant records, and a description of the exceedance or violation, cause of the exceedance, and efforts to reduce emissions and future occurrences. This report shall be sent to:

Illinois EPA
Bureau of Air
Compliance Section (#40)
P.O. Box 19276
Springfield, Illinois 62794-9276

40. The Permittee shall submit the following additional information from the prior calendar year with the Annual Emissions Report, due May 1st of each year:

a. Iron and steel production (tons/month and tons/yr, each);

b. Natural gas and BFG usage ($mmft^3$/month and $mmft^3$/yr, each);

c. Fuel oil usage (thousand gallons/month and thousand gallons/yr, for each type of oil).

APPLICABILITY OF MAJOR SOURCE RULES

41a. As a consequence of the above conditions, this permit is issued based upon the following changes in emissions, as further described in Table 6, accompanying increased production as allowed by this permit:

i. The increases in emissions of lead and VOM are not significant under 35 Ill. Adm. Code Part 203 or 40 CFR 52.21 - Prevention of Significant Deterioration;

ii. The increase in emissions of NO_x are being accompanied by contemporaneous emission decreases provided by the shutdown of equipment and operations such that the net emissions change is not significant under 35 Ill.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Adm. Code Part 203 or 40 CFR 52.21 - Prevention of Significant Deterioration.

iii. The increase in emissions of PM and PM-10 are being accompanied by contemporaneous emission decreases provided by additional road dust control and BOF capture and control such that the net emissions change is not significant under 35 Ill. Adm. Code Part 203 or 40 CFR 52.21 - Prevention of Significant Deterioration.

Also, the Permittee has agreed to provide further additional dust control consisting of the sweeping of Granite City public streets and housekeeping measures in the area below and surrounding the BOF ESP. Attachment C is a listing of the emission reductions provided by these control measures.

b. The increases in emissions of SO_2 and CO are significant under 40 CFR 52.21 - Prevention of Significant Deterioration (PSD). Accordingly, the project is considered a major modification and must comply with the requirements of PSD. These requirements include a demonstration of best available control requirements for affected SO_2 and CO emission units, an analysis of air quality impacts, an analysis of the impacts of the project on visibility, vegetation's and soils, and the application and proposed permit must undergo a public participation. The Agency has determined that these additional requirements have been met.

c. The changes in emissions pertinent to this project are summarized as follows:

Units = tons/year

- Emission increases which could occur from the project:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
51.6	- 52.0	238.8	476.0	5,685	59.3	0.54

- Creditable contemporaneous actual emission decreases:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
58.0	58.0	226.5	0.38	23.31	32.8	0.0

- Other contemporaneous emission increases:

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
20.7	20.3	26.0	0.25	11.8	1.6	0.0

- Net emission changes:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
+14.3	-89.2	+38.3	+475.9	+5,673	+28.1	+0.54

- Significant Levels:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
15	25	40	40	100	40	0.6

d. This revised operating permit issued January 5, 1999 is issued such that the net increase in emissions of PM, PM_{10}, SO_2, NO_x and VOM resulting from increased natural gas combustion are not significant under 35 Ill. Adm. Code Part 203 or 40 CFR 52.21 - Prevention of significant Deterioration. The accounting of the increases in emissions are shown in Tables 7, 8 and 9 of the attachments.

e. The changes in emissions pertinent to the revised operating permit issued January 5, 1999 are summarized as follows:

- Emission increase from increased natural gas combustion:

PM-10	PM	NO_x	SO_2	CO	VOM
3.43	3.43	205.94	0.40	26.92	1.88

- Natural gas combustion baseline emissions (average of 1996 and 1997 actuals):

PM-10	PM	NO_x	SO_2	CO	VOM
2.9	2.9	174.11	0.34	22.76	1.59

- Net emission changes:

PM-10	PM	NO_x	SO_2	CO	VOM

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

0.53	0.53	31.83	0.06	4.16	0.29

- Significant levels:

PM-10	PM	NO_x	SO_2	CO	VOM
15	25	40	40	100	40

Explanatory Note:

PM	=	Particulate matter = particulate;
PM-10	=	Particulate matter less than or equal to 10 micrometers in size;
SO_2	=	Sulfur dioxide;
NO_x	=	Nitrogen oxides;
VOM	=	Volatile organic material;
CO	=	Carbon monoxide;
mm	=	Million;
gr/dscf	=	Grains per dry standard cubic foot;
acfm	=	Actual cubic feet per minute;
mmcf	=	Million cubic feet;
Mgal	=	Thousands of gallons.

If you have any questions on this permit, please call Kevin Smith at 217/782-2113.

Donald E. Sutton, P.E.
Manager, Permit Section
Division of Air Pollution Control

DES:KLS:jar

cc: IEPA, FOS Region 3

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

TABLE 1

BLAST FURNACE OPERATIONS

Maximum Hot Metal Production = 3,165,000 net tons per year

1. Casthouse Baghouse (furnace tapping)- captured emissions ducted to baghouse, uncaptured emissions emitted through roof, other openings, etc.

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.0703	111.19
PM-10	0.0703	111.19
SO_2	0.2006	422.0
NO_x	0.0144	22.79
VOM	0.0946	149.68

2. Blast Furnace - Uncaptured fugitives

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.031	49.06
PM-10	0.0155	24.53
SO_2	0.0104	21.94
NO_x	0.0007	1.14
VOM	0.0047	7.42

3. Blast Furnace Charging
Maximum pellets charged = 4,308,581 tons/yr

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.0024	5.17
PM-10	0.0024	5.17

4. Slag Pits

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00417	6.60
PM-10	0.00417	6.60
SO_2	0.0100	15.83

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

5. Iron Spout Baghouse- captured emissions controlled by iron spout baghouse.

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.02548	40.32
PM-10	0.02548	40.32
SO_2	0.0073	13.89

6. Iron Pellet Screen
Maximum pellets charged = 4,308,581 tons/yr

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00279	6.01
PM-10	0.00279	6.01

2. TABLE 2

BOF SHOP

Maximum Liquid Steel Production = 3,580,000 net tons per year

1. BOF ESP Stack (charge, refine, tap)

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.16	262.80
PM-10	0.16	262.80
NO_x	0.0389	69.63
VOM	0.0060	10.74
CO	8.993	16,097.47
Lead	0.1934 lbs/hr	1.26 tons/yr

2. BOF Roof Monitor

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.0987	176.71
PM-10	0.06614	118.40
Lead	0.0129 lbs/hr	0.08 tons/yr

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

3. Desulfurization and Reladling - Hot Metal Transfer

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.03721	58.88
PM-10	0.03721	58.88
VOM	0.0010	1.58
Lead	0.0133 lbs/hr	0.09 tons/yr

4. BOF Additive System (i.e., fluxes) with Baghouse, a.k.a., BOF hopper baghouse

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00032	0.57
PM-10	0.00032	0.57

5. Flux conveyor & transfer pits, bin floor

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.0016	2.86
PM-10	0.0016	2.86

6. Hot metal charging ladle slag skimmer

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.0050	7.94
PM-10	0.0050	7.94

3. TABLE 3

CONTINUOUS CASTING OPERATIONS

Maximum Liquid Steel Throughput = 3,580,000 net tons per year

1. Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy)

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00715	12.80
PM-10	0.00715	12.80

2. Deslagging Station and Material HS.

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00355	6.35
PM-10	0.00355	6.35

3. Caster Molds - Casting

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.006	10.74
PM-10	0.006	10.74
NO_x	0.050	89.50

4. Casters Spray Chambers

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00852	15.25
PM-10	0.00852	15.25

5. Slab Cut-off

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.0071	12.71
PM-10	0.0071	12.71

6. Slab Ripping

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00722	12.92
PM-10	0.00722	12.92

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

TABLE 4

CERTAIN FUEL COMBUSTION UNITS

1. 10 boilers (#'s 1 - 10)
2. 2 boilers (#'s 11 - 12)
3. Blast Furnace Stoves A & B.
4. BFG Flares
5. Ladle Drying Preheaters (5 heaters).

Total combined fuel usage from affected units (i.e., Boilers, BF stoves, BF Flares, ladle drying preheaters)

	Maximum Usage ($mmft^3$/Yr)
NATURAL Gas (Total)	1,346
BFG	185,030
Fuel Oil	365 thousand gallons/yr

1. Natural Gas

Pollutant	Emission Factor (Lbs/mmcf)	Maximum Emissions (Tons/Yr)
PM	5.1	3.43
PM-10	5.1	3.43
SO_2	0.6	0.40
NO_x	306	205.94
VOM	2.8	1.88
CO	40	26.92

2. BFG

Pollutant	Emission Factor (Lbs/mmcf)	Maximum Emissions (Tons/Yr)
PM	2.9	268.29
PM-10	2.9	268.29
SO_2	6.65	615.22
NO_x	5.28	488.48
CO	13.7	1,267.46

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

3. Fuel Oil

Pollutant	Emission Factor (Lbs/Mgal)	Maximum Emissions (Tons/Yr)
PM	9.72	1.77
PM-10	9.72	1.77
SO_2	141.3	25.79
NO_x	55	10.04
VOM	0.28	0.05
CO	5.0	0.91
Lead	0.336	0.06 (waste oil)

4. TABLE 5

LIMITS ON EMISSIONS FROM MAJOR PROCESSES AND ACTIVITIES

Units = tons/year

	PM	PM-10	SO_2	NO_x	VOM	CO	Lead
Blast Furnace Operations	218	194	474	24	157	----	---
BOF Shop	510	451	---	70	12	16,097	1.43
Continuous Casting Operations	71	71	---	90	---	----	---
Certain Fuel Combustion Units[A]	274	274	641	706	2	1,295	0.06
Roadways	27	27	---	---	---	----	---
Material Handling	2	2	---	---	---	----	---
Total	1,102	1,019	1,115	890	171	17,392	1.49

[A] Blast furnace stoves (A and B), boiler house boilers (1-10), blast furnace boilers (11 and 12), ladle drying preheaters and blast furnace gas flares.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

TABLE 6

EMISSIONS SUMMARY

Units = tons/year

- Emission increases which could occur from the project:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
51.6	-52.0	238.8	476.0	5,685	59.3	0.54

- Creditable contemporaneous actual emission decreases:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
58.0	58.0	226.5	0.38	23.31	32.8	0.0

- Other contemporaneous emission increases:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
20.7	20.3	26.0	0.25	11.8	1.6	0.0

- Net emission changes:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
+14.3	-89.2	+38.3	+475.9	+5,673	+28.1	+0.54

- Significant Levels:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
15	25	40	40	100	40	0.6

TABLE 7

Change in Emissions from Increased Natural Gas Combustion

Baseline Emissions (Average of 1996 and 1997 Actuals)

Pollutant	Emissions (Tons/Yr)
PM	2.9
PM-10	2.9
SO_2	0.34

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

NO_x	174.11
VOM	1.59
CO	22.76

Potential Emissions from Natural Gas Usage of 1,346 $mmft^3/Yr$

Pollutant	Emissions (Tons/Yr)
PM	3.43
PM-10	3.43
SO_2	0.40
NO_x	205.94
VOM	1.88
CO	26.92

Net Emission Change

Pollutant	Emissions (Ton/Yr)	Significant Emissions Level (Tons/Yr)
PM	0.53	25
PM-10	0.53	15
SO_2	0.06	40
NO_x	31.83	40
VOM	0.29	40
CO	4.16	100

KLS:jar

TABLE 8

1996 Actual Emissions from Natural Gas Usage of 1,131 $mmft^3/Yr$

Pollutant	Emissions (Tons/Yr)
PM	2.88
PM-10	2.88
SO_2	0.34
NO_x	173.04
VOM	1.58
CO	22.62

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

TABLE 9

1997 Emissions from an Allowable Natural Gas Usage of 1,145 $mmft^3/Yr$

Pollutant	Emissions (Tons/Yr)
PM	2.92
PM-10	2.92
SO_2	0.34
NO_x	175.19
VOM	1.60
CO	22.9

KLS:jar

ATTACHMENT A

PROCEDURES TO ENSURE PROPER OPERATION
OF BOF ESP CONTROL SYSTEM

1. The emissions control operator shall:

   a. Check on a regular basis and report to the emissions control foreman or melter:

      i. Any ESP fields down;

      ii. Any ESP fields in which the meter readings are showing no current or a fault;

   b. Check on a regular basis that doors on all hopper screws are closed;

   c. Inspect on a regular basis the fans and motors for unusual sounds and/or visual problems. Any abnormalities will be immediately reported to the melter or maintenance foreman for investigation.

2. The melter shall:

   a. Check on a regular basis and report to the emissions control foreman or the area electrician any fields which the pulpit precipitator field short indicators shows as having a short and is able to reset;

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

b. Check on a regular basis and report to the emissions control foreman or the maintenance foreman any draft or fan problems;

c. Check the ESP stack opacity monitor on a regular basis and initiate the following in the event that the stack opacity level, as determined by the opacity monitor, exceeds 30% opacity on a six minute average:

i. Check the pulpit indicators for proper operation of the steam and spray water system. Report any problems to emission control foreman or maintenance foreman;

ii. Check the stack gas pulpit set point for proper setting;

iii. Call the emissions control operator who shall perform the following steps;

A. Check the AVC operation and power level. Report any problems to electrical maintenance foreman or area electrician;

B. Check to ensure that doors on all hopper screws are closed;

d. Check oxygen blow rates and adjust, if necessary;

e. Check hot metal chemistry;

f. A log shall be maintained of the above checks and any actions taken as a result.

3. The emission control foreman shall:

a. Check on a regular basis the opacity monitor exceedances and trends. The control specialist shall be contacted to correct any problems;

b. Check on a regular basis the draft rate set points;

c. Check on a regular basis primary and secondary damper settings;

d. Check on a regular basis ESP operation, including the following:

i. Fields down;

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

ii. Fields indicating shorts and unable to reset;

iii. Hopper screw doors are closed;

e. Check on a regular basis blow rates;

f. Check on a regular basis spray water system operation;

g. Check on a regular basis steam injection rate;

h. Contact the area manager regarding electrical maintenance and to schedule the ESP repair work;

i. Contact the area manger for mechanical maintenance to schedule the isolation of the ESP channel by closing the inlet and outlet gates of that chamber and opening the top hatches for entry into the chamber;

j. Notify the emissions control operator and melter when isolation work begins;

k. A log shall be maintained of the above checks and any actions taken as a result.

4. The crane operator shall use the following procedures, as appropriate, to minimize emissions and maximize emissions capture by the hoods:

a. Use controlled pouring of the hot metal into the BOF vessel;

b. Use careful positioning of the hot metal ladle with respect to the hood face and furnace mouth;

c. Use the most beneficial furnace tilt angle;

d. These procedures shall be posted in the crane operator booth.

ATTACHMENT B

ON-SITE FUGITIVE DUST ROADWAY CONTROL MEASURES AND MAPS SHOWING THE ROAD SEGMENTS

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

APPENDIX C Emission Calculations

This appendix details the emission rate calculations utilized for the ambient air quality modeling conducted. The emission rates modeled are based on the potential to emit of various sources at the facility. The modeled emission rates are based on the maximum potential of each source to emit SO_2 taking into consideration permit limitations and physical limitations of each source.

Table C-1 details the existing and permitted (but not constructed) emission units at the Facility that have potential SO_2 emissions. Table C-1 also details the SO_2 emission limits in the SO_2 FESOP (Permit No. 94120017) and the Production Increase Permit (Permit No. 95010001). SO_2 limits detailed in the SO_2 FESOP Permit are limitations on COG combustion from specific units or groups of units. SO_2 emissions from combusting other fuels are not limited under the SO_2 FESOP permit. The Production Increase Permit limits SO_2 emissions from process emission units and fugitive emission points. SO_2 emission limits shown in Table C-1 for proposed sources such as the BFG boiler and the COG desulfurization system are based on either proposed emission rates or permit limitations for these sources.

Because SO_2 limits in the SO_2 FESOP do not include emissions from BFG or NG, modeled emission rates were adjusted up from the COG SO_2 limit to account for the maximum BFG or NG SO_2 emissions possible when burning more than one fuel. For all other units and all other averaging periods, modeled SO_2 emission rates were based on the maximum SO_2 emissions for that averaging period. Calculations for the modeled SO_2 emission rate for each emission unit are detailed below.

SO_2 emission rates were calculated utilizing the SO_2 emission factors detailed in Table C-2 and the heat capacities for the individual fuels (560 MMBtu/MMscf for COG, 80 MMBtu/MMscf for BFG, and 1000 MMBtu/MMscf for NG).

Table C- 1: Facility SO_2 Emission Limits

Stack Number	Description	Throughput	Maximum Design Rate	Design Rate Units	SO_2 Emission Limits		
					3-hour (lb/3-hr)	24-hour (lbs./day)	Annual (tpy)
BF0007S	BF A Stove	COG/BFG/NG	399.00	MMBtu/hr		19,774	3,609
BF0012S	BF B Stove	COG/BFG/NG	457.00	MMBtu/hr			
BF0011S	BFG Flare	BFG	720.00	MMBtu/hr			
BF0111S	BFG Flare 2	BFG	720.00	MMBtu/hr			
UT0053S	Boiler 1 to 7	COG/BFG/NG	420.00	MMBtu/hr		20,285	3,702
UT0054S	Boilers 8 to 10	COG/BFG/NG	180.00	MMBtu/hr			
UT0059S	Boiler 11	COG/BFG/NG	225.00	MMBtu/hr		20,584	3,756
UT0064S	Boiler 12	COG/BFG/NG	225.00	MMBtu/hr			
BP0097S	COG flare	COG	661.80	MMBtu/hr			
CO0071S	Battery A Underfire	COG/NG	175.00	MMBtu/hr			
CO0092S	Battery B Underfire	COG/NG	175.00	MMBtu/hr			
FIN0016S	HS Slab Furnace 1	COG/NG	322.00	MMBtu/hr	2,299	9,754	987
FIN0020S	HS Slab Furnace 2	COG/NG	322.00	MMBtu/hr			
FIN0024S	HS Slab Furnace 3	COG/NG	322.00	MMBtu/hr			
FIN0028S	HS Slab Furnace 4	COG/NG	380.00	MMBtu/hr		11,873	1,204
BF0010S	Casthouse Baghouse	Iron	9,849	tons per day		3,430	422
BF0150S	Ironspout Baghouse	Iron	9,849	tons per day		170	13.89
BOF0149S	Ladle Dryers	COG/NG	100.00	MMBtu/hr	555	2,786	509
CC0084S	Slab Cutting 1	NG	0.30	MMBtu/hr			
CC0145S	Slab Cutting 2	NG	0.30	MMBtu/hr			
CO0069S	Battery A Pushing	coke	454,000	tons per year			
CO0090S	Battery B Pushing	coke	454,000	tons per year			
BF008S	BF A Fugitives	Iron	4,925	tons per day			21.94
BF0013S	BF B Fugitives	Iron	4,925	tons per day			
BF0126S	Slagpits	Iron	9,849	tons per day			15.83
CC0073P	Slab Ripping	NG	3.11	MMBtu/hr			
Desulf	COG Desulfurization Unit	COG	25	MMcf/day			

Limits in red are from the SO2 FESOP (Permit No. 94120017)
Limits in blue are from the Production Increase Permit (Permit No. 95010001)

Table C-2: SO_2 Emission Factors

Unit Type	Throughput	SO_2 Emission Factor	Emission Factor Units
Combustion	COG	1230.00	lbs/MMscf
Combustion	BFG	16.00	lbs/MMscf
Combustion	NG	0.60	lbs/MMscf
Combustion	Desulfurized COG	177.54	lbs/MMscf
Casthouse Baghouse	Iron	0.20	lbs/ton
Coke Oven Pushing	Coke	0.10	lbs/ton
Iron Spout Baghouse	Iron	0.01	lbs/ton
Blast Furnace Production	Iron	0.01	lbs/ton
Slabcut	NG	0.60	lbs/MMscf
Slab Ripping	NG	0.60	lbs/MMscf
Slag Pits	Iron	0.01	lbs/ton

BF0007S – Blast Furnace 'A' Stoves

The BF Stoves utilize BFG, COG, and NG as fuels and have 24 hour and annual SO_2 limits. Modeled emission rates for the 3-hour averaging period are based on the maximum SO_2 emission rate. Emission rates for the 24-hour period are based on the COG limit for both Blast Furnace stove stacks divided by 2 and the potential BFG contribution at max COG. The annual rate is based on the potential emissions from desulfurized COG as a result of the reduced allowable emissions under the COG desulfurization permit.

Maximum Design Rate – 399 MMBtu/hour

Max. SO_2 emission rate = 399 * 1230 (lbs. SO_2 / MMscf) / 560 (MMBtu / MMscf) = 876.38 lbs. / hr.

24-hr emission rate (lbs./hour) = Limit (lbs./day) / 24 (hours/day) / 2 (stoves)+ {399-[limit/24/2(lbs/hour)*560 (MMBtu/MMscf) / 1230 (lbs/MMscf)]} * 16 lbs./MMscf / 80 (MMBtu/MMscf) = 411.96 + 42.35 = 454.31 lbs./hr

Annual emission rate (lbs./hour) = 399 (MMBtu / hour) * 177.54 (lbs/MMscf) / 560 (MMBtu/MMscf) = 126.50 lbs./hr

BF0012S – Blast Furnace 'B' Stoves

The BF Stoves utilize BFG, COG, and NG as fuels and have 24 hour and annual SO_2 limits. Modeled emission rates for the 3-hour averaging period are based on the maximum SO_2 emission rate. Emission rates for the 24-hour period are based on the COG limit for both Blast Furnace

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

stove stacks divided by 2 and the potential BFG contribution at max COG. The annual rate is based on the potential emissions from desulfurized COG as a result of the reduced allowable emissions under the COG desulfurization permit.

Maximum Design Rate – 457 MMBtu/hour

Max. SO_2 emission rate = 457 * 1230 (lbs. SO_2 / MMscf) / 560 (MMBtu / MMscf) = 1003.77 lbs. / hr.

24-hr emission rate (lbs./hour) = Limit (lbs./day) / 24 (hours/day) / 2 (stoves)+ {457-[limit/24/2(lbs/hour)*560 (MMBtu/MMscf) / 1230 (lbs/MMscf)]} * 16 lbs./MMscf / 80 (MMBtu/MMscf) = 411.96 + 53.95 = 465.91 lbs./hr

Annual emission rate (lbs./hour) = 457 (MMBtu / hour) * 177.54 (lbs/MMscf) / 560 (MMBtu/MMscf) = 144.89 lbs./hr

BF0011S & BF0111S – Blast Furnace Gas Flares

The BFG Flares combust excess BFG that can not be burned in BFG combustion units. The flares do not have any SO_2 limits except emissions from the second flare are limited to burning BFG not combusted by the BFG boiler (Cogen1). Modeled emission rates for all averaging periods are based on the maximum SO_2 emission rates for both flares and do not take into account limits on the second flare for simplicity reasons.

Maximum Design Rate – 720 MMBtu/hour

Max. SO_2 emission rate = 720 * 16 (lbs. SO2 / MMscf) / 80 (MMBtu / MMscf) = 144.00 lbs. / hr.

UT0053S – Boilers 1 through 7

Boilers 1 through 7 utilize BFG, COG, and NG as fuels and have 24-hour and annual SO_2 limits. Modeled emission rates for the 3-hour averaging period are based on the maximum SO_2 emission rate. Emission rates for the 24-hour period are based on the COG limit for Boilers 1 through 7 and 8 through 10 combined prorated based on 7 out of 10 boilers exhausting through this stack and the potential BFG contribution at max COG. The annual rate is based on the potential emissions from desulfurized COG as a result of the reduced allowable emissions under the COG desulfurization permit.

Maximum Design Rate – 420 MMBtu/hour (7 boilers @ 60 MMBtu / hour each)

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Max. SO_2 emission rate = 420 * 1230 (lbs. SO_2 / MMscf) / 560 (MMBtu / MMscf) = 922.50 lbs. / hr.

24-hr emission rate (lbs./hour) = Limit (lbs./day) / 24 (hours/day) / 10 (boilers)* 7 + {420-[limit/24*7/10 (lbs/hour)*560 (MMBtu/MMscf) / 1230 (lbs/MMscf)]} * 16 lbs./MMscf / 80 (MMBtu/MMscf) = 591.65+30.21 = 621.86 lbs./hr

Annual emission rate (lbs./hour) = 420 (MMBtu / hour) * 177.54 (lbs/MMscf) / 560 (MMBtu/MMscf) = 133.15 lbs./hr

UT0054S – Boilers 8 through 10

Boilers 8 through 10 utilize BFG, COG, and NG as fuels and have 24-hour and annual SO_2 limits. Modeled emission rates for the 3-hour averaging period are based on the maximum SO_2 emission rate. Emission rates for the 24-hour period are based on the COG limit for Boilers 1 through 7 and 8 through 10 combined prorated based on 3 out of 10 boilers exhausting through this stack and the potential BFG contribution at max COG. The annual rate is based on the potential emissions from desulfurized COG as a result of the reduced allowable emissions under the COG desulfurization permit.

Maximum Design Rate – 180 MMBtu/hour (3 boilers @ 60 MMBtu / hour each)

Max. SO_2 emission rate = 180 * 1230 (lbs. SO_2 / MMscf) / 560 (MMBtu / MMscf) = 396.00 lbs. / hr.

24-hr emission rate (lbs./hour) = Limit (lbs./day) / 24 (hours/day) / 10 (boilers)*3 + {180-[limit/24*3/10 (lbs/hour)*560 (MMBtu/MMscf) / 1230 (lbs/MMscf)]} * 16 lbs./MMscf / 80 (MMBtu/MMscf) = 253.56 + 12.95 = 266.51 lbs./hr

Annual emission rate (lbs./hour) = 180 (MMBtu / hour) * 177.54 (lbs/MMscf) / 560 (MMBtu/MMscf) = 57.07 lbs./hr

UT0059S & UT0064S – Boilers 11 & 12

Boilers 11 &12 utilize BFG, COG, and NG as fuels and have 24-hour and annual SO_2 limits. Modeled emission rates for the 3-hour averaging period are based on the maximum SO_2 emission rate. Emission rates for the 24-hour period are based on the COG limit for Boilers 11 & 12 combined divided by 2 and the potential BFG contribution at max COG. The annual rate is

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

based on the potential emissions from desulfurized COG as a result of the reduced allowable emissions under the COG desulfurization permit.

Maximum Design Rate – 225 MMBtu/hour

Max. SO_2 emission rate = 225 * 1230 (lbs. SO_2 / MMscf) / 560 (MMBtu / MMscf) = 494.20 lbs. / hr.

24-hr emission rate (lbs./hour) = Limit (lbs./day) / 24 (hours/day) / 2 boilers + {225 -[limit/24 (lbs/hour) / 2 (boilers) *560 (MMBtu/MMscf) / 1230 (lbs/MMscf)]} * 16 lbs./MMscf / 80 (MMBtu/MMscf) = 428.83 + 6.02 = 434.85 lbs./hr

Annual emission rate (lbs./hour) = 225 (MMBtu / hour) * 177.54 (lbs/MMscf) / 560 (MMBtu/MMscf) = 71.33 lbs./hr

NOTE: The second component of the 24-hr emission rate equation equals 5.95 as written, but appears as 6.02 due to rounding in the calculations.

BP0097S – COG Flare

Because more COG is accounted for in the modeling than can be combusted at any time at the GCW, no emissions are accounted for at the COG Flare.

CO0071S & CO0092S – Coke Oven Battery Underfire

Coke Oven Battery Underfire utilizes COG and a small amount of NG as fuels and has no SO_2 limits. Modeled emission rates for the short term (3-hour and 24-hour) averaging periods are based on the maximum SO_2 emission rate. Because the potential contribution of SO_2 from NG is less than 0.01 lbs./ hr for both batteries combined, emissions from NG are considered insignificant for this unit and excluded from the analysis. The annual rate is based on the potential emissions from desulfurized COG as a result of the reduced allowable emissions under the COG desulfurization permit.

Maximum Design Rate – 175 MMBtu/hour

Max. SO_2 emission rate = 175 * 1230 (lbs. SO_2 / MMscf) / 560 (MMBtu / MMscf) = 384.38 lbs. / hr.

Annual emission rate (lbs./hour) = 175 (MMBtu / hour) * 177.54 (lbs/MMscf) / 560 (MMBtu/MMscf) = 55.48 lbs./hr

FIN0016S, FIN0020S & FIN0024S – Hot Strip Slab Furnaces 1 through 3

Slab Furnaces 1 through 3 utilize COG and NG as fuels and have 3-hour, 24-hour and annual SO_2 limits. Modeled emission rates for the 3-hour, 24-hour and the annual averaging period are based on the COG limit for Hot Strip Slab Furnaces 1 through 3 combined divided by 3 and the potential NG contribution at max COG.

Maximum Design Rate – 322 MMBtu/hour

3-hr emission rate = Limit (lbs./3hrs) / 3 (hours/3hrs) / 3 furnaces + {322-[limit/3/3 (lbs/hour) * 560 (MMBtu/MMscf) / 1230 (lbs/MMscf)]} * 0.6 lbs./MMscf / 1000 (MMBtu/MMscf) = 255.44 + 0.12 = 255.56 lbs./hr

24-hr emission rate (lbs./hour) = Limit (lbs./day) / 24 (hours/day) / 3 furnaces + {322-[limit/24 (lbs/hour) / 3 * 560 (MMBtu/MMscf) / 1230 (lbs/MMscf)]} * 0.6 lbs./MMscf / 1000 (MMBtu/MMscf) = 135.47 + 0.16 = 135.63 lbs./hr

Annual emission rate (lbs./hour) = Limit (tpy) * 2000 (lbs./ton) / 8760 (hours/year) / 3 furnaces + {322-[limit*2000/8760 (lbs/hour) / 3 * 560 (MMBtu/MMscf) / 177.54 (lbs/MMscf)]} * 0.6 lbs./MMscf / 1000 (MMBtu/MMscf) = 75.11 + 0.05 = 75.16 lbs./hr

FIN0028S – Hot Strip Slab Furnace 4

Slab Furnace 4 utilizes COG and NG as fuels and has a 24-hour and an annual SO_2 limit. Modeled emission rates for the 3-hour and the 24-hour averaging period are based on the COG limit for Hot Strip Slab Furnace 4 and the potential NG contribution at the COG limit. The annual rate is based on the potential emissions from desulfurized COG as a result of the reduced allowable emissions under the COG desulfurization permit.

Maximum Design Rate – 380 MMBtu/hour

3-hr emission rate = 600 lbs./hour ***Note: This emission rate was set to ensure that the facility can comply with ambient air quality standards.***

24-hr emission rate (lbs./hour) = Limit (lbs./day) / 24 (hours/day) + {380-[limit/24 (lbs/hour) * 560 (MMBtu/MMscf) / 1230 (lbs/MMscf)]} * 0.6 lbs./MMscf / 1000 (MMBtu/MMscf) = 494.71 + 0.09 = 494.80 lbs./hr

Annual emission rate (lbs./hour) = 380 (MMBtu / hour) * 177.54 (lbs/MMscf) / 560 (MMBtu/MMscf) = 120.47 lbs./hr

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

BF0010S– Casthouse Baghouse

The Casthouse Baghouse controls emissions from Blast Furnace Casting operations on both 'A' and 'B' Blast Furnaces. The baghouse controls particulate emissions, however, because the casting operation emits SO_2, the baghouse emits SO_2 also. Modeled emission rates for all averaging periods are based on the annual Production Increase Permit emission rate limit for emissions from this unit. This limit was set based on the permitted maximum production rate for the blast furnaces and the emission factor in Table A-2.

SO_2 emission rate = 422 (tpy) * 2000 (lbs./ton) / 8760 (hrs/yr) = 96.35 lbs./hr.

BF0150S– Ironspout Baghouse

The Ironspout Baghouse controls emissions from Blast Furnace Casting operations on both 'A' and 'B' Blast Furnaces. The baghouse controls particulate emissions, however, because the casting operation emits SO_2, the baghouse emits SO_2 also. Modeled emission rates for all averaging periods are based on the annual Production Increase Permit emission rate limit for emissions from this unit. This limit was set based on the permitted maximum production rate for the blast furnaces and the emission factor in Table A-2.

SO_2 emission rate = 13.89 (tpy) * 2000 (lbs./ton) / 8760 (hrs/yr) = 3.17 lbs./hr.

BOF0149S– Ladle Drying Preheaters

The Ladle Drying Preheaters are combustion emission sources using COG and NG to heat iron ladles prior to use in the BOF. Emissions from the ladle dryers are based on the SO_2 limits in the SO_2 FESOP for the short term averaging periods. The annual rate is based on the potential emissions from desulfurized COG as a result of the reduced allowable emissions under the COG desulfurization permit.

Maximum Design Rate – 100 MMBtu/hour

3-hr emission rate (lbs./hour) = Limit (lbs./3-hr) / 3 (hours) + {100 -[limit/3 (lbs/hour) *560 (MMBtu/MMscf) / 1230 (lbs/MMscf)]} * 0.6 lbs./MMscf / 1000 (MMBtu/MMscf) = 185.00 + 0.01 = 185.01 lbs./hr

24-hr emission rate (lbs./hour) = Limit (lbs./day) / 24 (hours/day) + {100 -[limit/24 (lbs/hour) * 560 (MMBtu/MMscf) / 1230 (lbs/MMscf)]} * 0.6 lbs./MMscf / 1000 (MMBtu/MMscf) = 116.08 + 0.03 = 116.11 lbs./hr

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Annual emission rate (lbs./hour) = 100 (MMBtu / hour) * 177.54 (lbs/MMscf) / 560 (MMBtu/MMscf) = 31.70 lbs./hr

CC0084S & CC0145S– Slab Cutting

The Slab Cutting emission units are combustion emission sources using NG to cut slabs after casting. Emissions from the slab cutters are insignificant based on the use of NG and the very low design rate of the units.

SO_2 emission rate = 0.3 (MMBtu/hr) * 0. 6 (lbs./MMscf) / 1000 (MMBtu/MMscf) = 0.00018 lbs./hr.

CO0069S & CO0090S – Coke Oven Battery Pushing Operations

Coke Oven Battery Pushing Operations consist of the pushing of hot coke from the battery into the quench car for travel to the quench tower. SO_2 emissions are released during the pushing operation as fugitives. Modeled emission rates for all averaging periods are based on the maximum coal processing rate and an older draft AP-42 emission factor for SO_2 from pushing shown in Table A-2. It should be noted that AP-42 no longer reports an SO_2 emission factor for pushing operations and the use of this factor should therefore be considered a conservative estimate.

Maximum Design Rate – 454,000 tons of coal per year per battery

Max. SO_2 emission rate = 454000 (tpy) / 8760 (hrs/yr) * 0.1 (lbs. SO2 / ton coal) (MMBtu / MMscf) = 5.18 lbs. / hr.

BF0008S & BF0013S – Blast Furnace Casting Fugitives

The Blast Furnace Casting Fugitives includes the uncontrolled casting emissions. Modeled emission rates for all averaging periods are based on the annual SO_2 limits for casting fugitives contained in the Production Increase Permit divided between the two Blast Furnaces.

Annual SO_2 limit from casting fugitives = 21.94 tpy

Max. SO_2 emission rate = 21.94 (tpy) * 2000 (lbs. / ton) / 8760 (hrs / yr) / 2 furnaces = 2.50 lbs. / hr.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

BF0126S– Blast Furnace Slag Pit Fugitives

The Blast Furnace Slag Pit Fugitives includes the uncontrolled SO_2 emissions emanating from the Blast Furnace Slag Pit. Modeled emission rates for all averaging periods are based on the annual SO_2 limit for slag pit fugitives contained in the Production Increase Permit.

Annual SO_2 limit from slag pit fugitives = 15.83 tpy

Max. SO_2 emission rate = 15.83 (tpy) * 2000 (lbs. / ton) / 8760 (hrs / yr) = 3.61 lbs. / hr.

CC0085S– Slab Ripping

The Slab Ripping emission units are combustion emission sources using NG to rip slabs after casting. Emissions from the slab rippers are insignificant based on the use of NG and the very low design rate of the units.

SO_2 emission rate = 3.17 (MMBtu/hr) * 0.6 (lbs./MMscf) / 1000 (MMBtu/MMscf) = 0.0019 lbs./hr.

Desulf – COG Desulfurization System Stack

The COG desulfurization system stack emits SO_2 emissions during operation of the system at a maximum rate of 66.5 lbs./hr. However, because short term modeled emission rates assume undesulfurized COG, the system stack is not modeled in the short term averaging periods. The modeled emission rate for the annual averaging period assumes maximum continuous operation.

Scenario Modeling

Emissions calculations for the emission scenarios described in section 6.8.2 are outlined in detail below. A table of fuel inputs for each scenario is shown in Table 6-13 (a) – (d). Maximum design rates, emission factors and heat capacities are identical to those used above and shown in Tables C-1 and C-2. These emissions were only used for the 24-hour scenario modeling discussed in section 6.8.2. For emissions that remain the same in multiple scenarios, the calculations are referenced rather than repeated. Modeled emission rates for each scenario are shown in Tables C3-C6. Small variances in emission rates may exist between the calculations and the tables. This is strictly due to rounding differences in the model when converting between g/s and lb/hr.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

SCENARIO 1

- Battery A and Battery B at full COG underfire
- Remaining COG to Blast Furnace Stoves "A" and "B" and Ladle Dryer

BF0007S – Blast Furnace "A" Stoves

Maximum Design Rate = 399 MMBtu/hr

COG throughput = 8.04 MMCF/day

BFG throughput = {399 (MMBtu/hr) – 8.04 (MMCF COG/day) / 24(hr/day)* 560 (MMBtu/MMCF)} * 24 (hr/day) / 80 (MMBtu/MMCF)

= 63.43 MMCF/day

COG emissions = 8.04 MMCF/day / 24 (hr/day) * 1230 (lb SO_2 / MMCF)

= 411.96 lb SO_2/hr

BFG emissions = 63.43 MMCF/day / 24 (hr/day) * 16 (lb SO_2 / MMCF)

= 42.29 lb SO_2/hr

SO_2 emission rate = 411.96 + 42.29 = 454.25 lb/hr

BF0012S – Blast Furnace "B" Stoves

Maximum Design Rate = 457 MMBtu/hr

COG throughput = 8.04 MMCF/day

BFG throughput = {457 MMBtu/hr – 8.04 (MMCF COG/day) / 24(hr/day)* 560 (MMBtu/MMCF)} * 24 (hr/day) / 80 (MMBtu/MMCF)

= 80.83 MMCF/day

COG emissions = 8.04 MMCF/day / 24 (hr/day) * 1230 (lb SO_2 / MMCF)

= 411.96 lb SO_2/hr

BFG emissions = 80.83 MMCF/day / 24 (hr/day) * 16 (lb SO_2 / MMCF)

= 53.89 lb SO_2/hr

SO_2 emission rate = 411.96 + 53.89 = 465.85 lb/hr

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

BF0011S & BF0111S – Blast Furnace Gas Flares

Maximum Design Rate = 720 MMBtu/hr

SO_2 emission rate = BFG emissions = 720 (MMBtu/hr) * 16 (lbs. SO_2 / MMscf) / 80 (MMBtu / MMscf) = 144.00 lb/hr

UT0053S – Boilers 1 -7

Maximum Design Rate = 420 MMBtu/hr

SO_2 emission rate = BFG emissions = 420 (MMBtu/hr) / 80 (MMBtu/MMCF) * 16 (lb SO_2/MMCF) = 84.00 lb/hr

UT0054S – Boilers 8 – 10

Maximum Design Rate = 180 MMBtu/hr

SO_2 emission rate = BFG emissions = 180 (MMBtu/hr) / 80 (MMBtu/MMCF) * 16 (lb SO_2/MMCF) = 36.00 lb/hr

UT0059S & UT0064S – Boilers 11 & 12

Maximum Design Rate = 225 MMBtu/hr (each)

SO_2 emission rate = BFG emissions = 225 (MMBtu/hr) / 80 (MMBtu/MMCF) * 16 (lb SO_2/MMCF) = 45.00 lb/hr (each)

BP0097S – COG Flare

No emissions modeled

CO0071S & CO0092S – Coke Oven Battery Underfire

Maximum Design Rate = 175 MMBtu/hr (each)

SO_2 emission rate = COG emissions = 175 (MMBtu/hr) / 560 (MMBtu/MMCF) * 1230 (lb SO_2 / MMCF) = 384.38 lb/hr (each)

FIN0016S, FIN0020S, FIN0024S – Hot Strip Slab Furnaces 1-3

Maximum Design Rate = 322 MMBtu/hr (each)

SO_2 emission rate = NG emissions = 322 (MMBtu/hr) / 1000 (MMBtu/MMCF) * 0.6 (lb SO_2/MMCF) = 0.19 lb/hr (each)

FIN0028S – Hot Strip Slab Furnace 4

Maximum Design Rate = 380 MMBtu/hr

SO_2 emission rate = NG emissions = 380 (MMBtu/hr) / 1000 (MMBtu/MMCF) * 0.6 (lb SO_2/MMCF) = 0.23 lb/hr

BOF0149S – Ladle Drying Preheaters

Maximum Design Rate = 100 MMBtu/hr

COG throughput = 2.27 MMCF/day

NG throughput = {100 (MMBtu/hr) – 2.27 (MMCF COG/day) / 24 (hr/day) * 560 (MMBtu/MMCF)}* 24 (hr/day) / 1000 (MMBtu/MMCF)

=1.13 MMCF/day

COG emissions = 2.27 (MMCF/day) / 24 (hr/day) * 1230 (lb SO_2 / MMCF)

= 116.08 lb/hr

NG emissions = 1.13 MMCF/day / 24 (hr/day) * 0.6 (lb SO_2 / MMCF)

= 0.03 lb/hr

SO_2 emission rate = 116.08 + 0.03 = 116.11 lb/hr

CC0084S & CC0145S – Slab Cutting

Maximum Design Rate = 0.3 MMBtu/hr

SO_2 emission rate = 0.3 (MMBtu/hr) / 1000 (MMBtu/MMCF) * 0.6 (lb SO_2/MMCF) = 1.8x10(-4) lb/hr

SCENARIO 2

- Battery A and Battery B at maximum COG underfire
- Remaining COG to boilers 1 -10

BF0007S – Blast Furnace "A" Stoves

Maximum Design Rate = 399 MMBtu/hr

SO_2 emission rate = BFG emissions = 399 (MMBtu/hr) / 80 (MMBtu/MMCF) * 16 (lb SO_2/MMCF) = 79.8 lb/hr

BF0012S – Blast Furnace "B" Stoves

Maximum Design Rate = 457 MMBtu/hr

SO_2 emission rate = BFG emissions = 457 (MMBtu/hr) / 80 (MMBtu/MMCF) * 16 (lb SO_2/MMCF) = 91.4 lb/hr

BF0011S & BF0111S – Blast Furnace Gas Flares

Same as Scenario 1

UT0053S – Boilers 1 -7

Maximum Design Rate = 420 MMBtu/hr

COG throughput = 11.54 MMCF/day

BFG throughput = {420 (MMBtu/hr) – 11.54 (MMCF COG/day) / 24 (hr/day) * 560 (MMBtu/MMCF)} * 24 (hr/day) / 80 (MMBtu/MMCF)

= 45.19 MMCF/day

COG emissions = 11.54 MMCF/day / 24 (hr/day) * 1230 (lb SO_2/MMCF)

= 591.65 lb/hr

BFG emissions = 45.19 MMCF/day / 24 (hr/day) * 16 (lb SO_2/MMCF)

= 30.13 lb/hr

SO_2 emission rate = 591.65 + 30.13 = 621.78 lb/hr

UT0054S -- Boilers 8 – 10

Maximum Design Rate = 180 MMBtu/hr

COG throughput = 4.95 MMCF/day

BFG throughput = {180 (MMBtu/hr) – 4.95 (MMCF COG/day) / 24 (hr/day) * 560 (MMBtu/MMCF)} * 24 (hr/day) / 80 (MMBtu/MMCF)

= 19.37 MMCF/day

COG emissions = 4.95 (MMCF/day) / 24 (hr/day) * 1230 (lb SO_2/MMCF)

= 253.56 lb/hr

BFG emissions = 19.37 (MMCF/day) / 24 (hr/day) * 16 (lb SO_2/MMCF)

= 12.91 lb/hr

SO_2 emission rate = 253.56 + 12.91 = 266.47 lb/hr

UT0059S & UT0064S – Boilers 11 & 12

Same as Scenario 1

CO0071S & CO0092S – Coke Oven Battery Underfire

Same as Scenario 1

FIN0016S, FIN0020S, FIN0024S – Hot Strip Slab Furnaces 1-3

Same as Scenario 1

FIN0028S – Hot Strip Slab Furnace 4

Same as Scenario 1

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

BOF0149S – Ladle Drying Preheaters

Maximum Design Rate = 100 MMBtu/hr

NG throughput = 100 (MMBtu/hr) * 24 (hr/day) / 1000 (MMBtu/MMCF)

=2.4 MMCF/day

SO_2 emission rate = NG emissions = 100 (MMBtu/hr) / 1000 (MMBtu/MMCF) * 0.6 (lb SO2/MMCF) = 0.06 lb/hr

CC0084S & CC0145S – Slab Cutting

Same as Scenario 1

SCENARIO 3

- Battery A and Battery B at maximum COG underfire
- Remaining COG to slab furnaces 1-4

BF0007S – Blast Furnace "A" Stoves

Same as Scenario 2

BF0012S – Blast Furnace "B" Stoves

Same as Scenario 2

UT0053S – Boilers 1 -7

Same as Scenario 1

UT0054S – Boilers 8 – 10

Same as Scenario 1

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

UT0059S & UT0064S – Boilers 11 & 12

Same as Scenario 1

CO0071S & CO0092S – Coke Oven Battery Underfire

Same as Scenario 1

FIN0016S, FIN0020S, FIN0024S – Hot Strip Slab Furnaces 1-3

Maximum Design Rate = 322 MMBtu/hr (each)

COG throughput = 2.64 MMCF/day

NG throughput = {322 (MMBtu/hr) – 2.64 (MMCF COG/day) / 24 (hr/day) * 560 (MMBtu/MMCF)} * 24 (hr/day) / 1000 (MMBtu/MMCF) = 6.25 MMCF/day

COG emissions = 2.64 (MMCF/day) / 24 (hr/day) * 1230 (lb SO_2/MMCF)

= 135.47 lb/hr

NG emissions = 6.25 (MMCF/day) / 24 (hr/day) * 0.6 (lb SO_2/MMCF)

= 0.16 lb/hr

SO_2 emission rate = 135.47 + 0.16 = 135.63 lb/hr

FIN0028S – Hot Strip Slab Furnace 4

Maximum Design Rate = 380 MMBtu/hr

COG throughput = 9.7 MMCF/day

NG throughput = {380 (MMBtu/hr) – 9.7 (MMCF COG/day) / 24 (hr/day) * 560 (MMBtu/MMCF)} * 24 (hr/day) / 1000 (MMBtu/MMCF) = 3.71 MMCF/day

COG emissions = 9.7 (MMCF/day) / 24 (hr/day) * 1230 (lb SO_2/MMCF)

= 494.71 lb/hr

NG emissions = 3.71 (MMCF/day) / 24 (hr/day) * 0.6 (lb SO_2/MMCF)

= 0.09 lb/hr

SO_2 emission rate = 494.71 + 0.09 = 494.8 lb/hr

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

BOF0149S – Ladle Drying Preheaters

Same as Scenario 2

CC0084S & CC0145S – Slab Cutting

Same as Scenario 1

SCENARIO 4

- Battery A and Battery B at maximum COG underfire
- Remaining COG to boilers 11 and 12

BF0007S – Blast Furnace "A" Stoves

Same as Scenario 2

BF0012S – Blast Furnace "B" Stoves

Same as Scenario 2

UT0053S – Boilers 1 -7

Same as Scenario 1

UT0054S – Boilers 8 – 10

Same as Scenario 1

UT0059S & UT0064S – Boilers 11 & 12

Maximum Design Rate = 225 MMBtu/hr (each)

COG throughput = 8.37 MMCF/day

BFG throughput = {225 (MMBtu/hr) – 8.37 (MMCF COG/day) / 24 (hr/day) * 560 (MMBtu/MMCF)} * 24 (hr/day) / 80 (MMBtu/MMCF) = 8.93 MMCF/day

COG emissions = 8.37 (MMCF/day) / 24 (hr/day) * 1230 (lb SO_2/MMCF)

= 428.83 lb/hr

BFG emissions = 8.93 (MMCF/day) / 24 (hr/day) * 16 (lb SO_2/MMCF)

= 5.95 lb/hr

SO_2 emission rate = 428.83 + 5.95 = 434.79 lb/hr

CO0071S & CO0092S – Coke Oven Battery Underfire

Same as Scenario 1

FIN0016S, FIN0020S, FIN0024S – Hot Strip Slab Furnaces 1-3

Same as Scenario 1

FIN0028S – Hot Strip Slab Furnace 4

Same as Scenario 1

BOF0149S – Ladle Drying Preheaters

Same as Scenario 2

CC0084S & CC0145S – Slab Cutting

Same as Scenario 1

Scenario Emission Rates

Table C-3: Scenario 1

Unit	Description	SO_2 lb/hr
BF0007S	BFAStove	454.29
BF0011S	BFGFlare	143.97
BF0111S	Newflare	143.97
BF0012S	BFBStove	465.88
UT0053S	blrs1to7	83.97
UT0054S	blrs8to10	36.03
UT0059S	boil11	45.00
UT0064S	boil12	45.00
BP0097S	COGflare	0.00
CO0071S	BatAfire	384.37
CO0092S	BatBfire	384.37
FIN0016S	slabfur1	0.16
FIN0028S	slabfur4	0.24
FIN0020S	slabfur2	0.16
FIN0024S	slabfur3	0.16
BF0010S	Csthsbgh	96.35
BF0150S	Ironspot	3.17
BOF0149S	Ladldryr	116.11
CC0084S	slabcut1	0.00
CC0145S	slabcut2	0.00
CO0069S	BatAPush	5.18
CO0090S	BatBPush	5.18

Table C-4: Scenario 2

Unit	Description	SO_2 lb/hr
BF0007S	BFAStove	79.76
BF0011S	BFGFlare	143.97
BF0111S	Newflare	143.97
BF0012S	BFBStove	91.43
UT0053S	blrs1to7	621.76
UT0054S	blrs8to10	266.51
UT0059S	boil11	45.00
UT0064S	boil12	45.00
BP0097S	COGflare	0.00
CO0071S	BatAfire	384.37
CO0092S	BatBfire	384.37
FIN0016S	slabfur1	0.16
FIN0028S	slabfur4	0.24
FIN0020S	slabfur2	0.16
FIN0024S	slabfur3	0.16
BF0010S	Csthsbgh	96.35
BF0150S	Ironspot	3.17
BOF0149S	Ladldryr	0.08
CC0084S	slabcut1	0.00
CC0145S	slabcut2	0.00
CO0069S	BatAPush	5.18
CO0090S	BatBPush	5.18

Scenario Emission Rates

Table C-5: Scenario 3

Unit	Description	SO_2 lb/hr
BF0007S	BFAStove	79.76
BF0011S	BFGFlare	143.97
BF0111S	Newflare	143.97
BF0012S	BFBStove	91.43
UT0053S	blrs1to7	83.97
UT0054S	blrs8to10	36.03
UT0059S	boil11	45.00
UT0064S	boil12	45.00
BP0097S	COGflare	0.00
CO0071S	BatAfire	384.37
CO0092S	BatBfire	384.37
FIN0016S	slabfur1	135.64
FIN0028S	slabfur4	494.77
FIN0020S	slabfur2	135.64
FIN0024S	slabfur3	135.64
BF0010S	Csthsbgh	96.35
BF0150S	Ironspot	3.17
BOF0149S	Ladldryr	0.08
CC0084S	slabcut1	0.00
CC0145S	slabcut2	0.00
CO0069S	BatAPush	5.18
CO0090S	BatBPush	5.18

Table C-6: Scenario 4

Unit	Description	SO_2 lb/hr
BF0007S	BFAStove	79.76
BF0011S	BFGFlare	143.97
BF0111S	Newflare	143.97
BF0012S	BFBStove	91.43
UT0053S	blrs1to7	83.97
UT0054S	blrs8to10	36.03
UT0059S	boil11	434.77
UT0064S	boil12	434.77
BP0097S	COGflare	0.00
CO0071S	BatAfire	384.37
CO0092S	BatBfire	384.37
FIN0016S	slabfur1	0.16
FIN0028S	slabfur4	0.24
FIN0020S	slabfur2	0.16
FIN0024S	slabfur3	0.16
BF0010S	Csthsbgh	96.35
BF0150S	Ironspot	3.17
BOF0149S	Ladldryr	0.08
CC0084S	slabcut1	0.00
CC0145S	slabcut2	0.00
CO0069S	BatAPush	5.18
CO0090S	BatBPush	5.18

APPENDIX D

Electronic Modeling Files (CDs)

IN THE CIRCUIT COURT FOR THE THIRD JUDICIAL CIRCUIT
MADISON COUNTY, ILLINOIS

FILED
DEC 18 2007
CLERK OF CIRCUIT COURT 3rd
THIRD JUDICIAL CIRCUIT
MADISON COUNTY, ILLINOIS

PEOPLE OF THE STATE OF ILLINOIS, *ex rel.*, LISA MADIGAN, Attorney General of the State of Illinois, Plaintiff,	)	
v.	)	No. 05-CH-750
UNITED STATES STEEL CORPORATION, INC., a Delaware Corporation, Defendant.	)	

CONSENT ORDER

Plaintiff, PEOPLE OF THE STATE OF ILLINOIS, *ex. rel.* LISA MADIGAN, Attorney General of the State of Illinois, the Illinois Environmental Protection Agency ("Illinois EPA"), and Defendant, UNITED STATES STEEL CORPORATION (incorrectly identified as UNITED STATES STEEL CORPORATION, INC.), have agreed to the making of this Consent Order and submit it to this Court for approval.

I. INTRODUCTION

This stipulation of facts is made and agreed upon for purposes of settlement only and as a factual basis for the Court's entry of the Consent Order. None of the facts stipulated herein shall be introduced into evidence in any other proceeding regarding the violations of the Illinois Environmental Protection Act ("Act"), 415 ILCS 5/1, *et seq.* (2006), and the Illinois Pollution Control Board ("Board") Regulations, alleged in the Complaint, except as otherwise provided herein. It is the intent of the Plaintiff and Defendant to this Consent Order that it be a final judgment on the merits of this matter.

A. Parties

1. On September 14, 2005, a Complaint was filed on behalf of the People of the State of Illinois by Lisa Madigan, Attorney General of the State of Illinois, on her own motion and upon the request of the Illinois EPA pursuant to Section 42(d) and (e) of the Act, 415 ILCS 5/42(d) and (e) (2006), against the Defendant. On November 27, 2006, the People moved to supplement the complaint with an additional count, Count VII, to the complaint. That motion was granted on December 7, 2006, and the First Supplemental Complaint was entered. On October 16, 2007, the Plaintiff and Defendant entered a stipulation in which the People requested permission to file a Second Supplemental Complaint to add Counts VIII and IX and Defendant did not object. On October 17, 2007, the request was granted and the Second Supplemental Complaint was entered.

2. The Illinois EPA is an administrative agency of the State of Illinois, created pursuant to Section 4 of the Act, 415 ILCS 5/4 (2006).

3. At all times relevant to the Complaint, Defendant United States Steel Corporation was and is a Delaware corporation that is authorized to transact business in the State of Illinois, and owned and operated integrated iron and steel mill located at 20th Street and State Street, Granite City, Madison County, Illinois ("steel mill").

B. Allegations of Non-Compliance

As set forth in Plaintiff's Complaint, Plaintiff's First Supplemental Complaint, and Plaintiff's Second Supplemental Complaint, Plaintiff contends that the Defendant has violated the following provisions of the Act and Board Regulations:

Count I:	Sections 9(a) and (b) of the Act, 415 ILCS 5/9(a), (b) (2006), Sections 212.324(f), 212.207, and 212.309(a) of the Board's Air

	Pollution Regulations, 35 Ill. Adm. Code 212.324(f), 212.207, 212.309(a) and operating permit 83050042.
Count II:	Sections 9(a) and (b) of the Act, 415 ILCS 5/9(a), (b) (2006), Section 212.443(c)(1)(A) of the Board's Air Pollution Regulations, 35 Ill. Adm. Code 212.443(c)(1)(A), Standard Condition 7 and Special Conditions 1(a) & (b) of operating permit 88070071 and Special Condition 2(b) of operating permit 82060043.
Count III:	Sections 9(a) and (b) of the Act, 415 ILCS 5/9(a), (b), (2006), Sections 212.307 and 212.309(a) of the Board's Air Pollution Regulations, 35 Ill. Adm. Code 212.307 and 212.309(a), and Standard Condition 7 of operating permit 72080034 and 72080036.
Count IV:	Sections 9(a), (b) and 9.1(d) of the Act, 415 ILCS 5/9(a), (b), 9.1(d) (2006), 40 CFR 63.304(b)(2)(iv), Sections 212.443(b)(1)(A) and 201.141 of the Board's Air Pollution Regulations, 35 Ill Adm. Code 212.443(b)(1)(A) and 201.141, Special Condition 5 of operating permit 80050010, and Special Condition 6 of operating permit 82060043.
Count V:	Sections 9(a) and (b) of the Act, 415 ILCS 5/9(a), (b), (2006), Section 201.141 of the Board's Air Pollution Regulations, 35 Ill. Adm. Code 201.141, Special Condition 18 of revised operating permit 95010001.
Count VI:	Sections 9(a) and 9.1(d) of the Act, 415 ILCS 5/9(a), 9.1(d) (2006), Section 40 CFR 63.309(b)(2)(i)(B), and Sections 212.443(d)(2) and 201.141 of the Board's Air Pollution Regulations, 35 Ill. Adm. Code 212.443(d)(2) and 201.141.
Count VII:	Section 9(a) of the Act, 415 ILCS 5/9(a) (2006).
Count VIII:	Sections 9(a) and 9(b) of the Act, 415 ILCS 5/9(a), (b) (2006), Section 212.446(c) of the Board's Air Pollution Regulations, 35 Ill. Adm. Code 212.446(c), and Condition 8 of Defendant's Operating Permit #95010001.
Count IX:	Sections 9.1(d)(1), (d)(2) and 9(b) of the Act, 415 ILCS 5/9.1(d)(1), (d)(2), 9(b) (2006), Sections 165(a)(1) and 165(a)(4) of the Clean Air Act, 42 U.S.C.A. § 7475(a)(1), (a)(4) (2006), 40 CFR 52.21(j)(l) and (j)(3), and 40 CFR 52.21(r)(l), and Condition 22 of Defendant's Operating Permit #95010001.

C. **Non-Admission of Violation**

The Defendant represents that it has entered into this Consent Order for the purpose of settling and compromising disputed claims without having to incur the expense of contested litigation. By entering into this Consent Order and complying with its terms, the Defendant does not affirmatively admit the allegations of violation within the Complaint and referenced above, and this Consent Order shall not be interpreted as including such admission.

D. **Compliance Activities to Date**

1. The Ladle Metallurgy Facility ("LMF")

a. Defendant developed and implemented mechanical and electrical inspection procedures to assure proper operation of the No. 1 baghouse. Defendant also modified the discharge chute of the No. 1 baghouse to maintain a positive connection between the chute and the plastic tote bag used to contain the captured baghouse dust. Also, Defendant modified the synthetic slag addition emission collection hood to improve capture efficiency.

2. The Coke Oven Pushing Operation

a. Defendant revised and implemented its enhanced operating and maintenance plan for its coke oven pushing operations.

b. Defendant completed the installation of the constant heat system for Coke Batteries A and B to provide more consistent heating of the batteries.

c. Defendant completed the installation of the coke guide pyrometers for Coke Batteries A and B to evaluate the carbonization of the coke mass during the push.

d. Defendant completed the installation of the direct spray primary cooler for the Coke Plant By-Products Facility to improve the coke oven gas quality to minimize fouling of the battery underfire systems.

e. Defendant completed the implementation of the data analysis system to predict the heat input for complete carbonization of the coke mass.

3. Blast Furnaces A and B

a. Defendant modified the iron spout baghouse fume collection hoods to minimize hood openings. Defendant has also completed repairs to iron spout baghouse dust handling screw conveyor system and fume collection ductwork.

4. The Coke Oven By-Products Plant

a. Defendant made appropriate repairs to all exhausters. Operating and maintenance procedures have been implemented to prevent recurrence.

5. The Slag Skimming Station Baghouse

a. Defendant installed a new multi-compartment baghouse to collect and control hot metal slag skimming emissions.

6. Coke Oven Doors

a. Defendant implemented NESHAP work practices in accordance with 40 CFR 63, Subpart L.

b. Defendant took steps to ensure an adequate supply of coke oven doors, including by entry into a relationship with a new local contractor to rebuild coke oven doors as necessary.

7. Air Pollution Violation

a. At the time of the coke oven gas release on February 28, 2006, Defendant maximized the consumption of coke oven gas and reduced coke oven operations to minimize the amount of coke oven gas released. The failed linkage to the flare stack butterfly valve was repaired, re-establishing flow of excess coke oven gas to the flare stack.

8. The Basic Oxygen Furnace

a. Defendant completed extensive repairs to the Basic Oxygen Furnace air pollution capture and control equipment and implemented an enhanced inspection and maintenance program for the Basic Oxygen Furnace.

b. Defendant has retained an engineering consultant to evaluate the significant sources of Basic Oxygen Furnace roof emissions and to identify options for additional emissions reductions.

9. The Blast Furnace Gas SO2 Emissions

a. Defendant completed SO2 modeling required for the application to revise the PSD Construction Permit.

II. APPLICABILITY

This Consent Order shall apply to and be binding upon the Plaintiff and the Defendant, and any officer, director, agent, or employee of the Defendant, as well as any successors or assigns of the Defendant. The Defendant waives as a defense to any enforcement action taken pursuant to this Consent Order the failure of any of its officers, directors, agents, employees or successors or assigns to take such actions as shall be required to comply with the provisions of this Consent Order. This Consent Order may be used against the Defendant in any subsequent enforcement action or permit proceeding as proof of a past adjudication of violation of the Act and the Board Regulations for all violations alleged in the Complaint in this matter, for purposes of Sections 39, 39.5, and 42 of the Act, 42 ILCS 5/39, 5/39.5, and 5/42 (2006).

The Defendant shall notify each contractor to be retained to perform work required in this Consent Order of each of the requirements of this Consent Order relevant to the activities to be performed by that contractor, including all relevant work schedules and reporting deadlines, and

shall provide a copy of this Consent Order to each contractor already retained no later than thirty (30) calendar days after the date of entry of this Consent Order. In addition, the Defendant shall provide copies of all schedules for implementation of the provisions of this Consent Order to the prime vendor(s) supplying the control technology systems and other equipment required by this Consent Order.

No change in ownership, corporate status or operator of the facility shall in any way alter the responsibilities of the Defendant under this Consent Order. In the event that the Defendant proposes to sell or transfer any real property or operations subject to this Consent Order, the Defendant shall notify the Plaintiff thirty (30) calendar days prior to the conveyance of title, ownership or other interest, including a leasehold interest in the facility or a portion thereof. Defendant shall make as a condition of any such sale or transfer, that the purchaser or successor provide to Defendant site access and all cooperation necessary for Defendant to perform to completion any compliance obligation(s) required by this Consent Order. The Defendant shall provide a copy of this Consent Order to any such successor in interest and the Defendant shall continue to be bound by and remain liable for performance of all obligations under this Consent Order. In appropriate circumstances, however, the Defendant and a proposed purchaser or operator of the facility may jointly request, and the Plaintiff, in its discretion, may consider modification of this Consent Order to obligate the proposed purchaser or operator to carry out future requirements of this Consent Order in place of, or in addition to, the Defendant. This provision does not relieve the Defendant from compliance with any regulatory requirement regarding notice and transfer of applicable facility permits or permit applications.

III. JUDGMENT ORDER

This Court has jurisdiction of the subject matter herein and of the Plaintiff and Defendant consenting hereto and, having considered the stipulated facts and being advised in the premises, finds the following relief appropriate:

IT IS HEREBY ORDER, ADJUDGED AND DECREED:

A. Penalty

The Defendant shall pay a civil penalty of Three-Hundred Thousand Dollars ($300,000.00) within thirty (30) days of the date of entry of this Consent Order in a manner prescribed below.

B. Stipulated Penalties, Interest and Default

1. If the Defendant fails to complete any activity or fails to comply with any response or reporting requirement by the date specified in this Consent Order, the Defendant shall provide notice to the Plaintiff of each failure to comply with this Consent Order and shall pay stipulated penalties in the amount of $500.00 per day per violation until such time that compliance is achieved. The Plaintiff shall make a demand for stipulated penalties upon the Defendant for its noncompliance with this Consent Order. However, failure by the Plaintiff to make this demand shall not relieve the Defendant of the obligation to pay stipulated penalties. All stipulated penalties shall be payable within thirty (30) calendar days of the date of Plaintiff's demand for stipulated penalties upon the Defendant for its noncompliance with any provision of this Consent Order.

2. If the Defendant fails to make any payment required by this Consent Order on or before the date upon which the payment is due, the Defendant shall be in default and the remaining unpaid balance of the penalty plus any accrued interest, shall be due and owing

immediately. In the event of default, the Plaintiff shall be entitled to reasonable costs of collection, including reasonable attorney's fees.

3. Pursuant to Section 42(g) of the Act, interest shall accrue on any penalty amount owed by the Defendant not paid within the time prescribed herein. Interest on unpaid penalties shall begin to accrue from the date such are due and continue to accrue to the date full payment is received. Where partial payment is made on any penalty amount that is due, such partial payment shall be first applied to any interest on unpaid penalties then owing.

C. Payment Procedures

All payments required by this Consent Order shall be made by certified check or money order payable to the Illinois EPA for deposit into the Environmental Protection Trust Fund ("EPTF"). Payments shall be sent by first class mail and delivered to:

Illinois Environmental Protection Agency
Fiscal Services
1021 North Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276

The name, case number and the Defendant's federal tax identification number shall appear on the face of the certified check or money order. A copy of the certified check or money order and any transmittal letter shall be sent to:

Environmental Bureau
Illinois Attorney General's Office
500 South Second Street
Springfield, IL 62706

D. Future Compliance

1. General Compliance

a. The Attorney General, her employees and representatives, shall have the right of entry into and upon the Defendant's facility that is the subject of this Consent Order, at all reasonable times for the purposes of conducting inspections and evaluating compliance status. In conducting such inspections, the Attorney General, her employees and representatives, may take photographs, samples, and collect information, as they deem necessary, and shall comply with all of the Defendant's safety requirements for all personnel entering the Defendant's facility.

b. This Consent Order in no way affects the responsibilities of the Defendant to comply with any other federal, state or local laws or regulations, including but not limited to the Act and the Board Regulations.

c. The Defendant shall cease and desist from future violations of the Act and state and federal regulations that were the subject matter of the complaint, except that, for those violations covered by compliance schedules set forth in III.D.2, 3, and 4, implementation of the cease and desist requirement shall be consistent with the compliance schedule.

2. Compliance Schedule for the Uncaptured Emissions from the Coke Oven Pushing Operation

a. Coke Oven Pushing Opacity Reading Methodology and Limitations

i. Opacity reading methodology and limitations for uncaptured emissions from the coke oven pushing operation

The following methods shall be utilized to conduct opacity readings of uncaptured particulate matter emissions from pushing operations at Coke Oven Battery A and B during the initial and additional compliance demonstrations.

Opacity readings shall be taken by a qualified observer located in a position where the oven being pushed, the coke receiving car, and the path to the quench tower are visible. The opacity shall be read as the emissions rise and clear the top of the coke battery gas mains. The opacity readings shall be taken in accordance with the procedures set forth in 40 CFR 60, Appendix A, Method 9. Opacity readings shall be taken at 15-second intervals, beginning from the time the coke falls into the receiving car or is first visible as it emerges from the coke guide, whichever is first.

The qualified observer shall record opacity readings of pushing emissions originating at the receiving car and associated equipment and the coke oven, including the standpipe on the coke side of the oven being pushed. The qualified observer referenced shall be certified pursuant to 40 CFR 60, Appendix A, Method 9. The data reduction of Section 2.5 of 40 CFR 60, Appendix A, Method 9 shall not be used.

ii. Battery specific methodology and limitations

For Coke Oven Battery A, the readings shall begin as referenced above and continue until the receiving car enters the quench tower or quenching device. The emissions of uncaptured particulate matter from pushing operations shall not exceed an average of 20 percent opacity for four (4) consecutive pushes considering the highest average of six (6) consecutive readings in each push. For a push with a duration of less than 90-seconds, the actual number of 15-second readings will be averaged.

For Coke Oven Battery B, the readings shall begin as referenced above and end with the sixth reading. The emissions of uncaptured particulate matter shall not exceed 20 percent opacity based on the average of the six (6) consecutive readings.

b. Compliance Demonstration

i. Within forty-five (45) days of entry of this Consent Order, Defendant shall demonstrate that the uncaptured emissions from the coke oven pushing operation comply with the 20% opacity limitations consistent with the procedures in Section III.D.2.a. The Defendant's visible emissions readings shall occur over a period of three (3) consecutive days, if possible given the meteorological conditions, but regardless of the conditions, the three (3) days of readings must occur over a period no longer than five (5) days. During this period, Defendant shall read a minimum of twenty (20) pushes per day, with readings from at least eight (8) pushes per each battery per day.

ii. Within 15 days of entry of this order, or January 3, 2008, whichever is later, Defendant shall submit a protocol(s) to the Illinois EPA for review and comment, which protocol shall address the opacity testing required under Section III.D.2.b.i and Section III.D.2.c.i. The test protocol shall describe the specific procedures for testing and include at a minimum:

(a) The test date.

(b) A requirement for final confirmation to the Illinois EPA Field Operations Section and the Compliance Assurance and Source Monitoring Section of the test date and time of the test at least five (5) days prior to the test date.

(c) The identification of individual(s)/entity conducting the test.

(d) The specific conditions under which testing will be performed.

(e) The test methodology, consistent with Section III.D.2.a.

(f) The format and content of the final test report.

iii. Within 30 days of the conclusion of the compliance demonstration required by Section III.D.2.b.i, Defendant shall prepare a final report of its compliance demonstration and submit the report to the Illinois EPA. That report shall include, but not be limited to:

(a) A descriptive and table summary of results.

(b) General information including but not limited to the name, location and identification of the emission source(s) tested, date(s) of testing, names of personnel and entities performing the tests, and Illinois EPA observers, if any.

(c) A detailed description of test conditions.

(d) Data and calculations, including copies of all raw data sheets with all recorded observations regardless of whether used to determine compliance.

(e) The test methods, consistent with Section III.D.2.a.

c. Additional Compliance Demonstration

i. By March 31, 2008, for both Batteries, using the protocol(s) approved per paragraph D.2.b.ii., above, Defendant shall demonstrate that the uncaptured emissions from coke oven pushing operation comply with the 20% opacity limitations consistent with the procedures in Section III.D.2.a. To this end, Defendant shall perform opacity testing on each oven and further shall observe at least four (4) pushes on each battery per day.

ii. Within 30 days of the conclusion of this additional compliance demonstration, Defendant shall prepare a report of its additional compliance demonstration and submit the report to the Agency. That report shall include, but not be limited to:

(a) A descriptive and table summary of results.

(b) General information including but not limited to the name, location and identification of the emission source(s) tested,

date(s) of testing, names of personnel and entities performing the tests, and Illinois EPA observers, if any.

(c) Detailed description of test conditions.

(d) Data and calculations, including copies of all raw data sheets with all recorded observations regardless of whether used to determine compliance.

(e) The test methods, consistent with Section III.D.2.a.

iii. In the event that during the additional compliance demonstration, Defendant observes an exceedance of the opacity limitations applicable to uncaptured emissions from the Coke Oven Pushing operation, Defendant shall: (A) provide notification of such exceedance by electronic mail or facsimile to the Illinois EPA Bureau of Air Field Inspector assigned to the U. S. Steel Granite City Works, and to the Illinois EPA Bureau of Air Field Operations Section Manager at the Collinsville Regional Office, within five days of such observation; and (B) submit a certified written report regarding such exceedance to Illinois EPA within fifteen days of such observation. Such written report shall address, to the extent known, the cause of the exceedance, any steps taken to mitigate the exceedance and any steps taken or to be taken by Defendant to prevent such exceedance from reoccurring.

d. Within 30 days of entry of this order, Defendant shall submit a copy of the MACT Operations and Maintenance Plan for the coke ovens, as required by 40 CFR Part 63, Subpart CCCCC, and as enhanced in accordance with Defendant's written responses to comments that have been tendered to Defendant by the Illinois EPA, including but not limited to comments regarding the quench box, pushing control system spare diesel engines, timeframe for implementing repairs, and procedures for identifying green ends, to the Illinois EPA contacts referenced in Section III.H. of this order.

e. Continuing Compliance for Uncaptured Emissions from Coke Oven Pushing Operation.

i. In the event uncaptured pushing emissions at an oven in Battery A or Battery B exceed the 20% opacity limit pursuant to the procedures in Section III.D.2.a, Defendant shall determine the cause of the exceedance and shall implement necessary measures, including any corrective actions and/or preventative measures. Defendant shall prepare and maintain a record of any such event.

ii. Defendant shall adhere to the most current enhanced MACT Operations and Maintenance Plan for the coke ovens, as required by 40 CFR Part 63, Subpart CCCCC, and as revised in accordance with paragraph III.D.2.d. above, which plan prescribes operations and maintenance procedures as well as monitoring. Such plan shall be reviewed at least quarterly and amended by the Defendant, as necessary, within 30 days after the end of each quarter, so that the plan is current and sufficient to assure compliance with 40 CFR Part 63, Subpart CCCCC, 35 Ill. Adm. Code 212.443(c)(1)(A) and (B), and the consent decree with appendix entered in *United States of America* v. *National Steel Corporation*, civil action no. 81-3009.

iii. Defendant shall read at least four (4) consecutive pushes per day at Battery A and one (1) push per day at Battery B in accordance with the procedures in Section III.D.2.a.

3. Compliance Schedule for the Basic Oxygen Furnace

a. Within 30 days of entry of this order, Defendant shall submit a copy of the enhanced inspection and maintenance program for the Basic Oxygen Furnace to the Illinois EPA.

b. By January 31, 2008, Defendant shall complete an engineering study regarding an evaluation of the significant sources of Basic Oxygen Furnace shop roof emissions, including an evaluation of the sufficiency of: current operating practices and parameters and current air pollution capture and control equipment. The engineering study also shall identify options for additional reductions in emissions from the roof of the Basic Oxygen Furnace shop.

c. By February 29, 2008, Defendant shall submit the results of the engineering study to Plaintiff for its review.

d. By March 31, 2008, Defendant shall submit a compliance schedule detailing the recommendations that will be implemented and the schedule for such implementation. Any recommendations from the engineering study that the Defendant proposes to not implement must be accompanied by a detailed justification as to why. Defendant shall be required to implement such recommendations or other measures necessary to assure compliance. The compliance schedule shall also include the other measures necessary to assure compliance with the Act and state and federal regulations including but not limited to operating practices, maintenance practices and monitoring that will be implemented, and the schedule for such implementation.

e. By June 30, 2008, Defendant shall have implemented the compliance schedule as described above.

f. By July 31, 2008, Defendant shall demonstrate compliance with the requirements of Section 212.446(c) of the Board's Air Pollution Regulations, 35 Ill. Adm. Code 212.446(c), with compliance based upon the compliance determination methodology specified herein at III.D.3.g. In the interim, Defendant shall continue its implementation of the enhanced inspection and maintenance program for the Basic Oxygen Furnace shop.

g. The compliance demonstration shall consist of Method 9 opacity readings from openings in the building housing the Basic Oxygen Furnace shop. Such readings must be conducted for three (3) one-hour periods per day, two (2) days per week for four (4) weeks beginning July 1, 2008, and ending July 31, 2008. Compliance shall be determined in accordance with 40 CFR Appendix A, Method 9 except that compliance shall be determined by averaging any 12 consecutive observations taken at 15 second intervals.

h. By June 1, 2008, Defendant shall submit a protocol(s) to the Illinois EPA for review and comment that shall address the opacity testing required under Section III.D.3.f above. The test protocol shall describe the specific procedures for testing and include at a minimum:

(i) The identification of individual(s)/entity conducting the test.

(ii) The specific conditions under which testing will be performed including but not limited to the manner of operation of the Basic Oxygen Furnace.

(iii) The test methodology, consistent with Section III.D.3.g.

(iv) The format and content of the final test report.

i. By March 31, 2008, Defendant shall submit to Plaintiff a request for modification, pursuant to Section III.F.2 of this Consent Order, to modify the compliance deadline of July 31, 2008, consistent with Section III.D.3.d and for the purposes of Section III.D.3.f.

j. Defendant shall submit a quarterly progress report to the Plaintiff for the first quarter of 2008, by May 1, 2008. Each quarter thereafter, Defendant shall submit a

quarterly report, until such time as the compliance plan as been fully implemented and the source has returned to compliance, within 30 days of the end of the quarter.

4. Compliance Schedule for the Blast Furnace Gas SO2 Emissions

a. On or before January 31, 2008, Defendant shall prepare and submit to the Illinois EPA a complete and accurate application, including required SO2 modeling, to revise the PSD Construction Permit for the Production Increase, issued by the Illinois EPA on July 23, 1996 (Application No. 95010001), as necessary to reflect the corrected emission factor for the Blast Furnace Gas SO2 emissions.

b. In the interim, Defendant shall use the correct emission factor for the Blast Furnace Gas SO2 emissions in calculating, recording, and reporting SO2 emissions and for any other purposes under the Act.

c. Defendant shall work with the Illinois EPA, including providing additional information to the Illinois EPA, when requested, and shall obtain a revised PSD Construction Permit to resolve the Blast Furnace Gas SO2 Emissions issue.

d. Defendant shall submit a quarterly progress report to the Plaintiff for the first quarter of 2008, by May 1, 2008. Each quarter thereafter, Defendant shall submit a quarterly report, until such time as the compliance plan as been fully implemented and the source has returned to compliance, within 30 days of the end of the quarter.

5. Defendant shall continue to implement on an ongoing basis the steps it has already taken to achieve compliance, as set forth in Section I.D., Compliance Activities to Date, above, as well as to comply with any and all operations and maintenance plans or procedures that apply to the facilities and operations discussed in Section I.D., Compliance Activities to Date, above.

E. *Force Majeure*

1. *Force majeure* is an event arising solely beyond the control of the Defendant, which prevents the timely performance of any of the requirements of this Consent Order and shall include, but is not limited to, events such as floods, fires, tornadoes, other natural disasters, and labor disputes and unavailability of necessary equipment beyond the reasonable control of the Defendant. An increase in costs associated with implementing any requirement of this Consent Order shall not, by itself, excuse the Defendant for a failure to comply with such a requirement.

2. When a *force majeure* event occurs which causes or may cause a delay in the performance of any of the requirements of this Consent Order, the Defendant shall orally notify the Plaintiff within forty-eight (48) hours of the occurrence. Written notice shall be given to the Plaintiff as soon as practicable, but no later than ten (10) calendar days after the claimed occurrence. This section shall be of no effect as to the particular event involved if the Defendant fails to comply with these notice requirements.

3. Within ten (10) calendar days of receipt of any written *force majeure* notice, the Plaintiff shall respond in writing regarding the Defendant's claim of a delay or impediment to performance. If the Plaintiff agrees that the delay or impediment to performance has been or will be caused by circumstances beyond the control of the Defendant and that the Defendant could not have prevented the delay by the exercise of due diligence, the Plaintiff and Defendant shall stipulate to an extension of the required deadline(s) for all requirement(s) affected by the delay, by a period equivalent to the delay actually caused by such circumstances. Such stipulation may be filed as a modification to this Consent Order. The Defendant shall not be liable for stipulated penalties for the period of any such stipulated extension.

4. If the Plaintiff does not accept the Defendant's claim of a *force majeure* event, the Defendant must file a petition with the Court within twenty (20) calendar days of receipt of the Plaintiff's determination in order to contest the imposition of stipulated penalties. The Plaintiff shall have twenty (20) calendar days to file its response to said petition. The burden of proof of establishing that a *force majeure* event prevented the timely performance shall be upon the Defendant. If this Court determines that the delay or impediment to performance has been or will be caused by circumstances solely beyond the control of the Defendant and that the Defendant could not have prevented the delay by the exercise of due diligence, the Defendant shall be excused as to that event (including any imposition of stipulated penalties), for all requirements affected by the delay, for a period of time equivalent to the delay or such other period as may be determined by this Court.

F. Enforcement and Modification of Consent Order

1. This Consent Order is a binding and enforceable order of this Court. Except as set forth in Section III.J below, this Court shall retain jurisdiction of this matter and shall consider any motion by Plaintiff or Defendant, for the purposes of interpreting and enforcing the terms and conditions of this Consent Order.

2. The Plaintiff and the Defendant may, by mutual written consent, extend any compliance dates or modify the terms of this Consent Order without leave of this Court. A request for any modification shall be made in writing and submitted to the designated representatives. Any such request shall be made by separate document, and shall not be submitted within any other report or submittal required by this Consent Order. Any such agreed modification shall be in writing and signed by authorized representatives of the Plaintiff and the Defendant, for filing and incorporation by reference into this Consent Order.

G. Dispute Resolution

1. Except as provided herein, the Plaintiff and Defendant may seek to informally resolve disputes arising under this Consent Order, including but not limited to the Illinois EPA's decision regarding appropriate or necessary response activity, approval or denial of any report, plan or remediation objective, or the Plaintiff's rejection of a request for modification or termination of the Consent Order. The Plaintiff reserves the right to seek enforcement by the Court where the Defendant has failed to satisfy any compliance deadline within this Consent Order. The following are also not subject to the dispute resolution procedures provided by this section: a claim of *force majeure*, a failure to make any required payment and any circumstances posing a substantial danger to the environment or to the public health or welfare of persons.

2. The dispute resolution procedure must be invoked by a party through a written notice describing the nature of the dispute and the party's position with regard to such dispute. The other party shall acknowledge receipt of the notice and schedule a meeting to discuss the dispute informally not later than fourteen (14) calendar days from the receipt of such notice. These informal negotiations shall be concluded within thirty (30) calendar days from the date of the first meeting between the Plaintiff and Defendant, unless the Plaintiff and Defendant agree, in writing, to shorten or extend this period. The invocation of dispute resolution, in and of itself, shall not excuse compliance with any requirement, obligation or deadline contained herein, and stipulated penalties may be assessed for failure or noncompliance during the period of dispute resolution. As part of the resolution of any dispute, the Plaintiff and Defendant, by agreement or by order of this Court, may extend or modify the schedule for completion of work under this Consent Order to account for the delay in the work that occurred as a result of dispute resolution.

3. In the event that the Plaintiff and Defendant are unable to reach agreement during the informal negotiation period, the Plaintiff shall provide the Defendant with a written summary of its position regarding the dispute. The position advanced by the Plaintiff shall be considered binding unless, within twenty (20) calendar days of the Defendant's receipt of the written summary of the Plaintiff's position, the Defendant files a petition with this Court seeking judicial resolution of the dispute. The Plaintiff shall respond to the petition by filing the administrative record of the dispute and any argument responsive to the petition within twenty (20) calendar days of service of the Defendant's petition. The administrative record of the dispute shall include the written notice of the dispute, any responsive submittals, the Plaintiff's written summary of its position, the Defendant's petition before the court and the Plaintiff's response to the petition. The Plaintiff's position shall be affirmed unless, based upon the administrative record, it is against the manifest weight of the evidence.

H. Notice and Submittals

Except for payments, the submittal of any notice, reports or other documents required under this Consent Order, shall be delivered to the following designated representatives:

As to the Plaintiff

Kristen Laughridge Gale
Assistant Attorney General
Environmental Bureau
500 South Second Street
Springfield, IL 62706

Chris Pressnall
Division of Legal Counsel
Illinois EPA
1021 North Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276

Ray Pilapil
Bureau of Air
Section Manager, Compliance Assurance and Source Monitoring
Illinois EPA
1021 North Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276

Jeff Benbenek
Bureau of Air
Illinois EPA
2009 Mall Street
Collinsville, IL 62234

As to the Defendant

David Smiga
United States Steel Corporation
600 Grant Street, Room 1500
Pittsburgh, PA 15219

David W. Hacker
United States Steel Corporation
600 Grant Street, Room 1500
Pittsburgh, PA 15219

Larry Siebenberger
United States Steel Corporation, Granite City Works
1951 State Street
Granite City, Illinois 62040

I. Release from Liability

In consideration of the Defendant's payment of a $300,000.00 penalty and upon completion of all activities required under Section III.D.2.a-d, 3, and 4. of this Consent Order,

the Plaintiff releases, waives and discharges the Defendant from any further liability or penalties for violations of the Act and state and federal regulations that were the subject matter of the Complaints herein. The release set forth above does not extend to any matters other than those expressly specified in the Plaintiff's Complaint filed on September 15, 2005, Plaintiff's First Supplemental Complaint filed on December 7, 2006, and Plaintiff's Second Supplemental Complaint filed on October 17, 2007. The Plaintiff reserves, and this Consent Order is without prejudice to, all rights of the State of Illinois against the Defendant with respect to all other matters, including but not limited to, the following:

a. criminal liability;

b. liability for future violations;

c. liability for natural resources damage arising out of the alleged violations; and

d. the Defendant's failure to satisfy the requirements of this Consent Order.

Nothing in this Consent Order is intended as a waiver, discharge, release, or covenant not to sue for any claim or cause of action, administrative or judicial, civil or criminal, past or future, in law or in equity, which the State of Illinois or the Illinois EPA may have against any person, as defined by Section 3.315 of the Act, 415 ILCS 5/3.315 (2006), other than the Defendant.

J. Termination

1. The Defendant may request that this Consent Order terminate no sooner than twelve (12) months after the Defendant has completed all actions required of the Defendant under Sections III.D.2.a-d, 3, and 4 of this Consent Order, provided that the Defendant has been in continuous compliance with the terms of the Consent Order for the twelve (12) months preceding the request; or after a Title V CAAPP permit is issued by the Illinois EPA to the Defendant, whichever date is later. Any such request must be made by notice to the Plaintiff and

include a statement that the Defendant has completed all actions required by Sections III.D.2.a-d, 3, and 4 of this Consent Order and has been in continuous compliance with the terms of the Consent Order for the twelve (12) months preceding the request and the following certification by a responsible corporate official of the Defendant:

> I certify under penalty of law that this statement was prepared under my direction or supervision, and that the information submitted in or accompanying this statement of final compliance is to the best of my knowledge true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and or imprisonment for knowing violations.

2. The Plaintiff shall notify the Defendant of its decision on the request within forty-five (45) calendar days of the Plaintiff's receipt of the request. If the Plaintiff agrees to terminate this Consent Order, the Plaintiff and the Defendant shall jointly file a notice with the Court that the Consent Order is terminated. If the Plaintiff does not agree to terminate this Consent Order, the Plaintiff shall provide the Defendant written notification stating the reasons why this Consent Order should not be terminated and the Defendant may then invoke the Dispute Resolution provisions. The Consent Order shall remain in effect pending resolution of any dispute between the Plaintiff and Defendant or the Court concerning whether the Defendant has completed its obligations under this Consent Order and is in compliance with the terms of the Consent Order. The provisions of Section III.I. shall survive and shall not be subject to and are not affected by the termination of any other provision of this Consent Order.

K. Execution and Entry of Consent Order

This Order shall become effective only when executed by the Plaintiff, the Defendant, and the Court. This Order may be executed by the Plaintiff, the Defendant, and the Court in one or more counterparts, all of which taken together, shall constitute one and the same instrument.

The undersigned representatives for the Plaintiff and the Defendant certify that they are fully authorized by the party whom they represent to enter into the terms and conditions of this Consent Order and to legally bind them to it.

WHEREFORE, the Plaintiff and the Defendant, by their representatives, enter into this Consent Order and submit it to this Court that it may be approved and entered.

PEOPLE OF THE STATE OF ILLINOIS, *ex rel.*, LISA MADIGAN, Attorney General of the State of Illinois, v. UNITED STATES STEEL CORPORATION, INC., No. 05-CH-750 (CIRCUIT COURT, MADISON COUNTY, ILLINOIS)

CONSENT ORDER

FOR THE PLAINTIFF:

PEOPLE OF THE STATE OF ILLINOIS
ex rel. LISA MADIGAN,
Attorney General of the
State of Illinois

MATTHEW J. DUNN, Chief
Environmental Enforcement/
Asbestos Litigation Division

BY: _____
THOMAS E. DAVIS, Chief
Environmental Bureau
Assistant Attorney General

DATE: 12/17/07

ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY

BY: _____
ROBERT A. MESSINA
Chief Legal Counsel

DATE: 12/17/07

PEOPLE OF THE STATE OF ILLINOIS, *ex rel.*, LISA MADIGAN, Attorney General of the State of Illinois, v. UNITED STATES STEEL CORPORATION, INC., No. 05-CH-750 (CIRCUIT COURT, MADISON COUNTY, ILLINOIS)

CONSENT ORDER

FOR THE DEFENDANT:

UNITED STATES STEEL CORPORATION

BY: _____
JAMES D. GARRAUX
General Counsel and Senior Vice President – Labor Relations & Environmental Affairs

DATE: 12-18-2007

BY: _____
DAVID W. HACKER
Attorney - Environmental

DATE: 12-18-2007

PEOPLE OF THE STATE OF ILLINOIS, *ex rel.*, LISA MADIGAN, Attorney General of the State of Illinois, v. UNITED STATES STEEL CORPORATION, INC., No. 05-CH-750 (CIRCUIT COURT, MADISON COUNTY, ILLINOIS)

CONSENT ORDER

ENTERED:

JUDGE

DATE: 18 Dec 2009

217/785-1705

TITLE V - CLEAN AIR ACT PERMIT PROGRAM (CAAPP) PERMIT
REVISED

PERMITTEE:

U. S. Steel Corporation
Granite City Works
Attn: Bryan Kresak
20th and State Streets
Granite City, Illinois 62040

I.D. No.: 119813AAI
Application No.: 96030056

Date Originally Received: March 6, 1996
Date Originally Issued: September 3, 2009
Date Revised Permit Issued: March 4, 2013
Expiration Date[1]: September 3, 2014

Operation of: Integrated Steel Mill
Source Location: 20th and State Streets, Granite City
Responsible Official: Richard E. Veitch, General Manager

This permit is hereby granted to the above-designated Permittee to OPERATE an Integrated Steel Mill Plant, pursuant to the above referenced permit application. This permit is subject to the conditions contained herein.

This permit was revised on March 4, 2013, in accordance with Sections 39.5(9)(e) through (g) of the Environmental Protection Act, pursuant to an order from Lisa P. Jackson, Administrator of the USEPA, *In the Matter of United States Steel Corporation – Granite City Works,* Petition Number V-2011-2 (December 3, 2012), which order was received by the Illinois EPA on December 4, 2012.

If you have any questions concerning this permit, please contact Anatoly Belogorsky or Michael Reed at 217/785-1705.

Edwin C. Bakowski, P.E.
Manager, Permit Section
Division of Air Pollution Control

ECB:MR:psj

cc: Illinois EPA, FOS, Region 3
CES
Lotus Notes

[1] Except as provided in Conditions 1.5 and 8.7 of this permit.

TABLE OF CONTENTS

1.0 SOURCE IDENTIFICATION

1.1 Source

U. S. Steel Corporation
Granite City Works
20th and State Streets
Granite City, Illinois 62040
618/451-3456

I.D. No.: 119813AAI
County: Madison
Standard Industrial Classification: 3312, Integrated Steel Mill

Responsible Official: Richard E. Veitch, General Manager

Delegated Authorities:
Michelle Fields, Division Manager - Coke and Iron Making;
Michael Terry, Division Manager - Steelmaking

1.2 Owner/Parent Company

United States Steel Corporation
600 Grant Street
Pittsburgh, Pennsylvania 15219

1.3 Operator

U. S. Steel Corporation
Granite City Works
20th and State Streets
Granite City, Illinois 62040

Contact Person:
Bryan Kresak, Manager Environmental Control
618/451-3456

1.4 Source Description

Integrated steel manufacturing employing raw material processing/preparation, coke production, iron production, steel production, and steel finishing.

1.5 Title I Conditions

As generally identified below, this CAAPP permit contains certain conditions for emission units at this source that address the applicability of permitting programs for the construction and modification of sources, which programs were established pursuant to Title I of the Clean Air Act (CAA) and regulations thereunder. These programs include 40 CFR 52.21, Prevention of Significant Deterioration (PSD) and 35 IAC Part 203, Major Stationary Sources Construction and Modification (MSSCAM), and are implemented by the Illinois EPA pursuant to Sections 9, 9.1, 39(a) and 39.5(7)(a) of the Illinois Environmental Protection Act (Act). These conditions continue in effect,

notwithstanding the expiration date specified on the first page of this permit, as their authority derives from Titles I and V of the CAA, as well as Titles II and X of the Act. (See also Condition 8.7.)

a. This permit contains “Title I Conditions” that reflect Title I requirements established in permits previously issued for this source, which conditions are specifically designated as “T1”.

b. This permit contains Title I conditions that are newly established in this CAAPP permit, which conditions are specifically designated as “T1N”.

2.0 LIST OF ABBREVIATIONS AND ACRONYMS COMMONLY USED

ACMA	Alternative Compliance Market Account
Act	Illinois Environmental Protection Act [415 ILCS 5/1 et seq.]
AP-42	Compilation of Air Pollutant Emission Factors, Volume 1, Stationary Point and Other Sources (and Supplements A through F), USEPA, Office of Air Quality Planning and Standards, Research Triangle Park, NC 27711
ATU	Allotment Trading Unit
BACT	Best Available Control Technology
BAT	Best Available Technology
BFG	Blast Furnace Gas
BOF	Basic Oxygen Furnace
BOPF	Basic Oxygen Process Furnace
BTX	Benzene, toluene and xylene
CAA	Clean Air Act [42 U.S.C. Section 7401 et seq.]
CAAPP	Clean Air Act Permit Program
CAM	Compliance Assurance Monitoring
CEMS	Continuous Emission Monitoring System
CFR	Code of Federal Regulations
COG	Coke Oven Gas
COG-DS	Coke Oven Gas Desulfurization System
COMS	Continuous Opacity Monitoring System
CPMS	Continuous Parameters Monitoring System
dscf	Dry standard cubic feet
ERMS	Emissions Reduction Market System
ESP	Electro Static Precipitator
°F	Fahrenheit
FESOP	Federally Enforceable State Operating Permit
GHG	Greenhouse Gases
gr	grains
HAP	Hazardous Air Pollutant
HCL	Hydrogen Chloride
H_2S	Hydrogen Sulfate
IAC	Illinois Administrative Code
I.D. No.	Identification Number of Source, assigned by Illinois EPA
ILCS	Illinois Compiled Statutes
Illinois EPA	Illinois Environmental Protection Agency
LAER	Lowest Achievable Emission Rate
LMF	Ladle Metallurgy Furnace
MACT	Maximum Achievable Control Technology
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO_x	Nitrogen Oxides
NSPS	New Source Performance Standards
PM	Particulate Matter
PM_{10}	Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 microns as measured by applicable test or monitoring methods

$PM_{2.5}$	Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 microns as measured by applicable test or monitoring methods
ppm	Parts per million
PSD	Prevention of Significant Deterioration
RMP	Risk Management Plan
scf	Standard cubic feet
SO_2	Sulfur Dioxide
SSM	Startup, Shutdown and Malfunction
T1	Title I – identifies Title I conditions that have been carried over from an existing permit
T1N	Title I New – identifies Title I conditions that are being established in this permit
T1R	Title I Revised – identifies Title I conditions that have been carried over from an existing permit and subsequently revised in this permit
USEPA	United States Environmental Protection Agency
VHAP	Volatile Hazardous Air Pollutant
VOM	Volatile Organic Material

3.0 CONDITIONS FOR INSIGNIFICANT ACTIVITIES

3.1 Identification of Insignificant Activities

The following activities at the source constitute insignificant activities as specified in 35 IAC 201.210:

3.1.1 Activities determined by the Illinois EPA to be insignificant activities, pursuant to 35 IAC 201.210(a)(1) and 201.211, as follows:

a. Material Handling and Processing Operations

N/A

b. Coke Production

N/A

c. Coke Oven Gas By-Products Recovery Plant

Ammonium Sulfate Handling

d. Blast Furnaces

N/A

e. Basic Oxygen Furnaces

N/A

f. Continuous Casting

Tanks #543, #544, #545, #555

g. Finishing Operations

Scale Pits
#6 Zinc Pot (Backup)
#7 and #8 Zinc Pots
Storage Tanks ##306-310, #403, #427, #800, #815

h. Wastewater Treatment

N/A

i. Boiler Houses

N/A

3.1.2 Activities that are insignificant activities based upon maximum emissions, pursuant to 35 IAC 201.210(a)(2) or (a)(3), as follows:

a. Material Handling Operations

N/A

b. Coke Production

N/A

c. Coke Oven Gas By-Products Recovery Plant

Storage Tanks #116, #117, #118, #120

d. Blast Furnaces

Torpedo Car Dekishing

e. Basic Oxygen Furnaces

Lime/Magnesium Handling and Storage Unit

f. Continuous Casting

N/A

g. Finishing Operations

72″ Line and Cold Mill

h. Wastewater Treatment

N/A

i. Boiler Houses

N/A

3.1.3 Activities that are insignificant activities based upon their type or character, pursuant to 35 IAC 201.210(a)(4) through (18), as follows:

a. Material Handling Operations

Direct combustion units designed and used for comfort heating purposes and fuel combustion emission units as follows: (A) Units with a rated heat input capacity of less than 2.5 mmBtu/hr that fire only natural gas, propane, or liquefied petroleum gas; (B) Units with a rated heat input capacity of less than 1.0 mmBtu/hr that fire only oil or oil in combination with only natural gas, propane, or liquefied petroleum gas; and (C) Units with a rated heat input capacity of less than 200,000 Btu/hr which never burn refuse, or treated or chemically contaminated wood [35 IAC 201.210(a)(4)].

b. Coke Production

Direct combustion units designed and used for comfort heating purposes and fuel combustion emission units as follows: (A) Units with a rated heat input capacity of less than 2.5 mmBtu/hr that fire only natural gas, propane, or liquefied petroleum gas; (B) Units with a rated heat input capacity of less than 1.0 mmBtu/hr that fire only oil or oil in combination with only natural gas, propane, or liquefied petroleum gas; and (C) Units with a rated heat input capacity of less than 200,000 Btu/hr which never burn refuse, or treated or chemically contaminated wood [35 IAC 201.210(a)(4)].

Storage tanks of virgin or re-refined distillate oil, hydrocarbon condensate from natural gas pipeline or storage systems, lubricating oil, or residual fuel oils [35 IAC 201.210(a)(11)].

Storage tanks of any size containing exclusively soaps, detergents, surfactants, glycerin, waxes, vegetable oils, greases, animal fats, sweeteners, corn syrup, aqueous salt solutions, or aqueous caustic solutions, provided an organic solvent has not been mixed with such materials [35 IAC 201.210(a)(17)].

c. Coke Oven Gas By-Products Recovery Plant

Storage tanks of organic liquids with a capacity of less than 10,000 gallons and an annual throughput of less than 100,000 gallons, provided the storage tank is not used for the storage of gasoline or any material listed as a HAP pursuant to Section 112(b) of the CAA [35 IAC 201.210(a)(10)].

Storage tanks of virgin or re-refined distillate oil, hydrocarbon condensate from natural gas pipeline or storage systems, lubricating oil, or residual fuel oils [35 IAC 201.210(a)(11)].

Storage tanks of any size containing exclusively soaps, detergents, surfactants, glycerin, waxes, vegetable oils, greases, animal fats, sweeteners, corn syrup, aqueous salt solutions, or aqueous caustic solutions, provided an organic solvent has not been mixed with such materials [35 IAC 201.210(a)(17)].

d. Blast Furnaces

Direct combustion units designed and used for comfort heating purposes and fuel combustion emission units as follows: (A) Units with a rated heat input capacity of less than 2.5 mmBtu/hr that fire only natural gas, propane, or liquefied petroleum gas; (B) Units with a rated heat input capacity of less than 1.0 mmBtu/hr that fire only oil or oil in combination with only natural gas, propane, or liquefied petroleum gas; and (C) Units with a rated heat

input capacity of less than 200,000 Btu/hr which never burn refuse, or treated or chemically contaminated wood [35 IAC 201.210(a)(4)].

Storage tanks of virgin or re-refined distillate oil, hydrocarbon condensate from natural gas pipeline or storage systems, lubricating oil, or residual fuel oils [35 IAC 201.210(a)(11)].

e. Basic Oxygen Furnaces

Direct combustion units designed and used for comfort heating purposes and fuel combustion emission units as follows: (A) Units with a rated heat input capacity of less than 2.5 mmBtu/hr that fire only natural gas, propane, or liquefied petroleum gas; (B) Units with a rated heat input capacity of less than 1.0 mmBtu/hr that fire only oil or oil in combination with only natural gas, propane, or liquefied petroleum gas; and (C) Units with a rated heat input capacity of less than 200,000 Btu/hr which never burn refuse, or treated or chemically contaminated wood [35 IAC 201.210(a)(4)].

Storage tanks of organic liquids with a capacity of less than 10,000 gallons and an annual throughput of less than 100,000 gallons, provided the storage tank is not used for the storage of gasoline or any material listed as a HAP pursuant to Section 112(b) of the CAA [35 IAC 201.210(a)(10)].

f. Continuous Casting

Direct combustion units designed and used for comfort heating purposes and fuel combustion emission units as follows: (A) Units with a rated heat input capacity of less than 2.5 mmBtu/hr that fire only natural gas, propane, or liquefied petroleum gas; (B) Units with a rated heat input capacity of less than 1.0 mmBtu/hr that fire only oil or oil in combination with only natural gas, propane, or liquefied petroleum gas; and (C) Units with a rated heat input capacity of less than 200,000 Btu/hr which never burn refuse, or treated or chemically contaminated wood [35 IAC 201.210(a)(4)].

Storage tanks of organic liquids with a capacity of less than 10,000 gallons and an annual throughput of less than 100,000 gallons, provided the storage tank is not used for the storage of gasoline or any material listed as a HAP pursuant to Section 112(b) of the CAA [35 IAC 201.210(a)(10)].

Storage tanks of virgin or re-refined distillate oil, hydrocarbon condensate from natural gas pipeline or storage systems, lubricating oil, or residual fuel oils [35 IAC 201.210(a)(11)].

Storage tanks of any size containing exclusively soaps, detergents, surfactants, glycerin, waxes, vegetable oils, greases, animal fats, sweeteners, corn syrup, aqueous salt solutions, or aqueous caustic solutions, provided an organic solvent has not been mixed with such materials [35 IAC 201.210(a)(17)].

g. Finishing Operations

Direct combustion units designed and used for comfort heating purposes and fuel combustion emission units as follows: (A) Units with a rated heat input capacity of less than 2.5 mmBtu/hr that fire only natural gas, propane, or liquefied petroleum gas; (B) Units with a rated heat input capacity of less than 1.0 mmBtu/hr that fire only oil or oil in combination with only natural gas, propane, or liquefied petroleum gas; and (C) Units with a rated heat input capacity of less than 200,000 Btu/hr which never burn refuse, or treated or chemically contaminated wood [35 IAC 201.210(a)(4)].

Storage tanks of organic liquids with a capacity of less than 10,000 gallons and an annual throughput of less than 100,000 gallons, provided the storage tank is not used for the storage of gasoline or any material listed as a HAP pursuant to Section 112(b) of the CAA [35 IAC 201.210(a)(10)].

Storage tanks of virgin or re-refined distillate oil, hydrocarbon condensate from natural gas pipeline or storage systems, lubricating oil, or residual fuel oils [35 IAC 201.210(a)(11)].

Storage tanks of any size containing exclusively soaps, detergents, surfactants, glycerin, waxes, vegetable oils, greases, animal fats, sweeteners, corn syrup, aqueous salt solutions, or aqueous caustic solutions, provided an organic solvent has not been mixed with such materials [35 IAC 201.210(a)(17)].

h. Wastewater Treatment

Storage tanks of organic liquids with a capacity of less than 10,000 gallons and an annual throughput of less than 100,000 gallons, provided the storage tank is not used for the storage of gasoline or any material listed as a HAP pursuant to Section 112(b) of the CAA [35 IAC 201.210(a)(10)].

Storage tanks of virgin or re-refined distillate oil, hydrocarbon condensate from natural gas pipeline or storage systems, lubricating oil, or residual fuel oils [35 IAC 201.210(a)(11)].

Storage tanks of any size containing exclusively soaps, detergents, surfactants, glycerin, waxes, vegetable oils, greases, animal fats, sweeteners, corn syrup, aqueous salt solutions, or aqueous caustic solutions, provided an organic solvent has not been mixed with such materials [35 IAC 201.210(a)(17)].

i. Boiler Houses

Direct combustion units designed and used for comfort heating purposes and fuel combustion emission units as follows: (A) Units with a rated heat input capacity of less than 2.5 mmBtu/hr that fire only natural gas, propane, or liquefied petroleum gas; (B) Units with a rated heat input capacity of less than 1.0 mmBtu/hr that fire only oil or oil in combination with only natural gas, propane, or liquefied petroleum gas; and (C) Units with a rated heat input capacity of less than 200,000 Btu/hr which never burn refuse, or treated or chemically contaminated wood [35 IAC 201.210(a)(4)].

Storage tanks of organic liquids with a capacity of less than 10,000 gallons and an annual throughput of less than 100,000 gallons, provided the storage tank is not used for the storage of gasoline or any material listed as a HAP pursuant to Section 112(b) of the CAA [35 IAC 201.210(a)(10)].

Storage tanks of virgin or re-refined distillate oil, hydrocarbon condensate from natural gas pipeline or storage systems, lubricating oil, or residual fuel oils [35 IAC 201.210(a)(11)].

Gas turbines and stationary reciprocating internal combustion engines of less than 112 kW (150 horsepower) power output [35 IAC 201.210(a)(15)].

Storage tanks of any size containing exclusively soaps, detergents, surfactants, glycerin, waxes, vegetable oils, greases, animal fats, sweeteners, corn syrup, aqueous salt solutions, or aqueous caustic solutions, provided an organic solvent has not been mixed with such materials [35 IAC 201.210(a)(17)].

3.1.4 Activities that are considered insignificant activities pursuant to 35 IAC 201.210(b). Note: These activities are not required to be individually listed.

3.2 Compliance with Applicable Requirements

Insignificant activities are subject to applicable requirements notwithstanding status as insignificant activities. In particular, in addition to regulations of general applicability, such as 35 IAC 212.301 and 212.123 (Condition 5.3.2), the Permittee shall comply with the following requirements, as applicable:

3.2.1 For each particulate matter process emission unit, the Permittee shall comply with the applicable particulate matter emission limit of 35 IAC 212.321 or 212.322 (see Attachment 2) and 35 IAC Part 266. For example, the particulate matter emissions from a process emission unit shall not exceed 0.55 pounds per hour if the emission unit's process weight rate is 100 pounds per hour or less, pursuant to 35 IAC 266.110.

3.2.2 For each organic material emission unit that uses organic material, e.g., a mixer or printing line, the Permittee shall comply with the applicable VOM emission limit of 35 IAC 219.301, which requires that organic material emissions not exceed 8.0 pounds per hour or, if no odor nuisance exists, do not qualify as photochemically reactive material as defined in 35 IAC 211.4690.

3.2.3 For each cold cleaning degreaser, the Permittee shall comply with the applicable equipment and operating requirements of 35 IAC 219.182.

3.2.4 For each open burning activity, the Permittee shall comply with 35 IAC Part 237, including the requirement to obtain a permit for open burning in accordance with 35 IAC 237.201, if necessary.

3.2.5 For each storage tank that has a storage capacity greater than 946 liters (250 gallons) and, if no odor nuisance exists, that stores an organic material with a vapor pressure exceeding 2.5 psia, the Permittee shall comply with the applicable requirements of 35 IAC 219.122, which requires use of a permanent submerged loading pipe, submerged fill, a vapor recovery system, or an equivalent device approved by the Illinois EPA. [Note: storage tanks used for storing gasoline and any hazardous air pollutants are not eligible for insignificant activities].

3.2.6 For sulfuric acid operations and storage, the Permittee shall comply with the following emission limits of sulfuric acid and/or sulfur trioxide from all emission sources (with the exception of fuel combustion emission sources and acid manufacturing) at a plant or premises, pursuant to 35 IAC 214.303:

a. 45.4 grams in any one hour period for sulfuric acid usage less than 1180 Mg/yr (100 percent acid basis) (0.10 lbs/hr up to 1300 T/yr); and

b. 250 grams per metric ton of acid used for sulfuric acid usage greater than or equal to 1180 Mg/yr (100 percent acid basis) (0.50 lbs/T over 1300 T/yr).

3.3 Addition of Insignificant Activities

3.3.1 The Permittee is not required to notify the Illinois EPA of additional insignificant activities present at the source of a

type that is identified in Condition 3.1, until the renewal application for this permit is submitted, pursuant to 35 IAC 201.212(a).

3.3.2 The Permittee must notify the Illinois EPA of any proposed addition of a new insignificant activity of a type addressed by 35 IAC 201.210(a) and 201.211 other than those identified in Condition 3.1, pursuant to Section 39.5(12)(b) of the Act.

3.3.3 The Permittee is not required to notify the Illinois EPA of additional insignificant activities present at the source of a type identified in 35 IAC 201.210(b).

4.0 SUMMARY OF SIGNIFICANT EMISSION UNITS AT THIS SOURCE

Department	Description	Emission Control Equipment	Section
Material Handling and Processing Operations	Coal Crusher, Coal Pulverizer, Conveyors, Screens, Storage Bins, Feed Hoppers	Baghouse, Various Dust Collectors and Enclosures	7.1
Coke Production	Coke Oven Batteries “A” and “B” Coke Quenching	Water Scrubber; Flares Tower, Baffles	7.2
Coke By-Product Recovery Plant	Various Storage Tanks and Process Vessels	Vapor Recovery System and Various Blanketing and Negative Pressure Systems	7.3
COG Desulfurization System	Amine Unit and SRU Unit	Thermal Oxidizer	
COG System	Holding Tank and COG Flare	None	
Blast Furnaces	Blast Furnaces “A” and “B” BFG Flares #1 and #2	Casthouse Baghouse; Iron Spout Baghouse	7.4
Basic Oxygen Processes	BOF #1/#2 and Auxiliary Equipment	Electrostatic Precipitator; Baghouses	7.5
Continuous Casting	Continuous Casting and Slab Formation	None	7.6
Hot Strip Mill	Slab Reheat Furnaces	None	7.7
Finishing Operations	Pickling Line, Galvanizing Lines, Coating Operations	Fume Scrubbers; Catalytic Converter	7.8
Wastewater Treatment Plant	Various tanks, filtration and Lagoons	None	7.9
Boilers	Power Boiler #1 Boilers #11 and #12 Cooling Water Tower Portable Boilers #1 - #4	Flue Gas Recirculation (planned for Boilers #11 and #12)	7.10
Internal Combustion Engine	Emergency Engine-Generator	None	7.11
Gasoline Storage and Dispensing	Four Gasoline Storage Tanks and associated Dispensing Operations	None	7.12

Department	Description	Emission Control Equipment	Section
Fugitive Dust	Landfill Vehicular Traffic on Roadways, Parking Lots and Other Open Areas Storage Piles including truck unloading, wind erosion and material transfer from storage piles, beaching areas	None	7.13

5.0 OVERALL SOURCE CONDITIONS

5.1 Applicability of Clean Air Act Permit Program (CAAPP)

5.1.1 This permit is issued based on the source requiring a CAAPP permit as a major source of NO_x, PM_{10}, SO_2, VOM, CO, GHG and HAP emissions.

5.1.2 For purposes of the CAAPP, U.S. Steel is considered a single source with Stein Steel Mill Services (I.D. 119813AAD) located at 20th Street and Edwardsville in Granite City. Stein Steel Mill Services has a separate CAAPP permit for it operations.

5.1.3 For purposes of the CAAPP, U.S. Steel is considered a single source with Granite City Slag, LLC (I.D. 119040ATF) located at 20th Street and Edwardsville in Granite City. Granite City Slag has a separate CAAPP permit for it operations.

5.1.4 For purposes of the CAAPP, U.S. Steel is considered a single source with AKJ Industries, Inc (I.D. 119040AEB) located at 20th Street and Edwardsville in Granite City. AKJ Industries has a separate CAAPP permit for it operations.

5.1.5 For purposes of the CAAPP, U.S. Steel is considered a single source with Oil Technology, Inc (I.D. 119040ATG) located onsite of Granite City Steel (Route 203) in Granite City. Oil Technology has a separate CAAPP permit for it operations.

5.1.6 For purposes of the CAAPP, U.S. Steel is considered a single source with Tube City IMS (I.D.119040ATL) located at 2500 East 23rd Street in Granite City. Tube City has a separate CAAPP permit for it operations.

5.1.7 For purposes of the CAAPP, U.S. Steel is considered a single source with Gateway Energy & Coke Co LLC (I.D. 119040ATN) located at Edwardsville Road in Granite City. Gateway Energy & Coke has elected to obtain a separate CAAPP permit for its operations.

5.2 Area Designation

5.2.1 This permit is issued based on the source being located in an area that, as of the date of permit issuance, is designated nonattainment for the National Ambient Air Quality Standards for ozone (moderate nonattainment), $PM_{2.5}$ and lead, and attainment or unclassifiable for all other criteria pollutants (PM_{10}, CO, NO_x, SO_2).

5.3 Source-Wide Applicable Provisions and Regulations

5.3.1 Specific emission units at this source are subject to particular regulations as set forth in Section 7 (Unit-Specific Conditions for Specific Emission Units) of this permit.

5.3.2 Fugitive Dust

a. This source shall be operated under the provisions of Fugitive Particulate Matter Operating Program prepared by the Permittee and submitted to the Illinois EPA for its review. Such operating program shall be designed to significantly reduce fugitive particulate matter emissions [35 IAC 212.309(a)]. The Permittee shall comply with the fugitive particulate matter operating program and any amendments to the program submitted pursuant to Condition 5.3.2(b), as required by 35 IAC 212.309. As a minimum, the operating program shall include provisions identified in 35 IAC 212.310(a) through (g) and the following:

   i. A detailed description of the best management practices utilized to achieve compliance with 35 IAC 212.304 through 212.308.

   ii. Estimated frequency of application of dust suppressants by location; and

   iii. Such other information as may be necessary to facilitate the Illinois EPA's review of the operating program.

b. Pursuant to 35 IAC 212.312, the operating program shall be amended from time to time by the Permittee so that the operating program is current. Such amendments shall be consistent with the requirements set forth by this Condition 5.3.2 and shall be submitted to the Illinois EPA within 30 days of such amendment.

c. In addition to the items described above in Condition 5.3.2(a), the Permittee shall include the following additional plans and programs as part of the Fugitive Particulate Matter Operating Program:

   i. Housekeeping program for non-roadway areas as required by Condition 7.13.5(a)(i)(B);

   ii. Road Cleaning Program as required by Condition 7.13.5(d); and

   iii. On-site fugitive dust control program as referenced in Condition 7.13.9(b).

d. The revised Fugitive Particulate Matter Operating Program, submitted by the Permittee on August 12, 2009, (identified as Revision 8 and necessitated by changes to responsible officials and description of areas treated] and containing an attached Table and Map for the iron-making and steel-making roads respectively), is incorporated herein by reference. The document constitutes the formal operating program required under 35 IAC 212.310, addressing the control of fugitive particulate matter emissions from all plant roadways, including the iron-making and steel-making

roads, storage piles, access areas near storage piles, and other subject operations located at the facility that are subject to 35 IAC 212.309.

Any future revision to the aforementioned operating program made by the Permittee during the permit term is automatically incorporated by reference provided that said revision is not expressly disapproved, in writing, by the Illinois EPA within 30 days of receipt of said revision. In the event that the Illinois EPA notifies the Permittee of a deficiency with any revision to the operating program, the Permittee shall be required to revise and resubmit the operating program within 30 days of receipt of notification to address the deficiency [415 ILCS 39.5(7)(a)].

e. Pursuant to 35 IAC 212.301, the affected emission units at the source shall not cause or allow the emission of fugitive particulate matter from any process, including any material handling or storage activity, that is visible by an observer looking generally toward the zenith at a point beyond the property line of the source.

f. Pursuant to 35 IAC 212.307, all unloading and transporting operations of materials collected by pollution control equipment shall be enclosed or shall utilize spraying, pelletizing, screw conveying or other equivalent methods.

5.3.3 PM_{10} Contingency Measure Plan

a. This stationary source meets the criteria in 35 IAC 212.700 and is required to prepare and submit a contingency measure plan reflecting the PM_{10} emission reductions as set forth in 35 IAC 212.701 and 212.703.

b. PM_{10} Contingency Measure Plan shall be implemented by the Permittee in accordance with 35 IAC 212.704 upon notification from the Illinois EPA.

c. Pursuant to 35 IAC 212.701(c), for operational changes subject to Sections 212.304, 212.305, 212.306, 212.308, 212.316(a) through (e), 212.424 or 212.464 which require either a new permit or a revision to an existing permit the Permittee shall, within 30 days after such changes, submit a request to modify this CAAPP permit in order to include a new, appropriate contingency measure plan.

d. The plan, as submitted by the Permittee on November 15, 1994 (which includes tabulations of PM_{10} fugitive emissions, maps for the steel-works and iron making respectively, and a comparative analysis of contingency requirements and existing road programs), is incorporated herein by reference. The document constitutes the formal PM_{10} Contingency Measure Plan required by 35 IAC 212.701, addressing the Levels 1 and 2 control measures for reducing annual source-wide fugitive emissions of PM_{10} from plant

roads (paved and unpaved) and materials handling operations in the event of an exceedance of the 24-hour ambient air quality standard for PM10 under 35 IAC 212.704 or 212.705.

5.3.4 Ozone Depleting Substances

The Permittee shall comply with the standards for recycling and emissions reduction of ozone depleting substances pursuant to 40 CFR Part 82, Subpart F, except as provided for motor vehicle air conditioners in Subpart B of 40 CFR Part 82:

a. Persons opening appliances for maintenance, service, repair, or disposal must comply with the required practices pursuant to 40 CFR 82.156.

b. Equipment used during the maintenance, service, repair, or disposal of appliances must comply with the standards for recycling and recovery equipment pursuant to 40 CFR 82.158.

c. Persons performing maintenance, service, repair, or disposal of appliances must be certified by an approved technician certification program pursuant to 40 CFR 82.161.

5.3.5 Standards for Asbestos Demolition and Renovation (40 CFR 61.145)

a. Prior to demolition or renovation of the affected facility or part of the affected facility, the Permittee shall fulfill notification requirements established by 40 CFR 61.145(b).

b. During demolition or renovation, the Permittee shall comply with the procedures for asbestos emission control established by 40 CFR 61.145(c).

5.3.6 Future Emission Standards

Should this stationary source become subject to a regulation under 40 CFR Parts 60, 61, 62, or 63, or 35 IAC Subtitle B after the date this permit is issued, then the owner or operator shall, in accordance with the applicable regulation(s), comply with the applicable requirements by the date(s) specified and shall certify compliance with the applicable requirements of such regulation(s) as part of the annual compliance certification, as required by Condition 9.8. This permit may also have to be revised or reopened to address such new regulations (see Condition 9.12.2).

5.3.7 Episode Action Plan

a. Pursuant to 35 IAC 244.141, the Permittee shall maintain at the source and have on file with the Illinois EPA a written Episode Action Plan (plan) for reducing the levels of emissions during yellow alerts, red alerts, and emergencies, consistent with safe operating procedures.

b. The Permittee shall immediately implement the appropriate steps described in this plan should an air pollution alert or emergency be declared, as required by 35 IAC 244.169, or as may otherwise be required under 35 IAC 244, Appendix D.

c. If an operational change occurs at the source which invalidates the plan, a revised plan shall be submitted to the Illinois EPA for review within 30 days of the change, pursuant to 35 IAC 244.143(d). Such plans shall be further revised if disapproved by the Illinois EPA.

d. The revised plan, submitted by the Permittee on October 19, 2009, (which contains a completed APC Form 100 and attached Tables I-V identifying additional actions to be implemented), is incorporated herein by reference. The document constitutes the formal Episode Action Plan required by 35 IAC 244.142, addressing the actions that will be implemented to reduce SO_2, PM_{10}, NO_2, CO and VOM emissions from various emissions units in the event of a yellow alert, red alert or emergency issued under 35 IAC 244.161-244.165.

Any future revision to the aforementioned plan made by the Permittee during the permit term is automatically incorporated by reference provided that said revision is not expressly disapproved, in writing, by the Illinois EPA within 30 days of receipt of said revision. In the event that the Illinois EPA notifies the Permittee of a deficiency with any revision to the plan, the Permittee shall be required to revise and resubmit the plan within 30 days of receipt of notification to address the deficiency [415 ILCS 39.5(7)(a)].

5.3.8 Risk Management Plan (RMP)

Should this stationary source, as defined in 40 CFR 68.3, become subject to the federal regulations for Chemical Accident Prevention in 40 CFR Part 68, then the owner or operator shall submit the items below. This condition is imposed in this permit pursuant to 40 CFR 68.215(a)(2)(i) and (ii).

a. A compliance schedule for meeting the requirements of 40 CFR Part 68 by the date provided in 40 CFR 68.10(a); or

b. A certification statement that the source is in compliance with all requirements of 40 CFR Part 68, including the registration and submission of the RMP, as part of the annual compliance certification required by Condition 9.8.

5.3.9 Energy Assessment (40 CFR 63, Subpart DDDDD)

Pursuant to 40 CFR 63.7500(a)(1) and Item 3 of Table 3 of 40 CFR 63 Subpart DDDDD, the Permittee must have a one-time energy assessment performed on the major source facility (i.e., the facility) by a qualified energy assessor. This energy

assessment shall be completed no later than the applicable compliance date of this NESHAP for existing sources and meet requirements in Table 3, including preparation of a comprehensive report detailing the ways to improve efficiency, the cost of specific improvements, benefits, and the time frame for recouping those investments. This energy assessment shall be conducted consistent with the definitions for “energy assessment”, “energy management practices” and “energy use system” in 40 CFR 63.7575

5.4 Source-Wide Non-Applicability of Regulations of Concern

a. Except where noted, 35 IAC 212.321 and 212.322 shall not apply to the steel manufacturing processes subject to 35 IAC 212.442 through 212.452 [35 IAC 212.441].

b. Except where noted, emission limitations of 35 IAC 212.324 are not applicable to any emission unit subject to a specific emissions standard or limitation contained in 35 IAC Subpart R, Primary and Fabricated Metal Products and Machinery Manufacture pursuant to 35 IAC 212.324(a)(3)(C).

c. This source (as a source of coke manufacturing, by-products recovery plant, iron and steel production) is excluded from the control requirements of 35 IAC Part 219 Subpart TT pursuant to 35 IAC 219.980(e).

d. This source does not receive any off-site waste as defined in 40 CFR 63.680(b) and, therefore is not subject to 40 CFR Part 63 Subpart DD “Off-site Waste and Recovery Operations”.

e. The source is not required to address 40 CFR Part 64, Compliance Assurance Monitoring (CAM) for Major Stationary Sources at the time of issuance of this permit, because the initial CAAPP application was submitted prior to April 1998 [40 CFR 64.5(a)(1)].

5.5 Source-Wide Control Requirements and Work Practices

The Permittee (U.S. Steel), in conjunction with Gateway Energy and Coke Company shall maintain 267.77 tons of PM_{10} emission offsets generated by the following activities/projects (see also Sections 7.3 and 7.13):

Activity/Project	(Tons/Year)
Coke Oven Gas (COG) Desulfurization Project	31.74
Road Cleaning Program	236.03
Total:	267.77

a. These emission reductions have been relied upon by the Illinois EPA to issue Construction Permits 06070088 and 06070020 for projects by the Permittee and Gateway, respectively and cannot be used as emission reduction credits for other purposes.

b. If the Permittee proposes to rely upon emission offsets from other sources or other activities/projects, the Permittee shall

apply for and obtain a revision to Permit 06070088 prior to relying on such emission offsets, which application shall be accompanied by detailed documentation for the nature and amount of those alternative emission offsets.

5.6 Source-Wide Production and Emission Limitations

5.6.1 Emissions of Hazardous Air Pollutants

Source-wide emission limitations for HAPs as listed in Section 112(b) of the CAA are not set. This source is considered to be a major source of HAPs.

5.6.2 Other Source-Wide Production and Emission Limitations from existing permits:

a. Provisions from Construction Permit #95010001

i. Total production of iron and steel by U.S. Steel/Granite City plant shall not exceed the following limits. Compliance with these annual production limits shall be determined on a month by month basis by showing that the actual production of iron and steel from the plant did not exceed the scheduled rate of production for a month given in the most recent production schedule provided to the Illinois EPA Compliance Section and Collinsville Regional Office as provided below [T1]:

Product	Net tons/yr
Iron	3,165,000
Steel	3,580,000

A. If no production schedule is submitted to the Illinois EPA by the Permittee for a particular year, the scheduled monthly production of iron and steel shall be set at one twelfth of the annual production limits in Condition 5.6.2(a)(i) above.

B. 1. The Permittee may submit a schedule for iron and steel production for each month of the calendar year. Such schedule shall provide the scheduled monthly iron and steel production for each month and the total of such scheduled production shall not exceed the annual production limits in Condition 5.6.2(a)(i) above. This schedule shall be submitted each year no later than December 15th of the preceding year.

2. During the course of the year, the Permittee may submit a revised production

schedule which accounts for actual production levels which were below that scheduled for the previous months, provided that in no case shall the scheduled production for prior months in such a revised schedule be lowered to less than actual production levels or raised. Such revised schedule shall be submitted no later than 15 days after the first day of the month for which scheduled production has been raised. Such schedule shall be accompanied by data on actual production in preceding months.

ii. Total fuel usage for blast furnaces stoves (A and B), boilers 11 and 12, ladle drying preheaters and blast furnace gas flare #1 and shall not exceed the following limits. Compliance with the monthly limits shall be determined by direct comparison of monthly data to the applicable limit. Compliance with the annual limits shall be determined based on a calendar year [T1]:

A. Natural Gas usage:

225 million ft^3 per month and 1,346 million ft^3 per year;

B. Blast Furnace Gas (BFG) usage:

30,800 million ft^3 per month and 185,030 million ft^3 per year; and

C. Fuel Oil usage:

60,000 gallons per month and 365,000 gallons per year.

iii. A. Annual emissions from the fuel combustion units identified in Condition 5.6.2(a)(ii) above shall not exceed the following limits in tons/year:

PM/PM_{10}	SO_2*	NO_x	VOM	CO	Lead
274	641	706	2	1,295	0.06

* These limits have been addressed by an enforcement action, with a compliance schedule established for compliance with these limits. (See Condition 7.4.13)

B. Annual emissions from each individual fuel used in the fuel combustion units identified in

Condition 5.6.2(a)(ii) above shall not exceed the following limits:

1. Natural Gas

Pollutant	Emission Factor (Lbs/mmcf)	Maximum Emissions (Tons/Yr)
PM	5.1	3.43
PM_{10}	5.1	3.43
SO_2	0.6	0.40
NO_x	306.0	205.94
VOM	2.8	1.88
CO	40.0	26.92

2. BFG

Pollutant	Emission Factor (Lbs/mmcf)	Maximum Emissions (Tons/Yr)
PM	2.90	268.29
PM_{10}	2.90	268.29
SO_2	6.65*	615.22*
NO_x	5.28	488.48
CO	13.70	1,267.46

* These limits have been addressed by an enforcement action, with a compliance schedule established for compliance with these factors and limits. (See Condition 7.4.13)

3. Fuel Oil

Pollutant	Emission Factor (Lbs/Mgal)	Maximum Emissions (Tons/Yr)
PM	9.72	1.77
PM_{10}	9.75	1.77
SO_2	141.30	25.79
NO_x	55.00	10.04
VOM	0.28	0.05
CO	5.00	0.91
Lead	0.336	0.06 (Waste Oil)

C. Compliance with the annual limits in Condition 5.6.2(a)(iii) shall be determined based on a calendar year.

b. Provisions from Construction Permit #06070022:

Annual emissions of the source from combustion of COG shall not exceed the following limits [T1)]

	Limits (Tons/Year)	
	PM_{10}	SO_2
"Outage" of Affected System	47.55	530.59
Total (includes normal and outage):	224.80	807.90

c. Provisions from FESOP #94120017:

Emissions of SO_2 from the so called "sulfur dioxide emission units" operated at the source shall not exceed the following limits. Compliance with the limits shall be determined in accordance with the procedure in Condition 5.12.

Unit Operating Group	Sulfur Dioxide Emissions		
	(Lbs/3-Hours)	(Lbs/Day)	(Tons/Yr)
Slab Reheat Furnaces 1-3	2,299	9,754	987
Slab Reheat Furnace 4	---	11,873	1,204
Blast Furnace Stoves A and B	---	19,774	3,609
Boilers 11 and 12	---	20,584	3,756
Ladle Drying Preheaters	555	2,786	509
Blast Furnace Casthouse Baghouse	---	3,430	626
Iron Spout Baghouse	---	170	31

5.7 Source-Wide Testing Requirements

Pursuant to 35 IAC 201.282 and Section 4(b) of the Act, every emission source or air pollution control equipment shall be subject to the following testing requirements for the purpose of determining the nature and quantities of specified air contaminant emissions and for the purpose of determining ground level and ambient air concentrations of such air contaminants:

a. Testing by Owner or Operator: The Illinois EPA may require the owner or operator of the emission source or air pollution control equipment to conduct such tests in accordance with procedures adopted by the Illinois EPA, at such reasonable times as may be specified by the Illinois EPA and at the expense of the owner or operator of the emission source or air pollution control equipment. All such tests shall be made by or under the direction of a person qualified by training and/or experience in the field of air pollution testing. The Illinois EPA shall have the right to observe all aspects of such tests [35 IAC 201.282(a)].

b. Testing by the Illinois EPA: The Illinois EPA shall have the right to conduct such tests at any time at its own expense. Upon request of the Illinois EPA, the owner or operator of the emission source or air pollution control equipment shall provide, without charge to the Illinois EPA, necessary holes in stacks or ducts and other safe and proper testing facilities, including scaffolding, but excluding instruments and sensing devices, as may be necessary [35 IAC 201.282(b)].

c. Any such tests are also subject to the Testing Procedures of Condition 8.5 set forth in the General Permit Conditions of Section 8.

5.8 Source-Wide Monitoring Requirements

a. Requirements for coke oven gas (COG) flow meters from FESOP #94120017: for purposes of these conditions, a Unit Operating Group is a group of emission units as defined in Condition 5.6.2(c).

Note: Requirements for monitoring the sulfur content of COG as present in FESOP #94120017 are included in Section 7.3 of this CAAPP permit.

i. The Permittee shall test, operate, and maintain a system for measuring the COG usage for each unit operating group.

ii. A flow meter shall be maintained on the main Blast Furnace and Steelworks COG feed lines and each individual emission unit or unit operating group and shall be used to measure the COG usage rate. The total COG usage for each unit operating group as a whole shall be the sum of the individual usage for the emission units of that group as measured by the individual meters or that measured by a single flow meter measuring the COG usage for the unit operating group as a whole.

iii. The COG flow meter system shall be capable of recording the COG usage in standard cubic feet on an hourly and daily basis. COG usage shall be obtained from the COG flow meter system to allow the determination of hourly and/or daily COG usage for each unit operating group, as needed for the emission rate calculations of this permit.

iv. The COG flow meter system shall be operated, and data collected, reduced and maintained, in accordance with the applicable requirements of 40 CFR 60.13 and 35 Ill. Adm. Code Part 201 Subpart L.

A. Each COG flow meter shall be tested at least every 12 months, in accordance with the procedures of 40 CFR 60, Appendix B, Performance Specification 6.

B. The results of these flow meter performance tests shall be sent to the Illinois EPA's Division of Air Pollution Control, Permit Section and Regional Office within 14 days after completion of the tests. In addition, the results shall be maintained in accordance with the recordkeeping requirements specified in this permit.

C. If a single flow meter on an unit operating group fails, then the COG usage for that group may be calculated using the difference between overall total COG usage and the total COG usage at the remaining properly operating COG flow meters, or the difference in COG usage from the main COG feed line of the affected unit operating group and the COG usage at the remaining properly operating flow meters associated with that main feed line.

D. In the event that several flow meters are down such that the above COG usage calculation is not possible, the COG usage for the affected unit operating group(s) shall be determined by a method approved by the Illinois EPA (e.g., use of temporary backup measurement system). In no case shall COG usage not be determined by a method described in this permit, or an approved alternative method, so as to result in insufficient data being obtained to determine the COG usage for any unit operating group as needed to evaluate compliance using the emission rate calculations of this permit.

v. In the event of malfunction or breakdown of a COG flow meter system, the Permittee shall repair and recalibrate the meter or monitoring system as soon as practicable but no later than 10 days after the malfunction or breakdown is detected, unless prior Illinois EPA approval is obtained by submitting a notification of extended outage and adequate justification to the Illinois EPA detailing the reasons for delay. Records of repair and recalibration must be maintained in accordance with the recordkeeping requirements of this CAAPP permit. This condition does not relieve the Permittee of the minimum data obtaining requirements of this CAAPP permit.

b. The Permittee shall conduct observations at the property line of the source for visible emissions of fugitive particular matter form the source to address compliance with 35 IAC 212.301, upon request by the Illinois EPA, as follows:

For this purpose, daily observations shall be conducted for a week for particular area(s) of concern at the source, as specified in the request. Observations shall begin either within one day or three days of receipt of a written request

from the Illinois EPA, depending, respectively, upon whether observations will be conducted by employees of the Permittee or a third-party observer hired by the Permittee to conduct observations on its behalf. The Permittee shall keep records for these observations, including identity of the observer, the date and time of observations, the location(s) from which observations were made, and duration of any fugitive emissions event(s).

c. Pursuant to FESOP 94120017, the Permittee shall analyze the fuel oil used at the source in accordance with the following.

i. The sulfur content and density as determined by the ASTM methods specified in the testing requirements of FESOP 94120017 shall be used in emission calculations.

ii. The sulfur content and density of the fuel oil shall be determined upon each instance of fuel oil usage.

5.9 Source-Wide Recordkeeping Requirements

5.9.1 Records for Opacity and Emission Limits

The Permittee shall maintain the following records pursuant to Section 39.5(7)(b) of the Act:

a. The Permittee shall maintain records of the total annual net production of iron and steel on a monthly basis and a total calendar year basis, to verify compliance with Condition 5.6.2(a)(i).

b. The Permittee shall maintain records of monthly and annual use of fuels to verify compliance with Condition 5.6.2(a)(ii).

c. The Permittee shall maintain records of annual emissions from the emission units listed in Condition 5.6.2(a)(ii) for comparison to the annual emission limits in Condition 5.6.2(a)(iii)(A) for PM/PM_{10}, SO_2, NO_x, VOM, CO and lead.

d. The Permittee shall maintain the following records for the emission units identified in Condition 5.6.2(a)(ii) to verify the emission factors for different fuels listed in Condition 5.6.2(a)(iii)(B):

i. For emissions of NO_x, PM, PM_{10}, VOM, and CO, records for the emission factors used by the Permittee to determine emissions of the pollutant from the subject emission units for firing of natural gas, blast furnace gas and oil, with supporting documentation and analysis, and the “maximum” annual emission factors for the different fuels and pollutants calculated as a weighted average of the individual

factors for different emission units, weighted for the greatest relative annual use of fuel in different units, beginning with the unit that has the highest emission factor. For example, if the boilers have the highest emission factors for NO_x, the factors shall be weighted for the greatest percentage of fuels expected to be used in the boilers, and then for the units that have the next highest emission factor(s), and so forth until all of the fuel has been accounted for. These records shall be reviewed and updated by the Permittee as necessary to assure that the emission factors that it uses to determine emissions of the subject unit do not understate emissions, including review when emission testing is conducted for the subject emission units, review when emission testing of similar emission units is conducted at other facilities (as would be needed if the Permittee is relying upon data from emission testing at other US Steel facilities), and review when USEPA revises its *Compilation of Air Pollutant Emission Factors*, AP-42 (as would be needed if the Permittee has relied upon emission factors from AP-42). These records shall be prepared and copies submitted to the Illinois EPA in accordance with Condition 5.9.6(c).

ii. Records for the sulfur content of COG and BFG, as measured pursuant to Conditions 5.9.1(e) and 7.3.9(f) and Condition 7.10.8-1(c), respectively, which data shall either be used when determined SO_2 emissions from combustion of the fuels or used to confirm that the determinations of SO_2 emissions from combustion of these fuels do not understate actual SO_2 emissions.

iii. Records for the actual average annual emission rates for different fuels and pollutants, including SO_2 and lead, calculated by dividing the actual emissions of the subject units for different fuels and pollutants by the annual usage of fuels. These records shall be compiled on an annual basis by the Permittee when the records for annual emissions of the subject units are compiled.

e. The Permittee shall maintain the following records for the emissions of PM_{10}* and SO2 associated with use of COG to verify compliance with the emission limits in Condition 5.6.2(b). (See also recordkeeping requirements in Section 7.3 of the permit.)

* For the purpose of this condition, the Permittee shall address total PM_{10}, including both filterable and condensable particulate, rather than only filterable particulate.

i. Records for the volumes of COG that are and are not processed by the COG Desulfurization System (scf), with data for undesulfurized COG on a 3-hour, daily and monthly basis and data for desulfurized COG on a daily and monthly basis.

ii. Records for the sulfur contents of COG (gr/scf or gr/100 scf), with data for undesulfurized COG on a 3-hour, daily and monthly basis and data for desulfurized COG on a daily and monthly basis.

iii. Records for the emission factors used by the Permittee to determine the PM_{10} emissions from firing desulfurized and undesulfurized COG for the emission units at the facility that fire COG, with supporting documentation and analysis, and the “maximum” annual PM_{10} emission factor calculated as a weighted average of the individual factors for different emission units, weighted for the greatest relative annual use of COG in different units, beginning with the unit that has the highest emission factor. These records shall be reviewed and updated by the Permittee as necessary to assure that the emission factors that it uses to determine emissions of units firing COG do not understate emissions, including review when PM_{10} emission testing is conducted for units at the facility and review when PM_{10} emission testing of similar emission units is conducted at other facility.

iv. Records for the annual PM_{10} and SO_2 emissions from the facility from combustion of COG that has not been desulfurized, determined from the summation of the volume of such COG multiplied by either its sulfur content or the established PM10 emission factor for undesulfurized COG.

v. Records for the annual PM_{10} and SO_2 emissions from the facility from combustion of COG that has been desulfurized, determined from the summation of the volume of such COG multiplied by either its sulfur content or the established PM10 emission factor for desulfurized COG.

vi. Records for the total annual PM_{10} and SO_2 emissions from the facility from combustion of COG, determined as the sum of the annual emission from combustion of COG that has and has not been desulfurized.

5.9.2 Records for HAP Emissions

The Permittee shall maintain source-wide records of HAP emissions on a calendar year basis and individually for the emission units or group of emission units covered by Section 7 (Unit Specific Conditions for Specific Emission Units) of this

permit and emitting HAPs, pursuant to Section 39.5(7)(b) of the Act.

5.9.3 Records for Source-Wide Control Requirements and Work Practices

a. The Permittee shall keep a copy of the fugitive particulate matter operating plan, and any amendments or revisions to the plan, as required by Condition 5.3.2. The Permittee shall also keep a record of activities completed according to the plan.

b. The Permittee shall keep copy of the PM_{10} contingency plan, and any amendments or revisions as described by Condition 5.3.3. The Permittee shall also keep a record of activities completed according to the plan.

c. The Permittee shall keep a copy of the Episode Action Plan, and any amendments or revisions to the plan, as described in Condition 5.3.7. The Permittee shall also keep a record of activities completed according to the plan.

d. The Permittee shall keep a record of property line observations required by Condition 5.8(b).

5.9.4 Records to address SO_2 emission limits in Condition 5.6.2(c) from FESOP #94120017:

a. SO_2 emissions of each unit operating group in terms of the associated emission limits of this permit (i.e., lbs/3-hrs and lbs/day) accompanied by the data from which they were determined.

b. SO_2 emissions of each unit operating group in tons/month.

c. SO_2 emissions of each unit operating group in tons/year determined by using a rolling total of the previous 12 consecutive months of data.

d. Records for repairs of any COG flow meter, as required by Condition 5.8(a)(v), including copies of any notifications to the Illinois EPA for extended outage of a flow meter.

e. Records for any fuel oil usage instances with the results of the sampling and analysis of oil sulfur content.

5.9.5 The Permittee shall retain copies of all emission test reports and other test reports and other submittals to the Illinois EPA related to testing that are required by Conditions 5.7 and 5.10 and other conditions of this permit.

5.9.6 Retention, Availability and Submittal of Records

Pursuant to Section 39.5(7)(e)(ii) of the Act, the Permittee shall keep the records required by this permit as follows:

a. All records and logs required by this permit shall be retained for at least five years from the date of entry (unless a longer retention period is specified by the particular recordkeeping provision herein). The Permittee shall keep the last 3 years of data on-site and remaining 2 years data may be kept at an offsite location. The Permittee shall make all these readily accessible records available to the Illinois EPA or USEPA for inspection and/or copying upon request.

b. The Permittee shall retrieve and print, on paper during normal source office hours, any records retained in an electronic format (e.g., computer) in response to an Illinois EPA or USEPA request for records during the course of a source inspection.

c. For certain records related to emission factors or emission rates required to be kept by this permit for various emission units at this source, as specifically identified in other conditions of this permit, the Permittee shall submit a copy of the records to the Illinois EPA as provided below:

i. Copies of initial records shall be submitted to the Illinois EPA within 15 days of the date that the Permittee prepares these records for subject unit(s), which shall in no case be later than January 20, 2012.

ii. Thereafter, copies of revised records shall be submitted to the Illinois EPA with the emission test reports for subject emission unit(s) if the records were revised as a consequence of emission testing or otherwise within 15 days of the date that the Permittee completes the preparation of revised records for subject unit(s).

5.9.7 Inspection, Sampling and Observations Documentation

Inspection, sampling and observation performed as required by this permit shall have documentation in addition to the records elsewhere in this permit that identifies at least the following:

a. Name of person(s) or representative performing such activity;

b. Date and time of such activity;

c. Any applicable industry standards or other specific procedures for such activities; and

d. Any quality assurance or quality control results.

5.10 Source-Wide Reporting Requirements

5.10.1 General Source-Wide Reporting Requirements

a. Pursuant to Section 39.5(7)(f)(ii) of the Act, the Permittee shall promptly notify the Illinois EPA, Air Compliance Section, within 30 days of deviations from applicable requirements as follows:

i. Requirements in Condition 5.3.2(d) and (e)

ii. Requirements in Condition 5.5.

iii. Requirements in Condition 5.6.2.

b. All such deviations shall be summarized and reported as part of the semiannual monitoring report required by Condition 8.6.1.

c. The Permittee shall notify the Illinois EPA, Air Compliance Section, of all other deviations as part of the semiannual monitoring reports required by in Condition 8.6.1.

d. All required deviation reports described in Condition 5.10.1 above shall contain the following information:

i. Date and time of the deviation;

ii. Emission units(s)/operation involved;

iii. The duration of the event;

iv. Probable cause of the deviation;

v. Any corrective actions or preventative measures taken;

vi. Reporting on malfunction and breakdown shall be performed in accordance with Condition 5.10.5; and

vii. Reporting on startup shall be performed in accordance with Condition 5.10.5.

5.10.2 Annual Emissions Report

a. The annual emissions report required pursuant to Condition 9.7 shall contain emissions information, including HAP emissions, for the previous calendar year.

b. The Permittee shall submit the following additional information from the prior calendar year with the Annual Emissions Report, due May 1st of each year, pursuant to Permit 95010001:

i. Iron and steel production (tons/month and tons/yr, each);

ii. Natural gas and BFG usage ($mmft^3$/month and $mmft^3$/yr, each); and

iii. Fuel oil usage (thousand gallons/month and thousand gallons/yr, for each type of oil).

c. The Permittee shall submit an annual report to the Illinois EPA with its Annual Emission Report describing the implementation of the Road Cleaning Program for the affected road segments, as defined in Condition 7.13.5(d), during the previous year. This report shall at a minimum provide: the number of times each road segment was cleaned; the number of times that scheduled cleaning was not performed, with explanation; a description of any significant changes in road cleaning equipment or cleaning practices, with explanation; and a description of other significant changes to the Program, including changes in contractors [Permit #06070088].

5.10.3 Reporting requirements from FESOP #94120017

a. The Permittee shall submit quarterly reports (every 3 calendar months) to the Illinois EPA. This report is due 30 days after the end of the reporting period and may be submitted on computer disk. This report shall contain the following information for the days during the quarter:

i. A summary showing the emissions of SO_2 for each unit operating group for each day and the 12 month rolling average in tons/year.

ii. A statement identifying any apparent violations which occurred during the quarter covered by the report or, if there have been no apparent violations, a statement to that effect.

iii. A summary of any COG flow meter downtime.

iv. Identification of any days for which data for at least 75% of the operating hours of the unit operating group was not obtained by an approved method; justification for not obtaining the data; and description of corrective action taken.

b. These reports shall be sent to IEPA Compliance Section in Springfield and IEPA Regional Office in Collinsville.

c. Copies of the Final Report for the tests identified in Condition 5.8(a)(iv) shall be submitted to the Illinois EPA along with the quarterly reports required by this CAAPP permit within 30 days after the reported quarter.

5.10.4 Other Source-Wide Reporting Requirements

a. i. A quarterly report shall be submitted to the Illinois EPA stating the following: the dates any necessary control measures were not implemented, a listing of those control measures, the reasons that the control measures were not implemented, and any corrective actions taken. This information includes, but is not limited to, those dates when controls were not applied based on a belief that application of such control measures would have been unreasonable given prevailing atmospheric conditions, which shall constitute a defense to the requirements of this Section. This report shall be submitted to the Illinois EPA thirty (30) calendar days from the end of a quarter. Quarters end March 31, June 30, September 30, and December 31 [35 IAC 212.316(g)(5)].

ii. The reporting requirements from the above are established for fugitive particulate matter control measures implemented for the certain operations identified in 35 IAC 212.316(b) through 212.316(f).

iii. Control measures for this condition are those identified in the Fugitive Particulate Matter Operating Program.

b. Upon written request by the Illinois EPA, a report shall be submitted to the Illinois EPA for any period specified in the request stating the following: the dates during which any process emission unit was in operation when the air pollution control equipment was not in operation or was not operating properly, documentation of causes for pollution control equipment not operating or not operating properly, and a statement of what corrective actions were taken and what repairs were made [35 IAC 212.324(g)(6)].

5.10.5-1 Reporting for Startups (State Authorization)

Pursuant to 39.5(7)(a) and (f)(ii) of the Act, when startup reports are required for an emission unit by unit specific conditions in Chapter 7 of this permit, such reports shall be submitted to the Illinois EPA, Air Compliance Section and Collinsville Regional Field Office on a semi-annual basis, and include the following information related to startups of such emission unit and associated air pollution control equipment.

a. If startups occurred during the reporting period, the report shall include the following:

i. The number of startups.

ii. The number of departures from established procedures.

iii. The number of exceedances of each applicable standard.

iv. A general explanation for the magnitude of the numbers reported and the significance or meaning of those numbers.

v. A general explanation for the departures.

vi. A general explanation for the exceedances.

vii. A general discussion of whether any improvements were made to startup practices

b. If there were no startups for the reporting period, a statement that “No startups occurred during this reporting period.”

c. Startups that resulted in excess emissions shall be addressed in the deviation reports as required by unit specific conditions in Chapter 7 of this permit.

5.10.5-2 Reporting for Malfunction or Breakdown (State Authorization)

a. The Permittee shall provide the following notification and reports to the Illinois EPA, Air Compliance Section and Collinsville Regional Field Office, pursuant to 35 IAC 201.263, concerning continued operation of an affected emission unit or related air pollution control equipment when such continued operation would cause a violation of a standard or limitation in 35 IAC Subtitle B, Chapter I, subchapter c:

i. If an emission unit or control device operates during a malfunction/breakdown, the Permittee shall immediately report such event to the Illinois EPA within 2 working days after such event occurs. The immediate notification shall be provided to the Illinois EPA’s Springfield Office (Compliance Section) by a telephone, facsimile, electronic mail or other alternative method of correspondence that constitutes the fastest available alternative. The immediate notification shall be followed by a letter to the Illinois EPA’s Springfield Office (Compliance Section), postmarked within 7 working days after the end of the event. The 7 day follow-up letter shall contain the name, title, and signature of the owner or operator or other responsible official certifying its accuracy, explaining the circumstances and reasons for event, describing all excess emissions and/or parameter monitoring exceedances which may have occurred during the malfunction/breakdown event, actions taken to minimize emissions or parameter exceedance and all repairs made in conjunction with such malfunction/breakdown event.

ii. If all the necessary information identified above is contained within the 2-day immediate notification and the notification was done by means of written correspondence, a 7-day follow-up letter is not required to be submitted.

iii. A summary of these malfunction/breakdown reports required by this permit shall be submitted to the Illinois EPA's Springfield Office Compliance Section on a quarterly basis and contain the following:

A. Date and time of malfunction/breakdown;

B. Emission unit(s)/control involved;

C. The duration of the event;

D. Probable cause of malfunction/breakdown; and

E. Repairs and other corrective actions taken.

5.10.5-3 Federal Startup Shutdown and Malfunction/Breakdown Requirements

a. For those emission units subject to a NESHAP standard and for which an SSM plan is required under 40 CFR 63.10(d)(5), the Permittee shall submit reports as required by the NESHAP including:

i. Periodic startup, shutdown or malfunction reports [40 CFR 63.10(d)(5)(i)]

A. 1. If actions taken by an owner or operator during a startup or shutdown (and the startup or shutdown causes the affected emission unit to exceed any applicable emission limitation in the relevant NESHAP emission standards specified in Section 7 of this permit), or malfunction of an affected emission unit (including actions taken to correct a malfunction) are consistent with the procedures specified in the source's startup, shutdown, and malfunction plan (see 40 CFR 63.6(e)(3)), the Permittee shall state such information in a startup, shutdown, and malfunction report.

2. Actions taken to minimize emissions during such startups, shutdowns, and malfunctions shall be summarized in the report and may be done in checklist form; if actions taken are the same for each event, only one checklist is necessary.

3. Such a report shall also include the number, duration, and a brief description for each type of malfunction which occurred during the reporting period and which caused or may have caused any applicable emission limitation to be exceeded.

B. The startup, shutdown, and malfunction report shall consist of the following:

A letter, containing the name, title, and signature of the owner or operator or other responsible official who is certifying its accuracy.

C. Reports shall only be required if a startup, shutdown or malfunction occurred during the reporting period.

D. The SSM Report shall be submitted to the Illinois EPA semiannually and shall be delivered or postmarked by the 30th day following the end of each calendar half (or other calendar reporting period, as appropriate).

E. If the owner or operator is required to submit excess emissions and continuous monitoring system performance (or other periodic) reports required by this permit, the startup, shutdown, and malfunction reports required under 40 CFR 63.10(d) may be submitted simultaneously with the excess emissions and continuous monitoring system performance (or other) reports.

F. If startup, shutdown, and malfunction reports are submitted with excess emissions and continuous monitoring system performance (or other periodic) reports, and the owner or operator receives approval to reduce the frequency of reporting for the latter under 40 CFR 63.10(e), the frequency of reporting for the startup, shutdown, and malfunction reports also may be reduced if the Illinois EPA does not object to the intended change. The procedures to implement the allowance in the preceding sentence shall be the same as the procedures specified in 40 CFR 63.10(e)(3).

ii. Immediate startup, shutdown or malfunction reports [40 CFR 63.10(d)(5)(ii)]

A. Notwithstanding the allowance to reduce the frequency of reporting for periodic startup,

shutdown, and malfunction reports under 40 CFR 63.10(d)(5)(i), any time an action taken by an owner or operator during a startup or shutdown that caused the source to exceed any applicable emission limitation in the relevant NESHAP emission standards specified in Section 7 of this CAAPP, or malfunction (including actions taken to correct a malfunction) is not consistent with the procedures specified in the affected source's startup, shutdown, and malfunction plan, the owner or operator shall submit an immediate report stating the actions taken for that event within 2 working days after commencing actions inconsistent with the plan and a follow-up report submitted within 7 working days after the end of the event.

B. The immediate report shall consist of a telephone call (or facsimile (FAX) transmission) to the Illinois EPA.

C. The follow-up report shall consist of the following:

1. The name, title, and signature of the owner or operator or other responsible official who is certifying its accuracy and explaining the circumstances of the event.

2. The reasons for not following the startup, shutdown, and malfunction plan.

3. Description all excess emissions and/or parameter monitoring exceedances which are believed to have occurred (or could have occurred in the case of malfunctions).

4. And actions taken to minimize emissions in conformance with 40 CFR 63.6(e)(1)(i).

5.10.6 Separate copies of all reports required by this permit shall be sent to the IEPA Regional Office in Collinsville.

5.10.7 <u>40 CFR 63, Subpart DDDDD (Notification of Compliance)</u>

a. Pursuant to 40 CFR 63.7545(b), the Permittee must submit an initial Notification according to 40 CFR 63.9(b)(2).

b. Pursuant to 40 CFR 63.7545(e), the Permittee must submit a Notification of Compliance Status according to 40 CFR 63.9(h)(2)(ii). For the initial compliance demonstration for each affected unit, the Permittee must submit the Notification of Compliance Status, including all

performance test results and fuel analyses, before the close of business on the 60th day following the completion of all performance test and/or other initial compliance demonstrations for the affected unit according to 40 CFR 63.10(d)(2).

c. For subject emission units, for which Permittee must conduct an initial compliance demonstration, the report shall include the information specified in 40 CFR 63.9(h)(2) and 63.7545(e).

d. In addition to the information required by 40 CFR 63.9(h)(2), the notification of compliance status must include the following certification(s) of compliance, as applicable, and signed by a responsible official:

i. “This facility complies with the requirements in 40 CFR 63.7540(a)(10) to conduct an annual or biennial tune-up, as applicable, of each unit.”

ii. “This facility has had an energy assessment performed according to 40 CFR 63.7530(e).”

iii. “No secondary materials that are solid waste were combusted in any affected unit.”

e. Pursuant to 40 CFR 63.7530(e), the Permittee must include with the Notification of Compliance Status a signed certification that the energy assessment was completed according to Table 3 of 40 CFR Part 63, Subpart DDDDD and is an accurate depiction of the affected facility.

f. Pursuant to 40 CFR 63.7530(d), the Permittee must submit a signed statement in the Notification of Compliance Status report that indicates a tune-up was completed on each existing unit firing natural gas with a heat input capacity of less than 10 million Btu per hour.

5.11 Source-Wide Operational Flexibility/Anticipated Operating Scenarios

No source-wide operational flexibility/anticipated operating scenarios have been established in this permit.

5.12 Source-Wide Compliance Procedures

Compliance Provisions for Condition 5.6.2(c) (adopted from FESOP 94120017):

a. Compliance with the lbs/3-hours limits in Condition 5.6.2(c) shall be demonstrated by using emission rate calculations for eight discrete 3-hour periods per day, with the first period beginning at midnight.

b. Compliance with the daily emission limits in Condition 5.6.2(c) shall be demonstrated by using emission rate calculations on a daily block basis (i.e., midnight to midnight).

c. The compliance calculations shall be the primary compliance method for determining compliance with the emission limits in Condition 5.6.2(c), except for the blast furnace casthouse baghouse and iron spout baghouse, for which stack testing shall be the primary means of determining compliance.

d. Total SO_2 emissions from an unit operating group for determination of compliance with the SO_2 limits in Condition 5.6.2(c) shall be the sum of the emissions resulting from the use of COG and fuel oil at the unit operating group, i.e.:

Lbs SO_2 per unit operating group = SO_2 emissions from fuel oil usage + SO_2 emissions from COG usage

Note: When FESOP Permit 94120017 was originally issued, the SO_2 emissions which would result from the use of blast furnace gas and natural gas in the unit operating groups were accounted for in the SO_2 limits of that permit. This was accomplished by lowering the permitted SO_2 from the SO_2 levels used for air quality modeling by an amount equal to the SO_2 which would have been emitted should the unit operating groups use blast furnace gas or natural gas continuously. The SO_2 emissions from blast furnace gas and natural gas were calculated using standard emission factors as found in AIRS Facility Subsystem, Source Classification Codes and Emission Factor Listing for Criteria Air Pollutants, EPA Document Number EPA 450/4-90-003, and Compilation of Air Pollution Emission Factors, Vol. 1, Stationary Point and Other Sources, AP-42.

e. The SO_2 emissions attributable to fuel oil usage shall be calculated from the records required by the CAAPP permit for usage of fuel oil and the sulfur and heat content of oil (See Condition 5.9.4) and the following equation:

Lbs SO_2/period = gallons of oil burned per period x sulfur content in weight percent of the fuel oil used x density of the fuel oil used in pounds per gallon x 2.

f. The SO_2 emissions attributable to COG usage shall be calculated from the records required by the CAAPP permit for the amount of COG burned and the sulfur content of the COG (See Condition 5.9.1(e)) and the following equation:

Lbs SO_2/period = thousand standard cubic feet of COG burned per period x average H_2S content of the COG in grains per standard cubic foot for the period x 0.269.

g. Stack test measurement shall be the primary method of determining the compliance of the Blast Furnace Casthouse and Iron Spout Baghouse with the lbs/day limits in Condition 5.6.2(c). The secondary means of determining compliance shall be the following:

   i. The SO_2 attributable to the Blast Furnace Casthouse Baghouse shall be calculated using an emission factor of 0.173 lbs SO_2 per ton of hot metal cast.

   ii. The SO_2 attributable to the Iron Spout Baghouse shall be calculated using an emission factor of 0.0063 lbs SO_2 per ton of hot metal cast.

h. Compliance with the tons/yr limits in Condition 5.6.2(c)) shall be determined using a rolling total of 12 consecutive calendar months of data.

i. When fuel oil is used and data is not available for the fuel oil at the individual unit operating groups, the oil usage during such period shall be calculated from the data for total usage of oil apportioned among the individual operating groups using oil based on the relative heat inputs the unit operating group during that period.

j. Usage of COG shall be determined from data collected by the COG flow meters.

   Note: For this purpose, data from flow meters for both desulfurized and undesulfirized COG may be used in accordance with Condition 5.9.1(e)(i).

k. The average H_2S content of COG for the lbs/3-hours compliance calculations shall be calculated using an arithmetic average of all available H_2S data during the 3-hour period that COG was burned. In the event that the H_2S monitoring system is unable to obtain a single reading for the 3-hour period, the H_2S content for that 3-hour period shall be obtained by one of the alternative methods specified in Condition 7.3.9(f) of this permit (i.e., manual sampling of H_2S content or determined by type of coal used during that period and previous recorded H_2S content when using this coal type).

   For this purpose, data from H_2S monitoring systems for both desulfurized and undesulfurized COG, in accordance with Condition 5.9.1(e)(ii), shall be used as appropriate depending upon whether desulfurized or undesulfurized COG is being combustion.

l. The daily average H_2S content of COG for use in the lbs/day compliance calculations shall be calculated using an arithmetic average of all available hourly average H_2S content data for

that day, and at least data from 75% of the daily operating hours.

Note: For this purpose, data from the H_2S monitoring systems for both desulfurized and undesulfurized COG, in accordance with Condition 5.9.1(e)(ii).

5.13 General Procedures for Certain Permit Limits on Emissions

Pursuant to Sections 39.5(7)(b) and (p)(v) of the Act, these procedures are applicable for the emission limits in Conditions 7.1.6(b)(i) through (iv), 7.4.6(b) through (f), 7.5.6(c) through (g) and 7.6.6(a) through (e), which address the rates of emissions or “emission factors” (commonly in pounds/ton) and the annual emissions or “maximum emissions” (in tons/year) of certain emission units, as the Permittee determines compliance with these limits with “emission factors,” using the common meaning of this term. In particular, notwithstanding the fact that the above listed conditions set “emission factor limits” or limits on the rates of emissions, for purposes of this condition, an “emission factor” is a set value for the mass of a pollutant emitted by a particular emission unit relative to the amount of material that is processed or handled by the unit, or in the case of lead, a set value for the mass of lead emissions for each hour that the particular unit operates, which value is used in the determination of the emissions of the unit.

Note: For the emission units (i.e., operations and processes) that are subject to the above emission limits, Conditions 7.1.9(h), 7.4.9(h)(vii) and (i), 7.5.9(f) and (g), and 7.6.9(c) require the Permittee to keep records for the emissions factors that it is using to determine compliance with these emission limits, along with records for the emissions of these units. The specific emission factors being used by the Permittee for the various subject units, based on information provided by the Permittee as of the date of issuance of this revised permit, are found in Attachment 3 of this permit.

a. The emission factors used by the Permittee to determine compliance with these emission limits shall not understate actual emissions.

b. Compliance with these emission limits shall be determined as follows. For terms that are expressed in pounds per ton or, for lead, pounds per hour (i.e., the same terms as the relevant emission factor), compliance shall be determined by comparison against the relevant emission factor for the unit and mode of operation, as applicable. For each annual limit, compliance shall be determined by comparison against the annual emissions of the unit, calculated as the product of the actual annual operation of the unit and the relevant emission factor. If more than one emission factor is needed to address the actual annual emissions of a unit, to address different modes of operation, the annual emissions of the unit shall be calculated as the sum of the annual emissions, calculated as above, for each mode of operation of the unit for which there is a different emission factor. If there are additional emissions that are not accounted

for by the established emission factor(s), these additional emissions shall also be included in the calculation of annual emissions.

c. The Permittee shall, at a minimum, review and, if necessary, update the relevant emission factors that it is using as follows, to assure that the emission factors that it uses to calculate emissions for purposes of determining compliance with these limits are appropriate, i.e., do not understate actual emissions.

i. For emission units that are subject to limits for which emission testing is required to be conducted by this permit, whenever such testing is conducted, relevant emission factors shall be reviewed based on the results of such testing and, if necessary, updated based on those results.

ii. For emission units that are subject to limits for which emission testing is not required to be conducted by this permit, the relevant emission factors shall be reviewed and, if necessary, updated on at least an annual basis, considering new information on emissions of such units that has become available, including revisions of USEPA's *Compilation of Air Pollutant Emission Factors*, AP-42, other information published by USEPA, information related to other emission units operated by U.S. Steel, information presented in specific papers and reports concerning the steel industry, and other salient information.

d. The Permittee shall comply with the following reporting requirements related to the emission factors that it is using to determine compliance with these emission limits:

i. If the Permittee updates the emission factors that it is using, as a result of its review of the relevant emission factors, as provided for by Condition 5.13(c)(i) or (ii), copies of the revised records for such emission factor(s) shall be submitted to the Illinois EPA in accordance with Condition 5.9.6(c)(ii).

ii. At the same time that it submits its Annual Emission Report, as addressed by Condition 5.10.2, the Permittee shall also submit a report confirming its review of relevant emission factors in accordance with Condition 5.13(c)(i) and (ii) during the previous year, which report shall, for each applicable emission limit, include an identification of the testing conducted during the previous year, if any, or a description of all new information that was considered, if any, and the findings and conclusion of its review of such information and any updates that it made to the emission factors that it uses, with explanation.

e. Upon written notification from the Illinois EPA or USEPA that it has determined one or more of the following, the Permittee shall conduct appropriate further review for the emission factor(s)

that are the subject of such notification and submit a written response to the Illinois EPA and, if applicable, USEPA within 45 days, which response may be accompanied by updates to those emission factor(s).

i. The Permittee's records for the applicable emission factor(s), as addressed by Condition 5.9.6(c)(ii) or 5.13(d)(i) do not contain adequate documentation for the selected emission factor(s).

ii. The Permittee's report pursuant to Condition 5.13(d)(ii) does not provide adequate explanation for the updates that were made to the emission factor(s).

iii. The emission factor(s) used by the Permittee do not appear to appropriately address a new mode of operation of the subject unit.

iv. There is new information, as described in or included with the notification, that appears pertinent that the Permittee has not considered in its review for the emission factor(s).

5.14 Source-wide State-Only Conditions

5.14.1 Permitted Emissions for Fees

Emission limitations are not set for the source for the purpose of permit fees. The Permittee shall pay the applicable fee pursuant to Section 39.5 of the Act.

6.0 CONDITIONS FOR EMISSIONS CONTROL PROGRAMS

This section is reserved for emissions control programs. As of the date of issuance of this permit, there are no such programs applicable to this source.

7.0 UNIT SPECIFIC CONDITIONS FOR SPECIFIC EMISSION UNITS

7.1 Material Handling and Processing Operations

7.1.1 Description

Coal handling systems:

The crusher is mainly used in the winter to break-up frozen chunks of coal to prepare the coal to be processed in the pulverizer.

There are two coal pulverizers. Only one pulverizer can be used at any one time. The remaining pulverizer is maintained as a backup unit. The pulverizers reduce the size of the coal to prepare it for the coking process. A baghouse controls the discharge outlets of the coal pulverizers.

Blast furnace raw material handling systems:

Raw materials such as coke, iron-bearing materials, and fluxes are charged to blast furnaces in the iron making process. The materials are charged in the top of the furnace from skip cars, which are filled in the stockhouse from conveyors or hoppers. Iron pellets and coke are screened prior to charging.

New Coke Conveyance System:

The new coke conveyor system transfers coke from Gateway Energy to US Steel to be used in the existing Blast Furnaces.

Steel making system:

Raw materials used in the BOFs and LMF are delivered to the facility by both truck and railcar. The trucks and railcars are either unloaded to the ground or directly into an underground feed hopper. Materials unloaded to the ground are placed in storage piles, or in super sacks, endloaders are used to transfer the materials from the storage piles or super sacks to the underground feed hopper. The underground feed hopper then feeds material onto BOF material transfer conveyor C-1. This material transfer is controlled by the Trackhopper Baghouse, this bag house empties back onto C-1 conveyor.

Materials added in the BOF and LMF are transferred from the underground feed hopper, by a conveyor system consisting of three conveyors (nos. C-1, C-2, and C-3) arranged in series. From conveyor C-3 the materials are offloaded into storage bins 1 thru 10, or a rotating hopper known as the lazy susan, or onto conveyor C-5. The storage bins unload materials to conveyor C-4, which transfers and off-loads the materials into the BOF feed hoppers for #1 vessel or #2 vessel. The lazy susan feeds directly into the BOFs Alloy transfer car. Conveyor C-5 transfers materials to the LMF material handling system. All operations carried out within this unit take place within

enclosed structures. The transfer from conveyors C-1 to C-2 and C-2 to C-3 are controlled by the Binfloor Baghouse, this bag house empties into Bin #2.

Materials are transferred from the BOF Binfloor to the LMF on conveyor C-5. This conveyor off-loads into storage bins which transfer to conveyor C-6. The emissions from the transfer from conveyor C-5 to C-6 are handled by Baghouse #1. Additional raw materials used in the LMF are transferred from the Tripper Conveyor to a set of storage bins. Emissions generated by loadout of the Tripper Conveyor are controlled by Baghouse #2.

Note: This narrative description is for informational purposes only and is not enforceable.

7.1.2 List of Emission Units and Air Pollution Control Equipment

Area	Emission Unit Description	Emission Control Equipment	Date Constructed
Coal Handling and Processing	Coal Crusher	None	Pre-1974
	Coal Pulverizers (2)	Baghouse	
	Conveyors	None	
Blast Furnace	Screens (3) • Two Coke • One Iron Pellet	None	Pre-1974
	Conveyors and Feed Hoppers	None	
	Stock House Storage Bins	None	
	New Coke Conveyance System • Conveyors and Hoppers • Day Bins	Baghouses	2009
Steelmaking	Dump Pit Conveyor	Trackhopper Baghouse	Pre-1974
	Conveyors and Storage Bins	Bin floor Baghouse	
	LMF Conveyors and Storage Bins	Baghouse #1	Prior to 1986

7.1.3 Applicable Provisions and Regulations

a. i. The “affected material handling operations” for the purpose of these unit-specific conditions, are the emission units described in Conditions 7.1.1 and 7.1.2.

ii. The “affected crushing operations” for the purpose of these unit-specific conditions, are the crusher and pulverizers described in Conditions 7.1.1 and 7.1.2.

iii. The “affected screening operations” for the purpose of these unit-specific conditions, are the iron

pellet and coke screens described in Conditions 7.1.1 and 7.1.2.

iv. The “affected transfer operations” for the purpose of these unit-specific conditions, are the conveyors, storage bins, new coke conveyance system and feed hoppers described in Conditions 7.1.1 and 7.1.2.

b. Pursuant to 35 IAC 212.316(b), the Permittee shall not cause or allow fugitive particulate matter emissions generated by the affected crushing and screening operations to exceed an opacity of 10 percent.

c. Pursuant to 35 IAC 212.316(f), the Permittee shall not cause or allow fugitive particulate matter emissions generated by the affected transfer operations to exceed an opacity of 20 percent.

d. Pursuant to 35 IAC 212.321(a), the Permittee shall not cause or allow the emission of particulate matter into the atmosphere in any one hour period from the new coke conveyor system or LMF conveyors and LMF storage bins for which, either alone or in combination with the emission of particulate matter from all other similar process emission units for which construction or modification commenced on or after April 14, 1972, at a source or premises, exceeds the allowable emission rates specified in subsection (c) of 35 IAC 212.321 (see also Attachment 2).

e. Pursuant to 35 IAC 212.322(a), the Permittee shall not cause or allow the emission of particulate matter into the atmosphere in any one hour period from any affected material handling operation for which construction or modification commenced prior to April 14, 1972*, which, either alone or in combination with the emission of particulate matter from all other similar process emission units at a source or premises, exceeds the allowable emission rates specified in subsection (c) of 35 IAC 212.322 (see also Attachment 2).

* The new coke conveyor system and LMF conveyors and LMF storage bins constructed after April 14, 1972, is not subject to 35 IAC 212.322.

f. Pursuant to 35 IAC 212.458(b)(7) and (c), the Permittee shall not cause or allow emissions of PM10, other than that of fugitive particulate matter, into the atmosphere from any affected material handling operation to exceed 0.01 gr/scf during any one hour period, except for this mass emission limit shall not apply to those emission units with no visible emissions other than that of fugitive particulate matter; however, if a stack test is performed, this subsection is not a defense to a finding of a violation of the mass emission limits contained in this condition.

7.1.4 Non-Applicability of Regulations of Concern

The emission limitations of 35 IAC 212.324 are not applicable to the affected material handling operations, as provided by 35 IAC 212.324(a)(3), because the affected operations are subject to standards in 35 IAC Part 212, Subpart R, "Primary and Fabricated Metal Products and Machinery Manufacture".

7.1.5 Control Requirements and Work Practices

a. The affected material handling operations shall be operated under the provisions of a fugitive particulate matter operating program consistent with the provisions of 35 IAC 212.309, 212.310 and 212.312 (see also Condition 5.3.2(a)) [35 IAC 212.309].

b. Pursuant to 35 IAC 212.307, material collected by control equipment on the affected material handling operations shall be handled in accordance with Condition 5.3.2(e).

c. For the air pollution control equipment on the affected operations, the Permittee shall comply with maintenance and repair requirements in 35 IAC 212.324(f), as follows, pursuant to 35 IAC 212.458(d):

   The Permittee shall maintain and repair all air pollution control equipment in a manner that assures that the emission limits and standards in 35 IAC 212.458 shall be met at all times. Proper maintenance shall include the following minimum requirements:

   i. Visual inspections of air pollution control equipment;

   ii. Maintenance of an adequate inventory of spare parts; and

   iii. Expeditious repairs, unless the emission unit is shutdown.

d. BACT/LAER requirements for the new coke conveyor system, from Permit 06070088:

   i. PM and PM_{10} emissions from the day bins shall be controlled by [T1]:

      A. Enclosure of the day bin so as to prevent visible fugitive emissions, as defined by 40 CFR 60.671.

      B. Aspiration of the day bins or the enclosure in which they are enclosed to a control device, which device shall be operated in accordance with good air pollution control practice to

minimize emissions. For this purpose, the control device shall be a baghouse or other filtration type device unless the Permittee demonstrates and the Illinois EPA concurs that another type of control device is preferable due to considerations of operational safety.

ii. PM and PM_{10} emissions from the new coke conveyance system shall be controlled by enclosure so as to prevent visible fugitive emissions, as defined by 40 CFR 60.671 [T1].

iii. Emissions of PM and PM_{10} from the control devices for the new coke conveyance system shall not exceed 0.005 gr/dscf [T1].

Condition 7.1.5(d) represents the application of Best Available Control Technology and Lowest Achievable Emission Rate.

7.1.6 Production and Emission Limitations

a. Production and emission limits for the new coke conveyor system from Permit 06070088:

i. The new coke conveyance system shall not transfer more than 740,000 tons of coke per year [T1].

ii. The emissions from the new coke conveyance system shall not exceed 0.95 tons/year of PM and 0.45 tons/year of PM_{10} [T1].

iii. Compliance with the annual limits of Condition 7.1.6(a) shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total) [T1].

b. Emission limits for blast furnace and steel making material handling operations from Permit 95010001:

i. Emissions from Material HS and Deslagging Station shall not exceed the following limits [T1]:

Pollutant	Emission Factors (Lbs/Ton of steel)	Maximum Emissions (Tons/Yr)
PM	0.00355	6.35
PM_{10}	0.00355	6.35

ii. BOF Additive System (Trackhopper Baghouse) emissions shall not exceed the following limits [T1]:

Pollutant	Emission Factors (Lbs/Ton of steel)	Maximum Emissions (Tons/Yr)
PM	0.00032	0.57
PM_{10}	0.00032	0.57

iii. Flux conveyor & transfer points (Bin Floor Baghouse) emissions shall not exceed the following limits [T1]:

Pollutant	Emission Factors (Lbs/Ton of steel)	Maximum Emissions (Tons/Yr)
PM	0.0016	2.86
PM_{10}	0.0016	2.86

iv. Iron Pellet Screen emissions shall not exceed the following limits [T1]:

Pollutant	Emission Factors (Lbs/Ton Iron)	Maximum Emissions (Tons/Yr)
PM	0.00279	6.01
PM_{10}	0.00279	6.01

v. Compliance with the annual limits in Condition 7.1.6(b) shall be determined based on a calendar year [T1].

7.1.7 Testing Requirements

The following emission tests and opacity observations shall be conducted pursuant to Section 39.5.(7)(d) and (p) of the Act.

a. i. The Permittee shall measure the opacity from the affected crushing, screening and transfer operations unless prolonged weather conditions preclude scheduled observations. These observations shall be conducted by a qualified observer in accordance with Method 9, as further specified below, pursuant to Section 39.5(7)(d) of the Act.

A. This testing shall be conducted at least annually.

B. Upon written request by the Illinois EPA, such testing shall be conducted for specific affected operation(s) within 45 calendar days of the request or by the date agreed upon by the Illinois EPA, whichever is later. At least 30 days prior to the scheduled test date, the Permittee shall submit a detailed test plan to

the Illinois EPA, describing the manner of operation of the affected activity and all control measures that will be implemented during the testing. The results of the testing will be submitted within thirty calendar days of the completion of the tests.

ii. The duration of opacity observations for each test shall be at least 30 minutes (five 6-minute averages).

b. The Permittee shall test for opacity and PM/PM10 emissions from the baghouse for the coal pulverizers and either the trackhopper baghouse, bin floor baghouse or baghouse #1 as will be specified by the Illinois EPA within 30 days of receipt of the test protocol. These two tests shall be completed within 30 months of the effective date of this permit condition. The Permittee shall use the following methods:

Location of Sample Points	Method 1
Gas Flow and Velocity	Method 2, 2A – H
Flue Gas Weight	Method 3, 3A – C
Moisture	Method 4
PM/PM_{10} as provided for by 35 IAC 212.108	Method 5, 201 or 201A

7.1.8 Monitoring Requirements

The Permittee shall perform the following inspections, pursuant to Section 39.5(7)(p)(ii) of the Act:

a. Affected material handling operations other than the new coke conveyance system.

The Permittee shall perform quarterly inspections of the control measures, while the affected material handling operations are in use. For purposes of this condition, all affected material means each type of material handled. Types of material are materials such as: 1) coal; 2) coke; 3) limestone; 4) iron pellets; 5) alloy materials; 6) desulfurization reagents; and 7) slag materials. These inspections shall, at a minimum, include the following:

i. Verification that control measures, including reliance on characteristics of materials, is being properly implemented. For conveyors, these inspections shall include, where applicable, verification that all covers, enclosures and dribble pans are present and in good working condition. For crushers, these inspections shall also include verifications for choke feeding.

ii. For the baghouses on the affected material handling operations – a check of differential pressure and

inspection of the dust removal system, compressed air system, bag condition, fan condition and structural components.

iii. As part of the inspections, the Permittee shall perform observations for visible emissions by Method 22. These observations shall be conducted during the operations of each activity for a minimum of 18 minutes, or for activities that operate on a batch basis, for a minimum of six consecutive batches or 18 minutes. If visible emissions are observed, the Permittee shall take corrective action within 2 hours to return the status of the operations to no visible emissions or observations of opacity by Method 9 shall be conducted. For the purpose of this condition, returning the status of operations to no visible emissions does not include, for any activity, temporary idling or the lack of operations between batches.

b. Affected new coke conveyance system

i. The Permittee shall conduct inspections of the new coke conveyor system on at least a monthly basis for the specific purpose of verifying that control measures required to control emissions from the new coke conveyor system are being properly implemented.

ii. These inspections shall include observation for the presence of visible emissions, performed in accordance with USEPA Method 22, from the conveyors and day bins.

7.1.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items, pursuant to Sections 39.5(7)(a) and (e) of the Act:

a. The Permittee shall keep the following file(s) and log(s):

File(s) containing the following information for the affected material handling operations with supporting information:

i. Information related to the dust collection equipment associated with the affected operations, including design control efficiency or performance specifications and maximum design particulate matter emissions, gr/dscf.

ii. The maximum design capacity of each operation, (tons/hr).

b. For the air pollution control equipment on affected operations, the Permittee shall keep the following records

related to maintenance and repair, as required by 35 IAC 212.458(d):

i. Records of inventory of spare parts and documentation of inspections, maintenance, and repairs of all air pollution control equipment shall be kept in accordance with 35 IAC 212.324(f) [35 IAC 212.324(g)(1)].

ii. Records documenting any period during which any process emission unit was in operation when the air pollution control equipment was not in operation or was malfunctioning so as to cause an emissions level in excess of the emissions limitation. These records shall include documentation of causes for pollution control equipment not operating or such malfunction and shall state what corrective actions were taken and what repairs were made [35 IAC 212.324(g)(2)].

iii. A written record of the inventory of all spare parts not readily available from local suppliers shall be kept and updated [35 IAC 212.324(g)(3)].

c. The Permittee shall keep the written records required by 35 IAC 212.316(g)(1) as follows:

i. For fugitive particulate matter emission units subject to 35 IAC 212.316, records related to the application of control measures for compliance with the opacity limitations of 35 IAC 212.316, including submittals to the Illinois EPA an annual report containing a summary of the information in these records.

ii. These records shall include at least the information specified by 35 IAC 212.316(g)(2), as follows:

A. The name and address of the source;

B. The name and address of the owner and/or operator of the source;

C. A map or diagram showing the location of all emission units controlled;

D. For application of physical or chemical control agents: the name of the agent, application rate and frequency, and total quantity of agent, and, if diluted, percent of concentration, used each day; and

E. A log recording incidents when control measures were not used and a statement of explanation.

iii. These records shall be handled as follows:

A. Copies of all records required by 35 IAC 212.316 shall be submitted to the Illinois EPA within ten (10) working days after a written request by the Illinois EPA and shall be transmitted to the Illinois EPA by a company-designated person with authority to release such records [35 IAC 212.316(g)(3)].

B. The records required under 35 IAC 212.316 shall be kept and maintained for at least five (5) years at the source and be available for inspection and copying by Illinois EPA representatives during working hours [35 IAC 212.316(g)(4)].

d. The Permittee shall maintain records for:

i. The amount of coke handled by the new coke conveyor system (tons/month and tons/year).

ii. The amount of iron pellets screened (tons/month and tons/year).

e. The Permittee shall maintain the following records for the inspections required by Condition 7.1.8:

i. For the inspections required by Condition 7.1.8(a) for each affected material handling operation:

A. Date and time the inspection was performed and name(s) of inspection personnel.

B. The observed condition of the control measures for each affected operation, including the presence of any visible emissions or accumulations of dust in the vicinity of the operation.

C. A description of any maintenance or repair associated with established control measures that are recommended as a result of the inspection and a review of outstanding recommendations for maintenance or repair from previous inspection(s), i.e., whether recommended action has been taken, is yet to be performed or no longer appears to be required.

D. A summary of the observed implementation or status of actual control measures.

ii. For the inspections required by Condition 7.1.8(b) for the affected new coke conveyor system, pursuant to Permit 06070088:

A. The Permittee shall maintain a file, which shall be kept current, that contains the maximum operating capacity of the new coke conveyance system (tons/day).

B. 1. The Permittee shall keep inspection and maintenance log(s) or other records for the control measures associated with the new coke conveyance system, including enclosures and fabric filters.

2. These records shall include the following information for the inspections required by Condition 7.1.8(a) and (b):

I. Date and time the inspection was performed.

II. The observed condition of the control measures, including the presence of any visible emissions.

III. A description of any maintenance or repair associated with the control measures that are recommended as a result of the inspection and a review of outstanding recommendations for maintenance or repair from previous inspection(s), i.e., whether recommended action has been taken, is yet to be performed or no longer appears to be required.

f. In the operational logs or other records for the operation of the affected material handling operations for steelmaking, the Permittee shall include information confirming routine implementation of normal practices for unloading of materials into the receiving hopper and housekeeping practices for this hopper and information identifying departures from those practices, with description, explanation, and corrective actions taken.

g. The Permittee shall maintain records of the following for each incident when any affected material handling operations and the new coke conveyor system operate without control measures:

i. The date of the incident and identification of the operations that were involved.

ii. A description of the incident, including the control measures that were not present or implemented; the control measures that were present, if any; other control measures or mitigation measures that were

implemented, if any; and the magnitude of the PM emissions during the incident.

iii. The time at and means by which the incident was identified, e.g., scheduled inspection or observation by operating personnel.

iv. The length of time after the incident was identified that the operations continued to operate before control measures were in place or the operations were shutdown (to resume operation only after control measures were in place) and, if this time was more than one hour, an explanation why this time was not shorter, including a description of any mitigation measures that were implemented during the incident.

v. The estimated total duration of the incident, i.e., the total length of time that the operations ran without control measures and the estimated amount of coal handled during the incident.

vi. A discussion of the probable cause of the incident and any preventative measures taken.

vii. A discussion whether any applicable emission standards, as listed in Condition 7.1.3, may have been violated during the incident, with supporting explanation.

h. The Permittee shall maintain the following records for the new coke conveyor system and each other operation subject to limits on PM/PM_{10} emissions in Condition 7.1.6:

i. A file containing the emission factors used by the Permittee to determine emissions of each operation, with supporting documentation. These records shall be reviewed and updated by the Permittee as necessary to assure that the emission factors that it uses to determine emissions of the affected operations do not understate actual emissions. These records shall be prepared and copies sent to the Illinois EPA in accordance with Condition 5.9.6(c).

ii. Records for any periods of operation of such operations that are not otherwise addressed in the required records during which the established emission factor in Condition 7.1.9(f)(i) would understate actual emissions of such operation, with description of the period of operation and an estimate of the additional emissions during such period that would not be accounted for by the established factor, with supporting explanation and calculations.

iii. Records for the annual PM/PM_{10} emissions of each operation, based on operating data and appropriate emission factors for comparison to the limits in Conditions 7.1.6(b), with supporting documentation and calculations.

i. The Permittee shall keep records for all opacity measurements conducted in accordance with Method 9 that it conducts or that it orders to be conducted. For each occasion on which such measurements are made, these records shall include the identity of the observer, a description of the measurements that were made, the operating condition of the operations, the observed opacity, and copies of the raw data sheets for the measurements.

j. The Permittee shall keep copies of all tests performed on the affected material handling operations and new coke conveyor system.

7.1.10 Reporting Requirements

a. i. The Permittee shall submit quarterly and annual reports to the Illinois EPA in accordance with 35 IAC 212.316(g)(1) and (5) [35 IAC 212.316(g)].

ii. Pursuant to 35 IAC 212.324(g)(6), upon written request by the IEPA, a report shall be submitted to the IEPA for any period specified in the request stating the following: the dates during which any process emission unit was in operation when the air pollution control equipment was not in operation or was not operating properly, documentation of causes for pollution control equipment not operating or not operating properly, and a statement of what corrective actions were taken and what repairs were made.

iii. Pursuant to Permit 06070088 for the new coke conveyor system, the Permittee shall notify the Illinois EPA within 30 days of deviations from applicable emission standards or operating requirements that continue* for more than 24 hours.

* For this purpose, time shall be measured from the start of a particular event. The absence of a deviation for a short period shall not be considered to end the event if the deviation resumes. In such circumstances, the event shall be considered to continue until corrective actions are taken so that the deviation ceases or the Permittee takes the affected unit out of service for repairs.

b. i. Pursuant to Section 39.5(7)(f)(ii) of the Act, the Permittee shall promptly notify the Illinois EPA, Air

Compliance Section, within 30 days of deviations by the affected material handling operations and new coke conveyor system from applicable requirements as follows:

A. Requirements in Condition 7.1.3(b) through (f).

B. Requirements in Condition 7.1.5.

C. Requirements in Condition 7.1.6.

ii. All such deviations shall be summarized and reported as part of the semiannual monitoring report required by Condition 8.6.1.

iii. The Permittee shall notify the Illinois EPA, Air Compliance Section, of all other deviations from permit requirements as part of the semiannual monitoring reports required by Condition 8.6.1.

iv. All deviation reports described in Condition 7.1.11(b) above shall contain the following:

A. Date, time and duration of the deviation;

B. Description of the deviation;

C. Probable cause of the deviation; and

D. Any corrective actions or preventive measures taken.

7.1.11 Operational Flexibility/Anticipated Operating Scenarios

Operational flexibility is not set for the affected material handling operations and new coke conveyor system.

7.1.12 Compliance Procedures

Compliance with the emission standards in Condition 7.1.3 and the operational/emission limits in Condition 7.1.6 is addressed by the testing requirements of Condition 7.1.7, inspection requirements of Condition 7.1.8 and recordkeeping requirements of Condition 7.1.9.

7.1.13 State-Only Conditions

State-only conditions are not being established.

7.2 Coke Production

7.2.1 Description

Two coke oven batteries (45 ovens each), dual collecting main by-product coke oven batteries, referred to as batteries A and B, are utilized at this iron and steel mill. Each is capable of processing 454,000 tons/year of coal. Potential emissions from these batteries consist of particulate matter, sulfur dioxide, nitrogen oxides, carbon monoxide, volatile organic materials, and HAPs.

Topside:

Emission points include leaks from coke oven charging, lids, off takes, soaking and emergency flares. Coal is charged to the ovens through four charging port lids, on each oven, utilizing sequential charging with steam aspiration to the collecting mains. Each oven has two off takes to the collecting mains that duct raw coke oven gas from the coking process to the by-products plant (see Section 7.3 of this permit). Soaking occurs after the coking process is completed, when an oven is dampered off from the collecting mains and its off takes' standpipes are opened before beginning pushing. Each battery also has an emergency by-pass on the collecting main (one on each main, two per battery). In the event of an emergency which would lead to excess pressure in a main, e.g., loss of suction from the by-product plant, the by-pass opens. The raw coke oven gas is then combusted in the associated emergency flare.

Doors:

Emissions consist of leaks from coke oven doors. Each oven has two doors, with one on its push side and one on its coke side.

Pushing:

Once the coking cycle in an oven has been completed, the push and coke side doors are removed, respectively, by the pushing machine and coke-side door machines. A ram on the pushing machine pushes the coke out through a guide on the door machine. The coke falls through the guide, which is covered by a hood on the machine, and into the quench box. The emissions from oven pushing are controlled by the pushing system. This mobile control system consists of a venturi scrubber, mist eliminator and exhaust fan. The Permittee currently has two mobile scrubber cars for pushing (PCS cars #3 and #4). The quench box and car travel with this system to the coke quenching operation.

Coke Quenching:

In this operation, loads of hot coke from the ovens are quenched with water. There are two locations where quenching normally takes place. The primary is the West Quench Tower. This tower is equipped with a baffle system. The east quench station,

which is utilized as a backup for the West Tower, does not currently have a quench tower, however, the Permittee is currently engaged in a project to upgrade the quenching operations, adding a quench tower to the East Quench Station and replacing the conventional Quench Tower at the West Quench Station with a low emission quench tower (Construction Permit 08060026).

Underfiring:

Coke oven gas (COG) is combusted to generate the heat required to convert coal to coke. This COG would be treated by both by-products plant and, except during maintenance and outage, by the COG desulfurization system. Natural gas may also be added through the blending station in order to stabilize the heat content of the COG. Emissions from this unit occur at the main stacks of each battery and are mainly the by-products of combustion, including particulate matter, sulfur dioxide, nitrogen oxides, carbon monoxide, and volatile organic materials.

Note: This narrative description is for informational purposes only and is not enforceable.

7.2.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Date Constructed	Emission Control Equipment
Coke Oven Batteries “A” and “B”	Coke Oven Battery “A”	Battery “A” was rebuilt between 1979 and 1980	Emergency Bypass Flares
	Coke Oven Battery “B”	Battery “B” was rebuilt between 1981 and 1982	Emergency Bypass Flares
	2 Larry Cars		None
	2 Pushing/Quench Cars		Mobile Venturi Scrubber (PCS Cars #3 & #4)
	East Quench Station (backup)		Tower and Baffles (planned)
	West Quench Station		Tower and Baffles
	Coke Oven Underfiring (coke oven combustion stacks)		None

7.2.3 Applicable Provisions

a. The “affected coke oven operations” for the purpose of these unit-specific conditions, are the emission units and activities described in Conditions 7.2.1 and 7.2.2.

b. The affected coke oven operations are subject to 35 IAC 212.443. Certain provisions of this regulation are discussed further in this subsection.

c. i. The following affected coke oven operations are subject to 40 CFR Part 63, Subpart L Coke Oven Batteries: charging, doors, lids, off takes, collecting mains and bleeder stacks. The Permittee is complying with the so-called LAER track under this NESHAP, as provided for by 40 CFR 63.304.

ii. For affected coke oven operations, the Permittee shall comply with applicable provisions of the NESHAP, 40 CFR 63 Subpart A.

d. i. The following affected coke oven operations are subject to 40 CFR Part 63, Subpart CCCCC: pushing, soaking, quenching and battery underfiring stacks.

ii. For affected operations at the coke oven battery, the Permittee shall comply with applicable provisions of the NESHAP, 40 CFR 63 Subpart A as specified in Table 1 in 40 CFR 63 Subpart CCCCC.

7.2.3-1 Applicable Standards: Coke Oven Charging

a. 35 IAC 212.443(b)(1)(A)

No person shall cause or allow the emission of visible particulate matter from any coke oven charging operation, from the introduction of coal into the first charge port, as indicated by the first mechanical movement of the coal feeding mechanism on the larry car, to the replacement of the final charge port lid for more than a total of 125 seconds over 5 consecutive charges; provided however that 1 charge out of any 20 consecutive charges may be deemed an uncountable charge at the option of the operator.

Compliance with this limit shall be determined in accordance with the applicable procedures in 35 IAC 212.443(b)(1)(B) and Condition 7.2.12.

b. 40 CFR 63.304(b)(2)(iv)

Emissions to the atmosphere from coke oven charging shall not exceed 12 seconds of visible emissions per charge, as determined by the procedures in 40 CFR 63.309(d)(2).

c. Battery B

The aggregate of visible emissions from the charging of coke ovens at Battery B shall not exceed a total 55 seconds during any 5 consecutive charges [T1].

Note: This limit is the determination of LAER for charging for Battery B made in Construction Permit C808048.

7.2.3-2 Applicable Standards: Leaks from Doors

a. 35 IAC 212.443(d)

i. No person shall cause or allow visible emissions from more than 10 percent of all coke oven doors at any time. Compliance shall be determined by a one pass observation of all coke oven doors on any one battery.

ii. No person shall cause or allow the operation of a coke oven unless there is on the plant premises at all times an adequate inventory of spare coke oven doors and seals and unless there is a readily available coke oven door repair facility.

b. Battery B

At no time shall there be any visible emissions from more than 5 percent of the door areas on Battery B [T1].

Note: This limit is the determination of LAER for door leaks for Battery B was established in Construction Permit C808048.

c. 40 CFR 63.304(b)(3)(ii)

3.3 percent leaking coke oven doors for each by-product coke oven battery not subject to the emission limitation 40 CFR 63.304(b)(3)(i), as determined by the procedures in 40 CFR 63.309(d)(1).

7.2.3-3 Applicable Standards: Leaks from Lids

a. 35 IAC 212.443(e)

No person shall cause or allow visible emissions from more than 5 percent of all coke oven lids at any time. Compliance shall be determined by a one pass observation of all coke oven lids.

b. Battery B

There shall be no visible emissions from more than 1 percent of the charging ports or lids [T1].

Note: This limit is the determination of LAER for lid leaks for Battery B made in Construction Permit C808048.

c. 40 CFR 63.304(b)(2)(ii)

0.4 percent leaking topside port lids, as determined by the procedures in 40 CFR 63.309(d)(1).

7.2.3-4 Applicable Standards: Leaks from Off Takes

a. 35 IAC 212.443(f)

No person shall cause or allow visible emissions from more than 10 percent of all coke oven off take piping at any time. Compliance shall be determined by a one pass observation of all coke oven off take piping.

b. Battery B

There shall be no visible emissions from more than 4 percent of the off take piping on the coke ovens on Battery B [T1].

Note: This limit is the determination of LAER for off take leaks for Battery B made in Construction Permit C808048.

c. 40 CFR 63.304(b)(2)(iii)

2.5 percent leaking off take system(s), as determined by the procedures in 40 CFR 63.309(d)(1).

7.2.3-5 Applicable Standards: Coke Oven Pushing

a. 35 IAC 212.443(c)(1)(A)

Emissions of uncaptured particulate matter from pushing operations shall not exceed an average of 20 percent opacity for 4 consecutive pushes considering the highest average of six consecutive readings in each push.

Compliance with this limit shall be determined in accordance with the procedures in 35 IAC 212.443(c)(1)(B) and Condition 7.2.12.

b. 35 IAC 212.443(c)(2)

i. The particulate emissions from control equipment used to control emissions during pushing operations shall not exceed 0.040 pounds per ton of coke pushed. Compliance shall be determined in accordance with the procedures set forth in 40 CFR Part 60, Appendix A, Methods 1-5, incorporated by reference in Section 212.113. Compliance shall be based on an arithmetic average of three runs (stack tests) and the

calculations shall be based on the duration of a push as defined in 35 IAC 212.443(c)(1)(A).

ii. The opacity of emissions from control equipment used to control emissions during pushing operations shall not exceed 20%. For a push of less than six minutes duration, the actual number of 15-second readings taken shall be averaged. Compliance shall be determined in accordance with 40 CFR Part 60, Appendix A, Method 9, incorporated by reference in 35 IAC 212.113, Section 2.5 of 40 CFR Part 60, Appendix A, Method 9, incorporated by reference in 35 IAC 212.113, for data reduction shall not be used for pushes of less than six minutes duration [35 IAC 212.443(c)(2)(B)].

c. 40 CFR 63.7290(a)(4)

Particulate matter emissions to the atmosphere from the mobile scrubber car for pushing which captures emissions during travel shall not exceed 0.04 lb/ton of coke.

d. Battery B

Pushing emissions from Battery B shall be captured and cleaned by a single-spot, coke guide evacuated, enclosed quench car/scrubber car system which meets the following limitations [T1]:

i. The gas cleaning device shall be operated to meet 0.04 pounds of particulate matter per ton of coke pushed during the pushing operation.

ii. Visible emissions from the gas cleaning device outlet and uncaptured fugitive emissions shall not exceed 20 percent opacity.

Note: These limits are the determination of LAER for pushing emissions from Battery B made in Construction Permit C808048.

7.2.3-6 Applicable Standards: Coke Quenching

a. i. 40 CFR 63.7295(a)(1)(i)

For the quenching of hot coke, the Permittee must meet the following requirements of 40 CFR 63.7295(a)(1)(i):

The concentration of total dissolved solids (TDS) in the water used for quenching must not exceed 1,100 milligrams per liter (mg/L).

ii. 40 CFR 63.7295(a)(2)

The Permittee must use acceptable makeup water, as defined in 40 CFR 63.7352, as makeup water for quenching.

iii. 40 CFR 63.7295(b)

For each quench tower at a coke oven battery, the Permittee must meet each of the following requirements:

A. Pursuant to 40 CFR 63.7295(b)(1), each tower is equipped with baffles such that no more than 5 percent of the cross sectional area of the tower may be uncovered or open to the sky;

B. Pursuant to 40 CFR 63.7295(b)(2), baffles in each quench tower shall be washed once each day that the tower is used to quench coke, except as specified below:

1. Baffles in a quench tower are not required to be washed if the highest measured ambient temperature remains less than 30 degrees Fahrenheit throughout that day (24-hour period). If the measured ambient temperature rises to 30 degrees Fahrenheit or more during the day, the Permittee shall resume daily washing.

2. The Permittee shall continuously record the ambient temperature on days that the baffles were not washed.

C. Pursuant to 40 CFR 63.7295(b)(3) and (4), the Permittee shall comply with inspection and repair provisions (see Condition 7.2.8-3).

b. 35 IAC 212.443(h)(1)

All coke oven quench towers shall be equipped with grit arrestors or equipment of comparable effectiveness. Baffles shall cover 95 percent or more of the cross sectional area of the exhaust vent or stack and must be maintained. Quench water shall not include untreated coke by-product plant effluent. All water placed on the coke being quenched shall be quench water.

c. 35 IAC 212.443(h)(2)

Total dissolved solids concentrations in the quench water shall not exceed a weekly average of 1200 mg/L.

7.2.3-7 Applicable Standards: Combustion (Battery) Stack

a. 35 IAC 212.443(g)

i. No person shall cause or allow the emissions of particulate matter from a coke oven combustion stack to exceed 110 mg/dscm (0.05 gr/dscf); and

ii. No person shall cause or allow the emission of particulate matter from a coke oven combustion stack to exceed 30% opacity. Compliance shall be determined in accordance with 40 CFR Part 60, Appendix A, Method 9, incorporated by reference in 35 IAC 212.113. However, the opacity limit shall not apply to a coke oven combustion stack when a leak between any coke oven and the oven's vertical or crossover flues is being repaired, after pushing coke from the oven is completed, but before resumption of charging. The exemption from the opacity limit shall not exceed three (3) hours per oven repaired. The owner or operator shall keep written records identifying the oven repaired, and the date, time, and duration of all repair periods. These records shall be subject to the requirements of 35 IAC 212.324(g)(4) and (g)(5).

b. 40 CFR 63.7296

The Permittee must not discharge to the atmosphere any emissions from any battery stack at an existing by-product coke oven battery that exhibits opacity greater than the following applicable limits:

i. Daily average of 15 percent opacity for a battery on a normal coking cycle.

ii. Daily average of 20 percent opacity for a battery on batterywide extended coking.

c. Battery B

Pursuant to Construction Permit 82060043, non-sulfate particulate matter emissions from the battery stack serving Battery B shall not exceed 0.03 gr/dscf [T1].

7.2.3-8 Applicable Standards: Bypass/Bleeder Stack

a. i. Pursuant to 40 CFR 63.307(a)(1), the Permittee shall operate and properly maintain a bypass/bleeder stack flare system that is capable of controlling 120 percent of the normal gas flow generated by the affected battery.

ii. Coke oven emissions shall not be vented to the atmosphere through bypass/bleeder stacks, except

through the flare system or an alternative control device as described in 40 CFR 63.307(d) [40 CFR 63.307(a)(2)].

iii. Each flare installed pursuant to 40 CFR 63.307 shall meet the applicable requirements specified by 40 CFR 63.307(b) with compliance determined as specified by 40 CFR 63.309(h).

b. Pursuant to 40 CFR 63.307(c), the flare shall be operated with no visible emissions, as determined by the methods specified in 40 CFR 63.309(h)(1), except for periods not to exceed a total of 5 minutes during any 2 consecutive hours.

7.2.4 Non-Applicability of Regulations of Concern

a. The emission limitations of 35 IAC 212.324 are not applicable to any emission unit subject to a specific emissions standard or limitation contained in 35 IAC Part 212 Subpart R, Primary and Fabricated Metal Products and Machinery Manufacture, pursuant to 35 IAC 212.324 (a)(3).

b. The affected coke oven operations are not fuel combustion emission units as defined in 35 IAC 211.2470 and therefore are not subject to the standards for fuel combustion emission units in 35 IAC Parts 212, 214, 216 and 217.

c. This permit is issued based on the affected coke oven operations not being subject to the applicable requirements of 35 IAC 219.301 because there is 85 percent reduction of uncontrolled organic material that would otherwise be emitted into atmosphere, pursuant to 35 IAC 219.302.

7.2.5-1 Work Practices: Soaking Plan (40 CFR 63.7294)

Pursuant to 40 CFR 63.7294(a), the Permittee shall operate the coke ovens pursuant to a written work practice plan for soaking, which includes the measures specified by 40 CFR 63.7294(a), including, if soaking emissions are caused by leaks from the collecting main, the Permittee shall take corrective actions to eliminate soaking emissions in accordance with the actions identified in the soaking plan. If soaking emissions are not caused by leaks, the Permittee must determine whether the soaking emissions are due to incomplete coking. If incomplete coking is the cause of the soaking emissions, the Permittee must put the oven back on the collecting main until it is completely coked or the Permittee must ignite the standpipe emissions as specified by 40 CFR 63.7294(a)(4) and (5).

7.2.5-2 Work Practice Plan (40 CFR 63.306)

a. Pursuant to 40 CFR 63.306(c), for affected units subject to the NESHAP, 40 CFR 63 Subpart L, the Permittee shall implement a written emission control Work Practice Plan for each affected coke oven battery designed to achieve

compliance with visible emission limitations for coke oven doors, topside port lids, off take systems, and charging operations.

b. Pursuant to 40 CFR 63.306(a)(1) and (b), the Permittee shall organize the work practice plan to indicate clearly which parts of the plan pertain to each emission point subject to visible emission standards under 40 CFR Subpart L. Each of the following provisions, at a minimum, shall be addressed in the plan in sufficient detail and with sufficient specificity to allow USEPA and the Illinois EPA to evaluate the plan for completeness and enforceability:

i. An initial and refresher training program for all coke plant operating personnel with responsibilities that impact emissions, including contractors, in job requirements related to emission control and the requirements of 40 CFR Subpart L, including work practice requirements, that includes all the elements specified by 40 CFR 63.306(b)(1). Contractors with responsibilities that impact emission control may be trained by the Permittee or by qualified contractor personnel; however, the Permittee shall ensure that the contractor training program complies with the requirements of 40 CFR 63.306(b)(1).

ii. Procedures for controlling emissions from coke oven doors on by-product coke oven batteries, including the elements specified by 40 CFR 63.306(b)(2).

iii. Procedures for controlling emissions from charging operations on by-product coke oven batteries, including the elements specified by 40 CFR 63.306(b)(3).

iv. Procedures for controlling emissions from topside port lids on by-product coke oven batteries, including the elements specified by 40 CFR 63.306(b)(4).

v. Procedures for controlling emissions from off take system(s) on by-product coke oven batteries, including the elements specified by 40 CFR 63.306(b)(5).

vi. Procedures for each emission point subject to visible emission limitations under 40 CFR 63 Subpart L for maintaining a daily record of the performance of plan requirements pertaining to the daily operations of the affected coke oven operations as defined in Condition 7.2.3(c) and its emission control equipment, including the elements specified by 40 CFR 63.306(b)(7).

vii. Any additional work practices or requirements specified by the USEPA or Illinois EPA pursuant to 40 CFR 63.306(d).

c. Pursuant to 40 CFR 63.306(c) the Permittee shall implement the provisions of the work practice plan pertaining to a particular emission point:

i. Following the second independent exceedance of the visible emission limitation for the emission point in any consecutive 6-month period, by no later than 3 days after receipt of written notification of the second such exceedance from the certified observer. For this purpose, the second exceedance is "independent" if the criteria of 40 CFR 63.306(c)(1)(i)(A), (B) or (C) are met.

ii. And continue to implement such plan provisions until the visible emission limitation for the emission point is achieved for 90 consecutive days. After the visible emission limitation for a particular emission point is achieved for 90 consecutive days, any exceedances prior to the beginning of the 90 days are not included in making the above determination of exceedances.

d. Revisions to the work practice plan shall be done in accordance with 40 CFR 63.306(d) and (a)(2).

e. The Work Practice Plan, as submitted by the Permittee on November 12, 1993, (which contains various training and standard operating procedures for the A & B coke oven batteries), is incorporated herein by reference. The document constitutes the formal work practice plan required by 40 CFR 306(a) for each coke oven battery, addressing work practices for achieving compliance with the visible emissions limitations of Subpart L.

Any future revision to the aforementioned plan made by the Permittee during the permit term is automatically incorporated by reference provided that said revision is not expressly disapproved, in writing, by the Illinois EPA within 30 days of receipt of said revision. In the event that the Illinois EPA notifies the Permittee of a deficiency with any revision to the plan, the Permittee shall be required to revise and resubmit the plan within 30 days of receipt of notification to address the deficiency [Section 39.5(7)(a) of the Act].

7.2.5-3 NESHAP Provisions for Startup, Shutdown and Malfunction

a. Pursuant to 40 CFR 63.7310(a) and (c), for affected coke oven operations subject to 40 CFR 63 Subpart CCCCC:

i. The Permittee shall comply with the emission limitations, work practice standards, and operating and maintenance requirements of 40 CFR 63 Subpart CCCCC, at all times except periods of startup, shutdown, and malfunction as defined at 40 CFR 63.2.

ii. The Permittee shall develop and implement a written startup, shutdown and malfunction plan according to the provisions in 40 CFR 63.6(e)(3).

b. Pursuant to 40 CFR 63.310, for affected coke oven operations subject to 40 CFR 63 Subpart L:

i. At all times, including periods of startup, shutdown, and malfunction, the Permittee shall operate and maintain the affected coke oven operations, and associated pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions to the levels required by standards under 40 CFR Subpart L. Failure to adhere to the requirement of 40 CFR 63.310 shall not constitute a separate violation if a violation of an applicable performance or work practice standard has also occurred [40 CFR 63.310(a)].

ii. The Permittee shall develop and implement according to 40 CFR 63.310(c), a written startup, shutdown, and malfunction plan that describes procedures for operating the affected units, including associated air pollution control equipment, during a period of a startup, shutdown, or malfunction in a manner consistent with good air pollution control practices for minimizing emissions, and procedures for correcting malfunctioning process and air pollution control equipment as quickly as practicable [40 CFR 63.310(b)].

iii. Pursuant to 40 CFR 63.310(c), during a period of startup, shutdown, or malfunction the Permittee shall operate the battery (including associated air pollution control equipment) in accordance with the procedure specified in the startup, shutdown, and malfunction plan; and malfunctions shall be corrected as soon as practicable after their occurrence, in accordance with the plan.

iv. To satisfy the requirement for a startup, shutdown, and malfunction plan, the Permittee may use the standard operating procedures manual for the battery, provided the manual meets all the requirements of 40 CFR 63.310 and is made available for inspection at reasonable times when requested by the Administrator (USEPA) or Illinois EPA, as provided by 40 CFR 63.310(g).

v. The USEPA or Illinois EPA may require reasonable revisions to a startup, shutdown, and malfunction plan as provided by 40 CFR 63.310(h).

vi. Pursuant to 40 CR 63.310((i), if the Permittee demonstrates to the satisfaction of the Administrator (USEPA and Illinois EPA) that a startup, shutdown, or malfunction has occurred, then an observation occurring during such startup, shutdown, or malfunction shall not:

A. Constitute a violation of relevant requirements of 40 CFR 63 Subpart L;

B. Be used in any compliance determination under 40 CFR 63.309; or

C. Be considered for purposes of 40 CFR 63.306 (the work practice plan), until the Administrator (USEPA and Illinois EPA) has resolved the claim that a startup, shutdown, or malfunction has occurred, as further provided by 40 CFR 63.310(i)(3).

vii. The Permittee shall maintain all records related to startup, shutdown and malfunction, including internal reports which form the basis of each malfunction notification under 40 CFR 63.310(d) as required by 40 CFR 63.310(f).

7.2.5-4 Startup Authorization Pursuant to State Rule

Pursuant to 35 IAC 201.149 and Part 201, Subpart I, subject to the following terms and conditions, for the affected coke ovens, the Permittee is authorized to violate the applicable standards in 35 IAC 212.443 during startup. For this purpose a start-up is the resumption of normal production following the period when the battery has been idled.

Note: This authorization is provided because the Permittee has applied for such authorization in its CAAPP application, generally describing the efforts that will be used "…to minimize startup emissions, duration of individual starts, and frequency of startups".

a. This authorization does not relieve the Permittee from the continuing obligation to demonstrate that all reasonable efforts are made to minimize startup emissions, duration of individual startups and frequency of startups.

b. The Permittee shall conduct startup of the affected coke oven operations in accordance with the manufacturer's written instructions or other written procedures prepared by the Permittee and maintained at the source (see

Condition 7.2.9(g)(i)), that are specifically developed to minimize emissions from the startup.

c. The Permittee shall fulfill applicable recordkeeping of Condition 7.2.9(g).

d. The Permittee shall fulfill applicable reporting of Condition 5.10.5-1.

e. As provided by 35 IAC 201.265, an authorization in a permit for excess emissions during startup does not shield a Permittee from enforcement for any violation of applicable emission standard(s) that occurs during startup and only constitutes a prima facie defense to such an enforcement action provided that the Permittee has fully complied with all terms and conditions connected with such authorization.

7.2.5-5 Malfunction and Breakdown Authorization Pursuant to State Rule

a. Pursuant to 35 IAC 201.149 and Part 201, Subpart I, subject to the following terms and conditions, the Permittee is authorized to continue operation of the affected coke oven batteries in excess of the applicable state standards in 35 IAC 212.443 in the event of a malfunction or breakdown.

Note: This authorization is provided because the Permittee applied for such authorization in its CAAPP application, generally explaining why such continued operation would be required to prevent injury to personnel or severe damage to equipment, and describing the measures that will be taken to minimize emissions from any malfunctions and breakdowns.

i. This authorization only allows such continued operation as necessary to prevent injury to personnel or severe damage to equipment and does not extend to continued operation solely for the economic benefit of the Permittee.

ii. Upon occurrence of excess emissions due to malfunction or breakdown, the Permittee shall repair the responsible affected coke oven operations or other responsible equipment and/or re-establish the applicable control practices (e.g., the rail system for quench car).

iii. The Permittee shall fulfill the applicable recordkeeping and reporting requirements of Conditions 7.2.9(h) and Condition 5.10.5-2, respectively. For these purposes, time shall be measured from the start of a particular incident. The absence of excess emissions for a short period shall not be considered to end the incident if excess emissions resume.

iv. Following notification to the Illinois EPA (see Condition 5.10.5-2(a)(i))of a malfunction or breakdown with excess emissions, the Permittee shall comply with all reasonable directives of the Illinois EPA with respect to such incident.

v. This authorization does not relieve the Permittee from the continuing obligation to minimize excess emissions during malfunction or breakdown. As provided by 35 IAC 201.265, an authorization in a permit for continued operation with excess emissions during malfunction and breakdown does not shield the Permittee from enforcement for any such violation and only constitutes a prima facie defense to such an enforcement action provided that the Permittee has fully complied with all terms and conditions connected with such authorization.

b. During the period when only one quench station is available (i.e., the other quench station is not operable because of construction work on a new quench tower) or there is a malfunction or breakdown preventing hot coke from being moved to a tower-equipped quench station (e.g., rail line malfunction), the Permittee is authorized to continue operation of the coke ovens with emergency quenching, i.e., quenching without a quench tower or at a quench station that is experiencing a malfunction or breakdown (see Condition 7.2.5-5).

7.2.6 Production and Emission Limitations

a. i. The amount of coal charged to the affected Battery “B” shall not exceed 454,000 tons per year [Construction Permit C808048].

b. i. Emissions of PM from the mobile scrubber cars for pushing shall not exceed 4.2 lb/hr and 18.3 t/yr [T1].

Compliance with annual limits shall be determined from a running total of 12 months of data [Construction Permit 88070071].

ii. Spare cars, parts inventories and maintenance practices shall be maintained and implemented by the Permittee for the pushing operations (quench cars and mobile scrubbers) consistent with good air pollution control practices [Permit 88070071].

c. i. Supplementary natural gas usage for the coke ovens shall not exceed 20 million scf/month and 123 million scf/yr [T1].

ii. Emissions attributable to the combustion of natural gas for the underfiring of the batteries shall not exceed the following limits. Compliance with the

annual limits shall be determined from a running total of 12 months of data [T1]:

	Emissions	
Pollutant	(Tons/Month)	(Tons/Year)
NO_x	2.80	17.22
CO	0.84	5.17
PM	0.12	0.73
PM_{10}	0.11	0.62
VOM	0.06	0.34
SO_2	0.01	0.04

iii. The above limitations were established in the Permit 04110018.

d. i. Once shakedown of the new quench tower on the West Quench Station has been completed, the Permittee shall use the West Quench Station preferentially. For this purpose, on an annual basis*, excluding periods when the West Quench Station cannot be used due to malfunction or breakdown, the East Quench Station shall not quench more than: 5 percent of the total number of quenches or 15,000 tons of coke, whichever is greater, not to exceed 30,000 tons of coke per year.

* This limit shall apply for the 12 month period from July 1 of one year through June 30 of the following year. This limit shall also apply for the initial 12 months following shakedown of the West Quench Station with new quench tower.

ii. Shakedown of each affected quench tower shall be completed within 180 days of the initial quench with each tower.

iii. The above limitations were established in the Permit 08060026.

7.2.7-1 Emission Testing for Coke Oven Pushing

a. Testing requirements established by 40 CFR Part 63 Subpart CCCCC:

i. Pursuant to 40 CFR 63.7321, for each control device subject to an emission limit for particulate matter in 40 CFR 63.7290(a), the Permittee must conduct performance tests no less frequently than twice (at mid-term and renewal) during each term of the CAAPP permit (i.e., every 30 months).

ii. The Permittee must conduct each performance test according to the following requirements in 40 CFR 63.7322.

A. To determine compliance with a process-weighted mass rate of particulate matter (lb/ton of coke) from a control device applied to pushing emissions where a cokeside shed is not used, follow these test methods and procedures to determine the concentration of particulate matter according to the following test methods in Appendix A to 40 CFR Part 60:

1. Method 1 to select sampling port locations and the number of traverse points. Sampling sites must be located at the outlet of the control device and prior to any releases to the atmosphere.

2. Method 2, 2F, or 2G to determine the volumetric flow rate of the stack gas.

3. Method 3, 3A, or 3B to determine the dry molecular weight of the stack gas.

4. Method 4 to determine the moisture content of the stack gas.

5. Method 5 or 5D, as applicable, to determine the concentration of front half particulate matter in the stack gas.

B. During each particulate matter test run, sample only during periods of actual pushing when the capture system fan and control device are engaged. Collect a minimum sample volume of 30 dry standard cubic feet of gas during each test run. Three valid test runs are needed to comprise a performance test. Each run must start at the beginning of a push and finish at the end of a push (*i.e.*, sample for an integral number of pushes).

C. Determine the total combined weight in tons of coke pushed during the duration of each test run according to the procedures in the Permittee’s source test plan for calculating coke yield from the quantity of coal charged to an individual oven.

D. Compute the process-weighted mass emissions (E_p) for each test run using the following equation:

$$E_p = \frac{C \times Q \times T}{P \times K} \qquad \text{(Eq. 1)}$$

Where:

E_p = Process weighted mass emissions of particulate matter, lb/ton;

C = Concentration of particulate matter, gr/dscf;

Q = Volumetric flow rate of stack gas, dscf/hr;

T = Total time during a run that a sample is withdrawn from the stack during pushing, hr;

P = Total amount of coke pushed during the test run, tons; and

K = Conversion factor, 7,000 gr/lb.

b. Testing requirements to address 35 IAC 212.443(c)(2)

If the PM emissions measured during the emissions testing conducted pursuant to Condition 7.2.7-1(a) are more than 0.036 lb/ton, the Permittee shall conduct a follow-up test between 12 and 18 months after such test, unless subsequent emission testing conducted in the 12 month period following such test shows PM emissions are no more than 0.030 lb/ton.

7.2.7-2 Testing Requirements for Coke Quenching

a. Requirements of 40 CFR Part 63 Subpart CCCCC

i. Pursuant to 40 CFR 63.7333(f), the Permittee shall sample and analyze quench water for total dissolved solids on at least a weekly basis in accordance with the procedures specified by 40 CFR 63.7325(a).

ii. If the Permittee elects to comply with the TDS limit for quench water in 40 CFR 63.7295(a)(1)(i), the Permittee must conduct each performance test that applies to the affected quenching operations according to the following conditions in 40 CFR 63.7325(a)(1) and (2):

A. Take the quench water sample from a location that provides a representative sample of the quench water as applied to the coke (e.g., from the header that feeds water to the quench tower reservoirs). Conduct sampling under normal and representative operating conditions.

B. Determine the TDS concentration of the sample using Method 160.1 in 40 CFR part 136.3 (see residue—filterable"), except that you must dry the total filterable residue at 103 to 105°C instead of 180°C.

b. Requirements of 35 IAC 212.443(h)

i. Pursuant to 35 IAC 212.443(h)(3), the quench water shall be sampled for total dissolved solids concentrations in accordance with the methods specified in Standard Methods for the Examination of Water and Wastewater, Section 209C, "Total Filterable Residue Dried at 103-105°C" 15th Edition, 1980, incorporated by reference in 35 IAC 212.113. Analyses shall be performed on grab samples of the quench water as applied to the coke in accordance with the sampling schedule in Condition 7.2.12(c).

ii. If the quench station is not used during any given calendar week, the grab samples for that quench station need not be analyzed.

c. Testing requirements for West Quench Station from Permit 08060026

Within two years after initial startup of the West Quench Station with low emission quench tower, the Permittee shall have emission test(s) conducted for this quench station at its expense as follows:

i. The emissions test(s) shall be designed to measure the PM, PM_{10}, and $PM_{2.5}$ emission rates (lb/ton coke) from the quench tower under conditions that are representative of the maximum emissions as the station is normally operated.

ii. The Permittee shall install any facilities necessary to accommodate this emissions testing.

iii. The following methods and procedures shall be used for testing emissions of PM unless other method(s) are approved by the Illinois EPA as part of its review of the test plan.

A. The following USEPA Test Methods:

Refer to 40 CFR 60, Appendix A for USEPA test methods and www.epa.gov/ttn/emc/prelim.html for other test methods.

Location of Sample Points	USEPA Method 1
Gas Flow and Velocity	USEPA Method 2
Flue Gas Weight	USEPA Method 3
Moisture	USEPA Method 4
PM	USEPA Method 5

B. Testing for emissions of filterable and condensable PM_{10} shall be conducted using an appropriate Test Method developed by USEPA, e.g., Method 201/201A or Other Test Method (OTM) 27 and Method 202 or OTM 28, or a Reference Method proposed by USEPA, subject to review by the Illinois EPA as part of the review of the test plan.

C. Testing for emissions of filterable $PM_{2.5}$ shall be conducted using an applicable Reference Method, as adopted by USEPA in 40 CFR Part 51, Appendix M, or in 40 CFR Part 60, Appendix A. If USEPA has not adopted a Reference Method for testing of filterable $PM_{2.5}$ when testing must be performed, testing for filterable $PM_{2.5}$ shall be conducted using an appropriate Test Method developed by USEPA, e.g., OTM 27, or a Reference Method proposed by USEPA, subject to review by the Illinois EPA as part of the review of the test plan.

iv. For this emission testing, test notification and reporting shall be done by the Permittee in accordance with Conditions 8.6.2 and 8.6.3 of this permit.

7.2.7-3 Compliance Demonstrations and Emission Testing for Coke Oven Underfiring (combustion stacks)

a. For compliance demonstration with opacity limits, the Permittee must conduct each performance test that applies to the affected operations according to the following requirements in 40 CFR 63.7324(b):

To determine compliance with the daily average opacity limit for stacks of 15 percent for a by-product coke oven battery on a normal coking cycle or 20 percent for a by-product coke oven battery on batterywide extended coking, follow the test methods and procedures outlined below:

i. Using the continuous opacity monitoring system (COMS) required in 40 CFR 63.7330(e), measure and record the

opacity of emissions from each battery stack for a 24-hour period.

ii. Reduce the monitoring data to hourly averages as specified in 40 CFR 63.8(g)(2).

iii. Compute and record the 24-hour (daily) average of the COMS data.

b. Pursuant to Sections 39.5(7)(d) and (p) of the Act, the Permittee shall conduct emission tests for each coke oven combustion stack under conditions that are representative of maximum emissions as follows:

i. Testing for PM emissions (filterable PM from Battery A and filterable and filterable non-sulfate PM from Battery B) shall be conducted as follows:

A. Initial testing shall be conducted within 24 months of the effective date of this permit condition.

B. Thereafter, emission testing shall be repeated in 30 months, unless the PM emission rate measured from both stacks during the previous testing is less than 0.040 gr/dscf for filterable PM and less than 0.024 gr/dscf for filterable non-sulfate PM from the combustion stack on Battery B, in which case testing shall be repeated in 60 months.

C. Testing shall also be conducted for combustion stack(s) upon written request from the Illinois EPA as specified in the request. This testing shall be completed within 90 days of the date of the request or such later date agreed to by the Illinois EPA.

ii. In conjunction with the initial testing for PM emissions required by Condition 7.2.7-3(b)(i)(A), the Permittee shall also test for CO and NO_x from one of the coke oven combustion stacks, as selected by the Illinois EPA.

iii. The following USEPA test methods shall be used for testing of emissions, unless another USEPA test method is approved by the Illinois EPA. Refer to 40 CFR 51, Appendix M, and 40 CFR 60, Appendix A, for test methods.

Location of Sample Points	Method 1
Gas Flow and Velocity	Method 2
Flue Gas Weight	Method 3
Moisture	Method 4

PM (filterable)	Method 5
PM (non-sulfate filterable)	Method 5F
CO	Method 10
NO_x	Method 7 or 7E

iv. For this emission testing, test notification and reporting shall be done by the Permittee in accordance with Conditions 8.6.2 and 8.6.3 of this permit.

v. With the report for emission testing, the Permittee shall also provide a summary of the opacity data monitored during the period of testing (6 minute averages and daily average), the sulfur content of COG being combusted during the period of testing, as measured by the monitoring system(s) for COG, the PM content of COG combusted during the period of testing, and data for the firing rate of the battery during testing (mmBtu or SCF of COG and natural gas per hour) for each test run, with supporting calculations.

c. Testing conditions above are established pursuant to Sections 39.5(7)(d) and (p) of the Act.

7.2.8-1 Monitoring Requirements for Charging, Doors, Lids and Off Takes

a. i. Pursuant to 40 CFR 63.309(a), daily performance tests shall be conducted by a certified observer each day, 7 days per week for the affected battery, as specified by 40 CFR 63.309, the results of which shall be used in accordance with procedures specified in 40 CFR 63 Subpart L to determine compliance with each of the applicable visible emission limitations for coke oven doors, topside port lids, off take systems, and charging operations in 40 CFR 63 Subpart L.

ii. The Permittee shall enter into a contract providing for the inspections and performance tests required under the NESHAP, 40 CFR 63 Subpart L, to be performed by a Method 303 certified observer. The inspections and performance tests will be conducted at the expense of the Permittee, during the period that the USEPA is the implementing agency [40 CFR 63.309(a)(5)(ii)].

A. The certified observer shall conduct daily performance tests according to the requirements specified in 40 CFR 63.309(c).

B. Pursuant to 40 CFR 63.309(c)(3), upon request of the certified observer the Permittee shall demonstrate pursuant to Reference Method 303 the accuracy of the pressure measurement device

for the collecting mains and shall not adjust the pressure to a level below the range of normal operation during or prior to the inspection.

C. In no case shall the owner or operator knowingly block a coke oven door, or any portion of a door for the purpose of concealing emissions or preventing observations by the certified observer, as prohibited by 40 CFR 63.309(c)(6).

D. 1. Pursuant to 40 CFR 63.309(e), the certified observer shall make available to the implementing agency, as well as to the Permittee, a copy of the daily inspection results by the end of the day and shall make available the calculated rolling average for each emission point to the Permittee as soon as practicable following each performance test. The information provided by the certified observer is not a compliance determination. For the purposes of notifying the owner or operator of the results obtained by a certified observer, the person does not have to be certified.

2. Pursuant to 40 CFR 63.306(d)(3), if the certified observer calculates that a second exceedance (or if applicable, a second independent exceedance) has occurred, the certified observer shall notify the Permittee. No later than 10 days after receipt of such notification, the Permittee shall notify the administrator (USEPA) and Illinois EPA of any finding of whether work practices are related to the cause or solution of the problem.

Note: Pursuant to 40 CFR 63.306(d)(6), the reviewing authority (USEPA) may disapprove the submitted finding if it determines that a revised work practice plan is needed to prevent exceedances of the applicable visible emission limitations.

iii. Pursuant to 40 CFR 63.309(f), compliance with the NESHAP, 40 CFR 63 Subpart L shall not be determined more often than the schedule provided for performance tests under 40 CFR 63.309. If additional valid emissions observations are obtained (or in the case

of charging, valid sets of emission observations), the arithmetic average of all valid values (or valid sets of values) obtained during the day shall be used in any computations performed to determine compliance under 40 CFR 63.309(d) or determinations under 40 CFR 63.306.

iv. Pursuant to 40 CFR 63.309(i), no observations obtained during any program for training or for certifying observers under 40 CFR 63 Subpart L shall be used to determine compliance with the requirements of 40 CFR 63 Subpart L or any other federally enforceable standard.

b. Pursuant to 40 CFR 63.308, for the collecting mains, the Permittee shall conduct daily inspections for leaks and promptly repair any leaks as specified by 40 CFR 63.308(a) through (d).

c. Pursuant to Section 39.5(7)(d) of the Act, the Permittee shall have daily inspections conducted for charging and doors, lids and off takes to confirm compliance by Battery A with 35 IAC 212.443(b), (d), (e) and (f) and by Battery B with LAER limit (See Conditions 7.2.3-1(c), 7.2.3-2(b), 7.2.3-3(b), and 7.2.3-4(b)). These inspections shall be conducted in accordance with applicable procedures in Condition 7.2.12(a). These inspections may be coordinated with the daily inspections required by the NESHAP, provided that appropriate observations are made and collected to address these applicable limits under state rule and permit.

7.2.8-2 Monitoring Requirements for Pushing

a. Pursuant to 40 CFR 63.7330(b), For each venturi scrubber applied to pushing emissions, the Permittee must at all times monitor the pressure drop and water flow rate using a CPMS according to the following requirements:

Pursuant to 40 CFR 63.7331(e), operate, and maintain CPMS to measure and record the pressure drop across the scrubber and scrubber water flow rate during each push according to the requirements in the site specific monitoring plan as well as the following:

i. Each CPMS must complete a measurement at least once per push [40 CFR 63.7331(e)(1)];

ii. Each CPMS must produce valid data for all pushes [40 CFR 63.7331(e)(2)]; and

iii. Each CPMS must determine and record the daily (24-hour) average of all recorded readings [40 CFR 63.7331(e)(3)].

b. Pursuant to 40 CFR 63.7330(d), For each capture system applied to pushing emissions, the Permittee must at all times operate and maintain a device to measure the fan RPM.

c. Pursuant to 40 CFR 63.7331(b), the Permittee must maintain and make available for inspection upon request by the Illinois EPA and USEPA a site-specific monitoring plan for each Continuous Parameter Monitoring System (CPMS) that addresses the following requirements:

   i. Installation of the CPMS sampling probe or other interface at a measurement location relative to each affected process unit such that the measurement is representative of control of the exhaust emissions (*e.g.*, on or downstream of the last control device) [40 CFR 63.7331(b)(1)];

   ii. Performance and equipment specifications for the sample interface, the parametric signal analyzer, and the data collection and reduction system [40 CFR 63.7331(b)(2)];

   iii. Performance evaluation procedures and acceptance criteria (*e.g.*, calibrations) [40 CFR 63.7331(b)(3)];

   iv. Ongoing operation and maintenance procedures in accordance with the general requirements of 40 CFR 63.8(c)(1), (3), (4)(ii), (7), and (8) [40 CFR 63.7331(b)(4)];

   v. Ongoing data quality assurance procedures in accordance with the general requirements of 40 CFR 63.8(d) [40 CFR 63.7331(b)(5)]; and

   vi. Ongoing recordkeeping and reporting procedures in accordance with the general requirements of 40 CFR 63.10(c), (e)(1), and (e)(2)(i) [40 CFR 63.7331(b)(6)].

d. Pursuant to 40 CFR 63.7331(d), the Permittee must operate and maintain the CPMS in continuous operation according to the site-specific monitoring plan.

e. Pursuant to 40 CFR 63.7332(a), except for monitor malfunctions, associated repairs, and required quality assurance or control activities (including as applicable, calibration checks and required zero and span adjustments), you must monitor continuously (or collect data at all required intervals) at all times the affected source is operating.

f. Pursuant to 40 CFR 63.7332(b), the Permittee may not use data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities in data averages and calculations used to report emission or operating levels, or in fulfilling a minimum data availability requirement, if applicable. You must use all the data collected during all other periods in assessing compliance. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitor to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.

g. Pursuant to 40 CFR 63.7333(d)(3)(ii), check the fan RPM at least every 8 hours to verify the daily average fan RPM is at or above the minimum level in Condition 7.2.8-2(h) and recording the results of each check.

h. i. Pursuant to 40 CFR 63.7290(b)(1), for each venturi scrubber applied to pushing emissions, the Permittee must maintain the daily average pressure drop and scrubber water flow rate at or above (no lower than) the following minimum levels established as the site-specific operating limits during testing:

PCS Car	Scrubber Water Flow Rate, gal/min	Pressure Drop, in. wc
#3	860	37
#4	607	33

ii. Pursuant to 40 CFR 63.7290(b)(3)(ii), for each capture system the Permittee must maintain the daily average fan revolutions per minute (RPM) at or above (no lower than) the minimum level established as the site-specific operating limits during testing:

PCS Car	RPM
#3	1650
#4	1743

iii. Pursuant to 40 CFR 63.7323 (e)(1) through (3), the Permittee may change the operating limit for a venturi scrubber, capture system, or mobile control device that captures emissions during pushing if the Permittee meets the following requirements described below:

A. Submit a written notification to the Illinois EPA of Permittee’s request to conduct a new performance test to revise the operating limit.

B. Conduct a performance test to demonstrate that emissions of particulate matter from the

control device do not exceed the applicable limit in 40 CFR 63.7290(a).

C. Establish revised operating limits according to the applicable procedures in 40 CFR 63.7323.

i. The Permittee shall comply with the work practice standards for fugitive pushing emissions as specified by 40 CFR 63.7291. In particular:

i. The Permittee shall observe and record the opacity of fugitive pushing emissions as required by 40 CFR 63.7291(a)(1), (a)(2), (a)(3) and (a)(4).

ii. The Permittee shall undertake corrective action(s) in the event that the opacity of fugitive pushing emissions exceeds the applicable limit, as required by 40 CFR 63.7291(a)(5) through (a)(7).

iii. Pursuant to 40 CFR 63.7291(b), the Permittee may request to use an alternative to the work practice standards in 40 CFR 63.7291(a) using the procedure provided in 40 CFR 63.6(g).

j. For each by-product coke oven battery with vertical flues subject to the work practice standards for fugitive pushing emissions in 40 CFR 63.7291(a), the Permittee must demonstrate continuous compliance according to the following requirements of 40 CFR 63.7334(a)(1) through (8):

i. The Permittee shall observe and record the opacity of fugitive emissions for four consecutive pushes per operating day, except the Permittee may make fewer or non-consecutive observations as permitted by 40 CFR 63.7291(a)(3). The Permittee shall maintain records of the pushing schedule for each oven and records indicating the legitimate operational reason for any change in the pushing schedule according to 40 CFR 63.7291(a)(4).

ii. The Permittee shall observe and record the opacity of fugitive emissions from each oven in a battery at least once every 90 days. If an oven cannot be observed during a 90-day period, the Permittee shall observe and record the opacity of the first push of that oven following the close of the 90-day period that can be read in accordance with the procedures in 40 CFR 63.7334(a)(1) through (8).

iii. The Permittee shall make all observations and calculations for opacity observations of fugitive pushing emissions in accordance with Method 9 in appendix A to 40 CFR Part 60 using a Method 9

certified observer unless the Permittee has an approved alternative procedure under 40 CFR 63.7334(a)(7).

iv. The Permittee shall record pushing opacity observations at 15-second intervals as required in section 2.4 of Method 9 Appendix A to 40 CFR Part 60. The following requirements do not apply: (section 2.4 of Method 9) for a minimum of 24 observations; the data reduction requirements in (section 2.5 of Method 9); and obtaining at least 3 hours of observations (thirty 6-minute averages) to demonstrate initial compliance (40 CFR 63.6(h)(5)(ii)(B)) does not apply.

v. If fewer than six but at least four 15-second observations can be made, the Permittee shall use the average of the total number of observations to calculate average opacity for the push. Missing one or more observations during the push (*e.g.*, as the quench car passes behind a building) does not invalidate the observations before or after the interference for that push. However, a minimum of four 15-second readings must be made by the Permittee for a valid observation.

vi. The Permittee shall begin observations for a push at the first detectable movement of the coke mass. The Permittee shall end observations of a push when the quench car enters the quench tower.

A. For a battery without a cokeside shed, the Permittee shall observe fugitive pushing emissions from a position at least 10 meters from the quench car that provides an unobstructed view and avoids interferences from the topside of the battery. This may require the observer to be positioned at an angle to the quench car rather than perpendicular to it. Typical interferences for the observer to avoid include emissions from open standpipes and charging. Opacity of emissions shall be observed above the battery top with the sky as the background where possible. The Permittee shall record the oven number of any push not observed because of obstructions or interferences.

B. An observer may reposition after the push to observe emissions during travel if necessary.

vii. If it is infeasible to implement the procedures in 40 CFR 63.7334 (a)(1) through (6) for an oven due to physical obstructions, nighttime pushes, or other reasons, the Permittee may apply to an appropriate permitting authority (USEPA) for permission to use an alternative procedure. The application must provide a detailed explanation of why it is infeasible to use the procedures in 40 CFR 63.7334 (a)(1) through (6), identify the oven and battery numbers, and describe the alternative procedure. An alternative procedure must identify whether the coke in that oven is not completely coked, either before, during, or after an oven is pushed.

viii. For each oven observed that exceeds an opacity of 30 percent for any short battery, the Permittee must take corrective action and/or increase the coking time in accordance with 40 CFR 63.7291(a). The Permittee shall maintain records documenting conformance with the requirements in 40 CFR 63.7291(a).

k. Pursuant to Section 39.5(7)(d) of the Act, the Permittee shall have daily observations conducted for pushing to confirm compliance with 35 IAC 212.443(c)(1)(A) (Condition 7.2.3-5(a)). These observations shall be conducted in accordance with applicable procedures in Condition 7.2.12(b). These observations may be coordinated with the observations required by the NESHAP provided that appropriate observations are made and data collected to address the applicable standard under state rule. These observations shall also include, on a monthly basis, opacity observations for the stack of the mobile scrubber car.

l. For each coke oven battery with a capture system or control device applied to pushing emissions, the Permittee shall demonstrate continuous compliance with the operation and maintenance requirements in 40 CFR 63.7300(c) by meeting the following requirements outlined in 40 CFR 63.7335(b):

i. Making monthly inspections of capture systems according to 40 CFR 63.7300(c)(1) and recording all information needed to document conformance with these requirements; and

ii. Performing preventative maintenance for each control device according to 40 CFR 63.7300(c)(2) and recording all information needed to document conformance with these requirements.

7.2.8-3 Monitoring Requirements for Quenching

a. For each coke oven battery subject to the work practice standard for quenching in 40 CFR 63.7295(b), the Permittee must demonstrate continuous compliance according to the following requirements of 40 CFR 63.7334(e)(1) through (3):

i. Maintaining baffles in each quench tower such that no more than 5 percent of the cross-sectional area of the tower is uncovered or open to the sky as required in 40 CFR 63.7295(b)(1);

ii. Maintaining records that document conformance with the washing, inspection, and repair requirements in 40 CFR 63.7295(b)(2), including records of the ambient temperature on any day that the baffles were not washed; and

iii. Maintaining records of the source of makeup water to document conformance with the requirement for acceptable makeup water in 40 CFR 63.7295(a)(2).

b. Pursuant to 40 CFR 63.7295(b), for the quench tower, the Permittee shall perform inspections on at least a monthly basis for damaged or missing baffles and initiate repair or replacement within 30 days, which shall be completed as soon as practicable, as specified by 40 CFR 63.7295(b)(3) and (4).

7.2.8-4 Monitoring Requirements for Combustion Stacks

a. Pursuant to 40 CFR 63.7330(e), for each coke oven battery stack, the Permittee must operate and maintain a COMS to measure and record the opacity of emissions exiting each stack according to the requirements in 40 CFR 63.7331(j)(1) through (5) and the following below:

i. The Permittee must operate, and maintain each COMS according to the requirements in 40 CFR 63.8(e) and Performance Specification 1 in 40 CFR Part 60, Appendix B. The Permittee shall identify periods the COMS is out-of-control, including any periods that the COMS fails to pass a daily calibration drift assessment, quarterly performance audit, or annual zero alignment audit.

ii. The Permittee must conduct a performance evaluation of each COMS according to the requirements in 40 CFR 63.8 and Performance Specification 1 in Appendix B to 40 CFR Part 60.

iii. The Permittee must develop and implement a quality control program for operating and maintaining each

COMS according to the requirements in 40 CFR 63.8(d). At minimum, the quality control program must include a daily calibration drift assessment, quarterly performance audit, and an annual zero alignment audit of each COMS.

iv. Each COMS installed, operated and maintained by the Permittee must complete a minimum of one cycle of sampling and analyzing for each successive 10-second period and one cycle of data recording for each successive 6-minute period. The Permittee must reduce the COMS data as specified in 40 CFR 63.8(g)(2).

v. The Permittee must determine and record the hourly and daily (24-hour) average opacity according to the procedures in 40 CFR 63.7324(b) using all the 6-minute averages collected for periods during which the COMS is not out-of-control.

b. Pursuant to Sections 39.5(7)(d) and (p) of the Act, the Permittee shall also record 6-minute average opacity data from the COMS required by Condition 7.2.8-4(a).

7.2.8-5 Monitoring Requirements for Emergency By-pass Bleeder Stacks

Pursuant to 40 CFR 63.309(h)(1), for a flare installed to meet the requirements of 40 CFR 63.307(b) (see Condition 7.2.3-8(b)):

If any emergency by-pass bleeder stack flare operates more than 5 minutes (cumulative) during any 2 hour period, visible emissions observations shall be conducted by using Method 22 in Appendix A of 40 CFR Part 60.

7.2.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items for the affected coke production operations, pursuant to Sections 39.5(7)(a) and (e) of the Act:

a. 40 CFR 63, Subpart CCCCC (40 CFR 63.7334(d))

For each by-product coke oven battery subject to the work practice standard for soaking in 40 63.7294(a), the Permittee must demonstrate continuous compliance by maintaining records that document conformance with requirements in 40 CFR 63.7294(a)(1) through (5).

b. 40 CFR 63, Subpart CCCCC (40 CFR 63.7342 and 63.7343)

i. The Permittee shall keep the following records specified in 40 CFR 63.7342 (a)(1) through (3):

A. A copy of each notification and report that the Permittee submitted to comply with 40 CFR 63 Subpart CCCCC, including all documentation supporting any initial notification or notification of compliance status that the Permittee submitted, according to the requirements in 40 CFR 63.10(b)(2)(xiv).

B. The records in 40 CFR 63.6(e)(3)(iii) through (v) related to startup, shutdown, and malfunction.

C. Records of performance tests, performance evaluations, and opacity observations as required in 40 CFR 63.10(b)(2)(viii).

ii. For each COMS or CEMS, the Permittee shall keep the following records specified in 40 CFR 63.7342(b)(1) through (4):

A. Records described in 40 CFR 63.10(b)(2)(vi) through (xi).

B. Monitoring data for COMS during a performance evaluation as required in 40 CFR 63.6(h)(7)(i) and (ii).

C. Previous (that is, superseded) versions of the performance evaluation plan as required in 40 CFR 63.8(d)(3).

D. Records of the date and time that each deviation started and stopped, and whether the deviation occurred during a period of startup, shutdown, or malfunction or during another period.

iii. The Permittee shall keep the records in 40 CFR 63.6(h)(6) for visual observations [40 CFR 63.7342(c)].

iv. The Permittee shall keep the records required in 40 CFR 63.7333 through 63.7335 to show continuous compliance with each emission limitation, work practice standard, and operation and maintenance requirement that applies to the Permittee [40 CFR 63.7342(d)].

v. The Permittee shall keep its records in a form suitable and readily available for expeditious review, according to 40 CFR 63.10(b)(1) [40 CFR 63.7343(a)].

vi. As specified in 40 CFR 63.10(b)(1), the Permittee shall keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record [40 CFR 63.7343(b)].

vii. The Permittee shall keep each record on site for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to 40 CFR 63.10(b)(1). The Permittee may keep the records offsite for the remaining 3 years [40 CFR 63.7343(c)].

c. 40 CFR 63, Subpart CCCCC (40 CFR 63.7326)

i. Pursuant to 40 CFR 63.7326(a)(2), For each venturi scrubber applied to pushing emissions, the Permittee shall have a record of the pressure drop and scrubber water flow rate measured during the performance test in accordance with 40 CFR 63.7323(a).

ii. Pursuant to 40 CFR 63.7326(a)(4)(iii), For each capture system applied to pushing emissions, the Permittee shall have a record of the fan RPM measured during the performance test in accordance with 40 CFR 63.7323(c)(3).

d. 40 CFR Part 63, Subpart L (40 CFR 63.311(f) and (g))

The Permittee shall maintain files of all required information in a permanent form suitable for inspection at an onsite location for at least 1 year and must thereafter be accessible within 3 working days to the Administrator for the time period specified in 40 CFR 70.6(a)(3)(ii)(B). Copies of the work practice plan developed under 40 CFR 63.306 and the startup, shutdown, and malfunction plan developed under 40 CFR 63.310 shall be kept onsite at all times. The Permittee shall maintain the following information:

i. A copy of the work practice plan required by 40 CFR 63.306 and any revision to the plan [40 CFR 63.311(f)(3)];

ii. If the Permittee is required under 40 CFR 63.306I to implement the provisions of a work practice plan for a particular emission point, the following records shall be maintained by the Permittee regarding the implementation of plan requirements for that emission point during the implementation period [40 CFR 63.311(f)(4)]:

A. Copies of all written and audiovisual materials used in the training, the dates of each class, the names of the participants in each class, and documentation that all appropriate personnel have successfully completed the training required under 40 CFR 63.306(b)(1);

B. The records required to be maintained by the plan provisions implementing 40 CFR 63.306(b)(7);

C. Records resulting from audits of the effectiveness of the work practice program for the particular emission point, as required under 40 CFR 63.306(b)(2)(i), 63.306(b)(3)(i), 63.306(b)(4)(i), or 63.306(b)(5)(i); and

D. If the plan provisions for coke oven doors must be implemented, records of the inventory of doors and jambs as required under 40 CFR 63.306(b)(2)(vi).

iii. The design drawings and engineering specifications for the bypass/bleeder stack flare system or approved alternative control device or system as required under 40 CFR 63.307 [40 CFR 63.311(f)(5)].

iv. Records specified in 40 CFR 63.310(f) regarding the basis of each malfunction notification [40 CFR 63.311(f)(6)].

v. Records required to be maintained and reports required to be filed with the Illinois EPA under Subpart L shall be made available in accordance with the requirements of 40 CFR 63.311(g) by the Permittee to the authorized collective bargaining representative of the employees at a coke oven battery, for inspection and copying.

A. Requests under 40 CFR 63.311(g) shall be submitted in writing, and shall identify the records or reports that are subject to the request with reasonable specificity;

B. The Permittee shall produce the reports for inspection and copying within a reasonable period of time, not to exceed 30 days. A reasonable fee may be charged for copying (except for the first copy of any document), which shall not exceed the copying fee charged by the Illinois EPA under the Act;

C. Nothing in 40 CFR 63.311(g) shall require the production for inspection or copying of any portion of a document that contains trade secrets or confidential business information that the Illinois EPA would be prohibited from disclosing to the public under the Act; and

D. The inspection or copying of a document under 40 CFR 63.311(g) shall not in any way affect any property right of the owner or operator in such document under laws for the protection of intellectual property, including the copyright laws.

e. Implementation of the good air pollution control practices, as required by Condition 7.2.5-3(b)(i), shall be supported by maintaining logs or other records for the implementation of operation practices and for maintenance activities performed by Permittee.

f. Records of the total annual coke production at batteries “A” and “B” (ton/yr) and separately for the Battery B [39.5(7)(b) of the Act].

g. Records for Startups of Affected coke ovens, pursuant to Section 39.5(7)(b) of the Act

i. The Permittee shall maintain startup procedures for each affected coke oven, as required by Condition 7.2.5-4(b).

ii. The Permittee shall maintain the following records for each startup of an affected coke oven:

A. Date, time and duration of the startup.

B. A description of the startup and reason(s) for the startup.

C. Whether a violation of an applicable standard may have occurred during startup accompanied by the information in Condition 7.2.9(g)(iv) if a violation may have or did occur.

D. Whether the established startup procedures, maintained above, were followed accompanied by the information in Condition 7.2.9(g)(iii) if there were departure(s) from those procedures.

iii. If the established startup procedures were not followed during a startup, the Permittee shall maintain the following records:

A. A description of the departure(s) from the established procedures.

B. The reason(s) for the departure(s) from the established procedures.

C. An explanation of the consequences of the departure(s) for emissions, such as whether the departure(s) prolonged the startup or resulted in additional emissions, and if so:

1. The actions taken to minimize emissions and the duration of the startup; and

2. An explanation whether similar incidents might be prevented in the future and if so, the corrective actions taken or to be taken to prevent similar incidents.

iv. If a violation did or may have occurred during a startup, the Permittee shall maintain the following records:

A. Identification of the applicable standard(s) that were or may have been violated.

B. An explanation of the nature of such violation(s), including the magnitude of such excess emissions.

C. A description of the actions taken to minimize the magnitude of emissions and duration of the startup.

D. An explanation whether similar incidents could be prevented or ameliorated in the future and if so, a description of the actions taken or to be taken to prevent similar incidents in the future.

h. Records for Malfunctions or Breakdowns

Pursuant to 35 IAC 201.263, the Permittee shall maintain records of continued operation of the affected coke ovens as addressed by Condition 7.2.5-4, during malfunctions or breakdowns, which at a minimum, shall include the following records. The preparation of these records shall be completed within 45 days of an incident, unless the Permittee conducts a root cause analysis for the incident, in which case the preparation of these records, other than

the root cause analysis, shall be completed within 120 days of the incident.

i. Date, time and duration of the incident.

ii. A detailed description of the incident, including:

A. A chronology of significant events during and leading up to the incident.

B. Relevant operating data for the unit, including information such as operator log entries and directives provided by management during the incident.

C. The measures taken to reduce the quantity of emissions and the duration of the incident including the resources utilized to address the incident.

D. The magnitude of emissions during the incident.

iii. An explanation why continued operation of an affected coke oven was necessary to prevent personnel injury or prevent equipment damage.

iv. A discussion of the cause(s) or probable cause(s) of the incident including the following:

A. Whether the incident was sudden, unavoidable, or preventable, including:

1. Why the equipment design did not prevent the incident;

2. Why better maintenance could not have avoided the incident;

3. Why better operating practices could not have avoided the incident; and

4. Why there was no advance indication for the incident.

B. Whether the incident stemmed from any activity or event that could have been foreseen, avoided or planned for,

C. Whether the incident was or is part of a recurring pattern indicative of inadequate design, operation or maintenance.

v. A description of any steps taken to prevent similar future incidents or reduce their frequency and severity.

vi. As an alternative to keeping the records required by Condition 7.2.9(h)(iv), the Permittee may perform a root cause analysis. For this purpose, a root cause analysis is an analysis whose purpose is to determine, correct and eliminate the primary causes of the incident and the excess emissions resulting there from. If the Permittee performs a root cause analysis method that would define the problem, define all causal relationships, provide a causal path to the root cause, delineate the evidence, and provide solutions to prevent a recurrence. Such an analysis shall be completed within one year of the incident.

i. Quench stations

The Permittee shall maintain the following records for quenching operations:

i. A file listing the emissions factors used by the Permittee to determine the emissions of the various quenching operations, with supporting documentation and analysis. These records shall be prepared and copies sent to the Illinois EPA in accordance with Condition 5.9.6(c).

ii. Records for the total number of quenches (ovens pushed), the total amount of coke quenched (tons) and the average amount of coke per quench (tons/quench) on a monthly and annual basis*.

iii. A log showing each period of time when coke was quenched at the East Quench Station, with number of quenches during the period and explanation of reason for use of the East Quench Station.

iv. Records on an annual basis* for the:

A. Total number of quenches.

B. For the East Quench Station:

1. Total number of quenches and amount of coke quenched at the East Quench Station.

2. Total number of quenches and amount of coke quenched at the East Quench Station due to malfunction and breakdown.

3. Percentage of total quenches that occurred at the East Quench Station.

C. For the emergency quench station:

1. Total number of quenches and amount of coke quenched at the emergency quench station.

2. Percentage of total quenches that occurred at the emergency quench station.

* These records shall be kept for the 12-month period from July 1 to June 30 and the initial 12-month period following shakedown of the West Quench Station with new quench tower.

v. Records for emissions of PM, PM_{10}, and $PM_{2.5}$ from each affected quench station and from the emergency quench station (tons/month and tons/year), with supporting calculations.

j. i. A file containing the emission rates (lb/hr and lb/ton) used by the Permittee to determine PM emissions from the mobile quench cars, with supporting documentation, which rates shall be reviewed when new data becomes available to assure that these rates do not understate actual emissions. These records shall be prepared and copies sent to the Illinois EPA in accordance with Condition 5.9.6(c).

ii. Records of PM emissions of the mobile scrubber cars (tons/month and tons/year), with supporting calculations.

k. i. Monthly and annual records of supplementary natural gas usage (scf) for underfiring the coke oven batteries and associated emissions (tons) with supporting calculations.

ii. Records of emissions as addressed in Condition 7.2.6(c).

l. Records of observations of duration of charging, percentage of leaks or opacity that are conducted by the Permittee or on its behalf to determine compliance with 35 IAC 212.443(b) and (c)(1)(A) in addition to the observations required by Condition 7.2.8-1 and 7.2.8-2.

m. Records of all test reports and submittals related to emission testing required by Section 7.2 of this permit.

7.2.10 Reporting Requirements

a. Opacity Monitoring Reports for Combustion Stacks

Pursuant to Sections 39.5(7)(a), (d) and (p) of the Act, the Permittee shall provide the following reports for each coke oven battery to the Illinois EPA, including a copy directly to Collinsville Regional Office, on a quarterly basis.

i. "Excess opacity reports" that list all opacity measurements which exceed 30 percent, averages over a six minute period. These reports shall also provide, for each such incident, the percent opacity measured as well as the date and span of such incident. These reports shall state the reasons for excess opacity. These reports shall also specify the date of those periods during which the continuous monitoring system was not in operation.

ii. "Summary reports" that provide the average opacity, 6-minute average, measured during the reporting period and the distribution of opacity measurements, 6-minute average and hourly average, during the reporting period, by percent, in ranges as follows:

Ranges	
6-Minute Averages	Hourly Averages
≤ 2	≤ 1
> 2 and ≤ 5	> 1 and ≤ 3
> 5 and ≤ 10	> 3 and ≤ 6
> 10 and ≤ 15	> 6 and ≤ 10
> 15 and ≤ 20	> 10 and ≤ 15
> 20 and ≤ 30	> 15
> 30	

b. 40 CFR Part 63, Subpart CCCCC (40 CFR 63.7336)

Pursuant to 63.7336(a) the Permittee must report each instance in which it did not meet each emission limitation in Conditions 7.2.3-5(c), 7.2.3-6(a) and 7.2.3-7(b). This includes periods of startup, shutdown, and malfunction. The Permittee must also report each instance in which it did not meet each work practice standard or operation and maintenance requirement in Condition 7.2.8-2(h). These instances are deviations from the emission limitations (including operating limits), work practice standards, and operation and maintenance requirements. These deviations must be reported according to the requirements in 40 CFR 63.7341.

c. 40 CFR Part 63, Subpart CCCCC (40 CFR 63.7341)

i. Pursuant to 40 CFR 63.7341(a)(3) and (4), compliance report due dates. Unless the Illinois EPA has approved a different schedule, the Permittee shall submit quarterly compliance reports for battery

stacks and semiannual compliance reports for all other affected sources to the Illinois EPA according to the following requirements:

A. All quarterly compliance reports for battery stacks must be postmarked or delivered no later than one calendar month following the end of the quarterly reporting period. All semiannual compliance reports must be postmarked or delivered no later than July 31 or January 31, whichever date is the first date following the end of the semiannual reporting period.

B. If the Illinois EPA has established dates for submitting semiannual reports pursuant to 40 CFR 70.6(a)(3)(iii)(A), the Permittee may submit compliance reports according to the dates the Illinois EPA has established instead of according to the dates in 40 CFR 63.7341(a)(1) through (3).

ii. Quarterly compliance report contents. Each quarterly report must provide information on compliance with the emission limitations for battery stacks in 40 CFR 63.7296. The reports must include the information in 40 CFR 63.7341(c)(1) through (3), and as applicable, 40 CFR 63.7341(c)(4) through (8).

iii. Semiannual compliance report contents. Each compliance report must provide information on compliance with the emission limitations, work practice standards, and operation and maintenance requirements for all affected sources except battery stacks. The reports must include the following information [40 CFR 63.7341(c)]:

A. Company name and address.

B. Statement by a responsible official, with the official’s name, title, and signature, certifying the truth, accuracy, and completeness of the content of the report.

C. Date of report and beginning and ending dates of the reporting period.

D. If the Permittee had a startup, shutdown, or malfunction during the reporting period and the Permittee took actions consistent with the startup, shutdown, and malfunction plan, the compliance report must include the information in 40 CFR 63.10(d)(5)(i).

E. If there were no deviations from the continuous compliance requirements in 40 CFR 63.7333(e) for battery stacks, a statement that there were no deviations from the emission limitations during the reporting period. If there were no deviations from the continuous compliance requirements in 40 CFR 63.7333 through 63.7335 that apply to the Permittee (for all affected sources other than battery stacks), a statement that there were no deviations from the emission limitations, work practice standards, or operation and maintenance requirements during the reporting period.

F. If there were no periods during which a continuous monitoring system (including COMS, continuous emission monitoring system (CEMS), or CPMS) was out-of-control as specified in 40 CFR 63.8(c)(7), a statement that there were no periods during which a continuous monitoring system was out-of-control during the reporting period.

G. For each deviation from an emission limitation in Subpart CCCCC (including quench water limits) and for each deviation from the requirements for work practice standards in Subpart CCCCC that occurs at an affected source where the Permittee is not using a continuous monitoring system (including a COMS, CEMS, or CPMS) to comply with the emission limitations in Subpart CCCCC, the compliance report must contain the following information (this includes periods of startup, shutdown, and malfunction):

1. The total operating time of each affected source during the reporting period.

2. Information on the number, duration, and cause of deviations (including unknown cause, if applicable) as applicable and the corrective action taken.

H. For each deviation from an emission limitation occurring at an affected source where the Permittee is using a continuous monitoring system (including COMS, CEMS, or CPMS) to comply with the emission limitation in Subpart CCCCC, the Permittee shall include the

following information (this includes periods of startup, shutdown, and malfunction):

1. The date and time that each malfunction started and stopped.

2. The date and time that each continuous monitoring system (including COMS, CEMS, or CPMS) was inoperative, except for zero (low-level) and high-level checks.

3. The date, time, and duration that each continuous monitoring system (including COMS, CEMS, or CPMS) was out-of-control, including the information in 40 CFR 63.8(c)(8).

4. The date and time that each deviation started and stopped, and whether each deviation occurred during a period of startup, shutdown, or malfunction or during another period.

5. A summary of the total duration of the deviation during the reporting period and the total duration as a percent of the total source operating time during that reporting period.

6. A breakdown of the total duration of the deviations during the reporting period into those that are due to startup, shutdown, control equipment problems, process problems, other known causes, and other unknown causes.

7. A summary of the total duration of continuous monitoring system downtime during the reporting period and the total duration of continuous monitoring system downtime as a percent of the total source operating time during the reporting period.

8. An identification of each HAP that was monitored at the affected source.

9. A brief description of the process units.

10. A brief description of the continuous monitoring system.

11. The date of the latest continuous monitoring system certification or audit.

12. A description of any changes in continuous monitoring systems, processes, or controls since the last reporting period.

iv. Immediate startup, shutdown, and malfunction report. If the Permittee had a startup, shutdown, or malfunction during the semiannual reporting period that was not consistent with the Permittee's startup, shutdown, and malfunction plan, the Permittee shall submit an immediate startup, shutdown, and malfunction report according to the requirements in 40 CFR 63.10(d)(5)(ii).

d. 40 CFR Part 63, Subpart L (40 CFR 63.311)

i. Semiannual compliance certification. The Permittee shall include the following information in the semiannual compliance certification [40 CFR 63.311(d)]:

A. Certification, signed by the Permittee, that no coke oven gas was vented, except through the bypass/bleeder stack flare system of a by-product coke oven battery during the reporting period or that a venting report has been submitted according to the requirements in 40 CFR 63.311(e).

B. Certification, signed by the Permittee, that a startup, shutdown, or malfunction event did not occur for a coke oven battery during the reporting period or that a startup, shutdown, and malfunction event did occur and a report was submitted according to the requirements in 40 CFR 63.310(e).

C. Certification, signed by the Permittee, that work practices were implemented if applicable under 40 CFR 63.306.

ii. Report for the venting of coke oven gas other than through a flare system. The Permittee shall report any venting of coke oven gas through a bypass/bleeder stack that was not vented through the bypass/bleeder stack flare system to the Administrator as soon as practicable but no later than 24 hours after the beginning of the event. A written report shall be submitted within 30 days of the event and shall include a description of the event and, if applicable, a copy of the notification for a

hazardous substance release required, pursuant to 40 CFR 63.311(e).

iii. 40 CFR Part 63, Subpart L (40 CFR 63.310)

A. Pursuant to 40 CFR 63.310(d), in order for the provisions of 40 CFR 63.310(i) to apply with respect to the observation (or set of observations) for a particular day, notification of a startup, shutdown, or a malfunction shall be made by the Permittee:

If practicable, to the certified observer if the observer is at the source during the occurrence; or to the enforcement agencies (USEPA and Illinois EPA), in writing, within 24 hours of the occurrence first being documented by personnel, and if the notification to the certified observer was not made, an explanation of why no such notification was made.

B. Pursuant to 40 CFR 63.310(e), within 14 days of the notification made under 40 CFR 63.310 (d), or after a startup or shutdown, the Permittee shall submit a written report to the Illinois EPA that describes the time and circumstances of the startup, shutdown, or malfunction; and describes actions taken that might be considered inconsistent with the startup, shutdown, or malfunction plan.

e. i. Pursuant to Section 39.5(7)(f)(ii) of the Act, the Permittee shall promptly notify the Illinois EPA, Air Compliance Section, within 30 days of deviations by the affected coke oven operations from applicable requirements unless a NESHAP standard specifies a different timeframe as identified in Condition 7.2.11(c) and (d), as follows:

A. Requirements in Condition 7.2.3(d).

B. Requirements in Condition 7.2.3-1.

C. Requirements in Condition 7.2.3-2.

D. Requirements in Condition 7.2.3-3.

E. Requirements in Condition 7.2.3-4.

F. Requirements in Condition 7.2.3-5.

G. Requirements in Condition 7.2.3-6.

H. Requirements in Condition 7.2.3-7.

I. Requirements in Condition 7.2.3-8.

J. Requirements in Condition 7.2.5-1.

K. Requirements in Condition 7.2.5-2.

L. Requirements in Condition 7.2.6.

ii. All such deviations shall be summarized and reported as part of the semiannual monitoring report required by Condition 8.6.1.

iii. The Permittee shall notify the Illinois EPA, Air Compliance Section, of all other deviations as part of the semiannual monitoring reports required by Condition 8.6.1.

iv. All deviation reports described in Condition 7.2.10(e) above shall contain the following:

A. Date, time and duration of the deviation;

B. Description of the deviation;

C. Probable cause of the deviation; and

D. Any corrective actions or preventive measures taken.

f. Quench stations [08060026]

The Permittee shall provide the following notification and reports to the Illinois EPA, Air Compliance Section and Regional Field Office, pursuant to 35 IAC 201.263, concerning continued operation of quenching operations during malfunction or breakdown that does not meet the requirements of 35 IAC 212.443(h)(1):

i. For noncompliance due to malfunction or breakdown that lasts more than 30 minutes (quenching of four ovens):

A. The Permittee shall notify the Illinois EPA’s regional office by telephone as soon as possible during normal working hours, but no later than the next Agency business day.

B. Upon achievement of compliance, the Permittee shall give a written follow-up notice within 15 days to the Illinois EPA, Air Compliance Section and Regional Field Office, providing a detailed explanation of the event, the length of time during which operation continued under such conditions, the measures taken by the Permittee to minimize and correct deficiencies

with chronology, and when the repairs were completed.

C. If compliance is not achieved within 48 hours of the occurrence, the Permittee shall submit interim status reports to the Illinois EPA, Air Compliance Section and Regional Field Office, on a daily basis, until compliance is achieved. These interim reports shall provide a brief explanation of the nature of the malfunction or breakdown, corrective actions accomplished to date, actions anticipated to occur with schedule, and the expected date on which repairs will be complete.

ii. For noncompliance due to malfunction or breakdown that is no more than 30 minutes in duration, the Permittee shall provide the information for the incident or period with the periodic compliance reports required by 40 CFR 63, Subpart CCCCC.

iii. Within two years of initial startup of the low emission quench tower on the West Quench Station, the Permittee shall submit a report evaluating the reduction in filterable and total $PM_{2.5}$ and PM_{10} emissions achieved by this project, on both in terms of emissions per ton of coke quenched and in terms of annual emissions.

g. Reporting on the State malfunction and breakdown authorization shall be performed in accordance with Condition 5.10.5-2.

h. Reporting on the State startup authorization shall be performed in accordance with Condition 5.10.5-1.

i. Reporting on the Federal SSM authorization shall be performed in accordance with Condition 5.10.5-3.

7.2.11 Operational Flexibility/Anticipated Operating Scenarios

Operational flexibility is not set for the affected coke oven operations.

7.2.12 Compliance Procedures

For purposes of 35 IAC 212.443:

a. Coke Oven Charging, Leaks from Doors, Leaks from Lids and Leaks from Off Takes: Observations shall be conducted in accordance with 40 CFR 63, Appendix A, Method 303 which is consistent with the procedures specified in 35 IAC 280.104 to 280.107 and the Consent Decree, Civil Action No. 81-3009 referenced in Construction Permit C808048.

i. Battery A and B – Charging:

Observations shall be conducted in accordance with 40 CFR 63, Appendix A, Method 303 which is consistent with the procedures specified in 35 IAC 280.104 to 280.107 and the Consent Decree, Civil Action No. 81-3009 referenced in Construction Permit C808048.

Observation of charging emissions shall be made from any point or points on the topside of a coke oven battery from which a qualified observer can obtain an unobstructed view of the charging operation.

The qualified observer shall time the visible emissions with a stopwatch while observing the charging operation. Only emissions from the charge port and any part of the larry car shall be timed. The observation shall commence as soon as coal is introduced into the first charge port as indicated by the first charge port as indicated by the first mechanical movement of the coal feeding mechanism on the larry car and shall terminate when the last charge port lid has been replaced. Simultaneous emissions from more than one emission point shall be timed and recorded as one emission and shall not be added individually to the total time.

The qualified observer shall determine and record the total number of seconds that charging emissions are visible during the charging of coal to the coke oven.

For each charge observed, the qualified observer shall record the total number of seconds of visible emissions, the clock time for the initiation and completion of the charging operation and the battery identification and oven number.

The qualified observer shall not record any emissions observed after all charging port lids have been firmly seated following removal of the larry car, such as emissions occurring when a lid has been temporarily removed to permit spilled coal to be swept into the oven.

In the event that observations of emissions from a charge are interrupted due to events beyond the control of the observer, the data from that charge shall be invalidated and the observer shall note on his observation sheet the reason for invalidating the data. The observer shall then resume observation of the next consecutive charge or charges, and continue until he has obtained a set of consecutive charges immediately preceding the interrupted charge and the charge immediately following the interrupted charge shall constitute consecutive charges. Compliance

shall be determined by summing the seconds of charging emission observed during a set of five consecutive charges. Any one charge may be included in only one set of consecutive charges.

ii. Battery A and B – Doors:

Compliance with the percent door area leakage standard shall be determined in accordance with the following method:

Observations of door emissions shall be made from a minimum distance of 25 feet from each door. Each door shall be observed in sequence for only that period necessary to determine whether or not, at the time, there are visible emissions from any point on the door while the observer walks along the side of the battery. If the observer's view of a door is more than momentarily obstructed, as, for example, by door machinery, pushing machinery, coke guide, luter truck, or opaque steam plumes, he shall record the door obstructed and the nature of the obstruction and continue the observations with the next door in sequence which is not obstructed. The observer shall continue this procedure along the entire length of the battery for both sides and shall record the battery identification, battery side, and oven door identification number of each door exhibiting visible emissions. Before completing the traverse or immediately thereafter he shall attempt to reobserve the obstructed doors.

iii. Battery A and B – Charging Ports/Lids:

For purposes of determining compliance with limits on visible emissions from charging ports, observations of any visible emissions shall be made and recorded during the time an observer walks the topside of a battery from one end to the other. Each oven shall be observed in sequence. The observer may also observe off take pipe leaks during this traverse of the battery. The observer shall record the battery identification, the points of emissions from each oven, the oven number, and whether an oven was dampered off. Compliance shall be determined by application of the following formula which shall exclude the ports on up to 3 ovens ahead of the oven being pushed which are dampered off.

iv. Battery A and B – Off Takes:

For purposes of determining compliance with limits on visible emissions from off take pipes, observations of any visible emissions from the off take piping shall be made by traversing the topside of the

battery. During the traverse(s), the observer shall walk as near to the center of the battery as safety considerations permit but may walk as close as necessary to the off take piping to determine whether an observed emission is emanating from the off take piping. Each oven shall be observed in sequence. The observer may also observe charging port emissions during this traverse of the battery. The observer shall record the battery identification, the points of off take piping emission from any oven and the oven number.

b. Coke Oven Pushing:

i. Battery A and B:

Opacity readings shall be taken by a qualified observer located in a position where the oven being pushed, the coke receiving car and the path to the quench tower are visible. The opacity shall be read as the emissions rise and clear the top of the coke battery gas mains. The qualified observer shall record opacity readings of emissions originating at the receiving car and associated equipment and the coke oven, including the standpipe on the coke side of the oven being pushed. Opacity readings shall be taken in accordance with the procedures set forth in 40 CFR Part 60, Appendix A, Method 9, incorporated by reference in 35 IAC 212.113, except that Section 2.5 for data reduction shall not be used. The qualified observer referenced in this subsection shall be certified pursuant to 40 CFR Part 60, Appendix A, Method 9, incorporated by reference in 35 IAC 212.113.

ii. Battery A:

Opacity readings shall be taken at 15-second intervals, beginning from the time the coke falls into the receiving car or is first visible as it emerges from the coke guide whichever occurs earlier, until the receiving car enters the quench tower or quenching device. For a push of less than 90 seconds duration, the actual number of 15-second readings shall be averaged.

At least four consecutive pushes per day.

iii. Battery B:

Opacity readings shall be taken at 15-second intervals, beginning from the time the coke falls into the receiving car or is first visible as it emerges from the coke guide whichever occurs earlier, until the end of the sixth reading. During the

pushing operation, the observer shall observe all the pushing emissions including, but not limited to, fugitive emissions from the pushing emission control device and from open quench cars during travel.

At a minimum, one push per day.

c. Coke Quenching (35 IAC 212.443(h)(2))

i. Samples shall be taken from each quench station as separate grab samples or composite samples.

ii. Samples shall be collected a minimum of five days per week and analyzed to report a weekly concentration. The samples for each week shall be analyzed either:

A. Separately, with the average of the individual daily concentrations determined; or

B. As one composite sample, with equal volumes of the individual daily samples combined to form the composite sample.

7.2.13 State-Only Conditions

State-only conditions are not being established.

7.3 Coke By-Product Recovery Plant and COG Desulfurization System

7.3.1 Description

COG is made up of various organic materials volatilized during the coal-to-coke conversion process. The raw coke oven gas from U. S. Steel two existing coke oven batteries is processed in the coke by-product recovery plant, where various byproducts are removed. Once treated, the COG is used as a fuel in the coke batteries and in various boilers and furnaces throughout the facility.

Coke Oven Gas (COG) Processing Unit:

COG from the coke ovens first passes through the primary cooler where it is cooled. The cooling of COG causes tar, naphthalene, and liquor to condense. The cool COG is then pushed through the entire by-product plant with the aid of exhausters. More tar and liquor are removed by the centrifugal force created in the exhausters. Droplets of tar, naphthalene, and liquor accumulate and drain to the tar sump. Ammonia present in the COG is then removed by passing it through ammonia absorber. The removal of ammonia is accomplished by exposing the COG to a spray of sulfuric acid in the ammonia absorber. The COG then enters the Tar Spray Final Cooler where the COG is further cooled and most of the naphthalene is removed with tar injection. Next COG passes through the Light Oil Scrubber, which is designed to remove the remaining naphthalene and “Light Oils”.

From the light oil scrubber, the treated COG is normally further processed in the COG desulfurization system to remove sulfur. The COG is not always processed by desulfurization system because of the need for periodic maintenance on the system. The permit limits the amount of time during which this may occur. COG desulfurization system consists of a packed tower amine unit, hydrogen cyanide destruction unit, and a Claus sulfur recovery unit with tail gas oxidizer. The system removes hydrogen sulfide (H_2S) from the treated COG stream from the by-product plant. The COG desulfurization system is not part of the by-products recovery plant.

The COG stream from the by-product plant is sent to a pressure holding tank from where the COG is distributed to underfire the Coke Oven Batteries and various parts of the plant.

Light Oil Processing Unit:

Processing the Light Oil generated at the Light Oil Scrubber, also called Benzol Washer, is the main activity of this unit. In the Light Oil Scrubber, wash oil is used to scrub out Light Oil from the Coke Oven Gas. Next wash oil is cleaned and re-circulated back through the Light Oil scrubber as described below.

After scrubbing out the light oil in the Light Oil Scrubber, the wash oil passes through two oil to vapor heat exchangers, where the light oil is vaporized. The vapors are then passed through two cool water condensers to condense out the light oil. The light oil then passes through the Secondary Light Oil Separator, where any remaining wash oil and water is removed. The liquid oil is then pumped into one of six storage tanks.

After passing through the oil to vapor heat exchangers, the wash oil passes through steam heaters, the Wash Oil Still, coolers, and finally the Wash Oil Recirculating Tank before it is reintroduced in the Light Oil Scrubber.

Coal Tar Processing:

Tar is collected into a tar sump. The tar is decanted by passing through one of three decanters. Sludge from the decanters is dumped into hoppers from where it is collected by a company for further treatment. Tar from the decanters pass through two dehydration tanks where the water is removed. The tar is then pumped to a storage tank, where it is stored until shipment.

Note: This narrative description is for informational purposes only and is not enforceable.

7.3.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Date Constructed	Emission Control Equipment
By-Product Recovery	Coke oven Gas Processing Unit (coke oven gas transfer and handling; gas coolers; gas processing/cleaning unit)	Prior to 06/1982	Steam Blanketing
By-Product Recovery (Continued)	Light Oil Processing (stills; process condensers; sumps) Coal Tar Processing (tar collection and transfer; tar storage tanks) Tar Storage Tanks; Dehydration Tanks; Decanters; Light Oil Storage Tanks; Ammonia Liquor; Storage Tanks	Prior to 06/1982	Clean Gas Blanketing; Steam Blanketing; Negative Pressure Systems

Emission Unit	Description	Date Constructed	Emission Control Equipment
	Railcar/Truck Loading	2004	Vapor Recovery System; Negative Pressure
COG Desulfurization System	Packed tower amine unit and hydrogen cyanide destruction unit		Closed Systems
	Claus Sulfur Recovery Unit		Thermal Oxidizer
COG Flare	COG holding tank and flare		None

7.3.3 Applicable Provisions and Regulations

a. i. The “affected by-product recovery plant” for the purpose of these unit-specific conditions, is the group of emission units and/operations in the coke by-product recovery plant described in Conditions 7.3.1 and 7.3.2.

ii. The COG desulfurization system is the system for desulfurization of treated COG described in Conditions 7.3.1 and 7.3.2.

iii. The COG flare is the system for burning of excess of COG described in Conditions 7.3.1 and 7.3.2.

b. The affected by-product recovery plant is subject to the work practices in 40 CFR Part 61, Subpart L, National Emission Standards for Benzene Emissions from Coke By-Product Recovery Plants.

c. The affected by-product recovery plant is subject to the work practices in 40 CFR Part 61, Subpart V, National Emission Standards for Equipment Leaks (Fugitive Emissions).

d. The affected by-product recovery plant is subject to the work practices in 40 CFR Part 61, Subpart FF, National Emission Standard for Benzene Waste Operations.

e. No person shall cause or allow the loading of any organic material into any stationary tank having a storage capacity of greater than 946 liters (250 gallons), unless such tank is equipped with a permanent submerged loading pipe or an equivalent device approved by the Illinois EPA according to the provisions of 35 IAC 201, and further processed consistent with 35 IAC 219.108, or unless such tank is a pressure tank as described in 35 IAC 219.121(a) or is

fitted with a recovery system as described in 35 IAC 219.121(b)(2) [35 IAC 219.122(b)].

f. The affected by-product recovery plant, COG desulfurization system and COG flare are subject to 35 IAC 212.123(a), no person shall cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere from any emission unit other than those emission units subject to the requirements of 35 IAC 212.122, except as allowed by 35 IAC 212.123(b) and 212.124.

g. SO_2 emissions from the affected by-product recovery plant and COG flare shall not exceed 2000 ppm pursuant to 35 IAC 214.301.

7.3.4 Non-Applicability of Regulations of Concern

a. The storage tanks used at the affected by-product recovery plant are not subject to 35 IAC 219.120 because of the exemption for vessels at coke by-product plants in 35 IAC 219.119(b).

b. The storage tanks used at the affected by-product recovery plant are not subject to 35 IAC 219.121 (Storage Containers of Volatile Petroleum Liquids (VPL)) because the liquids kept in those tanks are not the product of petroleum refinery and, therefore, do not meet the definition of VPL/petroleum liquids of 35 IAC Part 211.

c. This permit is issued based on the affected by-product recovery plant not being subject to the applicable requirements of 35 IAC 219.301 because there is 85% reduction of uncontrolled organic material that would otherwise be emitted into atmosphere, pursuant to 35 IAC 219.302.

d. The COG desulfurization system and COG flare are not subject to 40 CFR 63 Subpart L, National Emission Standards for Benzene Emissions from Coke By-Product Recovery Plants, because both COG systems are not involved in the separation and recovery of coal tar derivatives evolved from coal during the coking process of a coke oven battery.

e. This permit is issued based on the COG desulfurization system (thermal oxidizer) not being subject to 35 IAC 214.301 pursuant to 35 IAC 214.302, which provides that 35 IAC 214.301 shall not apply to processes designed to remove sulfur compounds from the flue gases of fuel combustion emission sources.

7.3.5 Operation of COG Flare during Malfunction and Breakdown

Pursuant to 35 IAC 201.149 and Part 201 Subpart I, subject to the following terms and conditions, the Permittee is authorized

to continue to operate the COG flare in excess of the applicable state standard in Condition 7.3.3(f) in the event of a malfunction or breakdown.

Note: This authorization is provided because the Permittee applied for such authorization in its CAAPP application, generally explaining why such continued operation would be required to prevent injury to personnel or severe damage to equipment, and describing the measures that will be taken to minimize emissions from any malfunctions and breakdowns.

a. This authorization only allows such continued operation as necessary to prevent injury to personnel or severe damage to equipment and does not extend to continued operation solely for the economic benefit of the Permittee.

b. Upon occurrence of excess emissions due to malfunction or breakdown, the Permittee shall, as soon as practicable, repair the COG flare, reduce flare load or remove it from service so that excess emissions cease.

c. The Permittee shall fulfill the applicable recordkeeping and reporting requirements of Conditions 7.3.10(h) and 5.10.5-2 For these purposes, time shall be measured from the start of a particular incident. The absence of excess emissions for a short period shall not be considered to end the incident if excess emissions resume.

d. Following notification to the Illinois EPA (see Condition 5.10.5-2(a)(i))of a malfunction or breakdown with excess emissions, the Permittee shall comply with all reasonable directives of the Illinois EPA with respect to such incident.

e. This authorization does not relieve the Permittee from the continuing obligation to minimize excess emissions during malfunction or breakdown. As provided by 35 IAC 201.265, an authorization in a permit for continued operation with excess emissions during malfunction and breakdown does not shield the Permittee from enforcement for any such violation and only constitutes a prima facie defense to such an enforcement action provided that the Permittee has fully complied with all terms and conditions connected with such authorization.

7.3.6 Control Requirements and Work Practices

a. 40 CFR Part 61, Subpart L:

i. The Permittee shall operate and maintain a Control System to meet the standards specified below in 40 CFR Part 61 Subpart L. This Control System consists of a Positive Pressure Gas Blanketing System supplied with clean coke oven gas controlling the light oil

area and a Negative Pressure or Steam Blanketing System controlling tar, ammonia and liquor tanks.

ii. These control systems shall be designed to operate with no detectable emissions (an organic chemical concentration more than 500 ppm above a background concentration), as determined by the methods specified in 40 CFR 61.245, pursuant to 40 CFR 61.132(b).

iii. The Permittee shall comply with 40 CFR 61.132 - Standard: Process vessels, storage tanks, and tar-intercepting sumps, which includes the following:

A. Each owner or operator of a furnace byproduct recovery plant shall enclose and seal all openings on each process vessel, tar storage tank, and tar-intercepting sump.

B. The owner or operator shall duct gases from each process vessel, tar storage tank, and tar-intercepting sump to the gas collection system, gas distribution system, or other enclosed point in the by-product recovery process where the benzene in the gas will be recovered or destroyed. This control positive pressure blanketing system shall be designed and operated for no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background and visual inspections, as determined by the methods specified in 40 CFR 61.245(c).

1. Except, the owner or operator may elect to install, operate, and maintain a pressure relief device, vacuum relief device, an access hatch, and a sampling port on each process vessel, tar storage tank, and tar-intercepting sump. Each access hatch and sampling port must be equipped with a gasket and a cover, seal, or lid that must be kept in a closed position at all times, unless in actual use.

2. The owner or operator may elect to leave open to the atmosphere the portion of the liquid surface in each tar decanter necessary to permit operation of a sludge conveyor. If the owner or operator elects to maintain an opening on part of the liquid surface of the tar decanter, the owner or operator shall install, operate, and maintain a water leg seal on the tar decanter roof near the sludge

discharge chute to ensure enclosure of the major portion of liquid surface not necessary for the operation of the sludge conveyor.

C. Each owner or operator of a furnace coke by-product recovery plant also shall comply with the requirements of 40 CFR 61.132(a) through (c) for each benzene storage tank, BTX storage tank, light-oil storage tank, and excess ammonia-liquor storage tank.

iv. The Permittee shall comply with 40 CFR 61.133 - Standard: Light-oil sumps, which includes the following, pursuant to 40 CFR 61.133(a) and 61.133(c):

A. Each owner or operator of a light-oil sump shall enclose and seal the liquid surface in the sump to form a closed system to contain the emissions.

1. Except, the owner or operator may elect to install, operate, and maintain a vent on the light-oil sump cover. Each vent pipe must be equipped with a water leg seal, a pressure relief device, or vacuum relief device.

2. Except, the owner or operator may elect to install, operate, and maintain an access hatch on each light-oil sump cover. Each access hatch must be equipped with a gasket and a cover, seal, or lid that must be kept in a closed position at all times, unless in actual use.

3. The light-oil sump cover may be removed for periodic maintenance but must be replaced (with seal) at completion of the maintenance operation.

B. The venting of steam or other gases from the by-product process to the light-oil sump is not permitted [40 CFR 61.133(a)].

C. Following the installation of any control equipment used to meet the requirements of 40 CFR 61.133(a), the owner or operator shall monitor the connections and seals on each control system to determine if it is operating with no detectable emissions, using Method 21 (40 CFR Part 60, Appendix A) and the procedures specified in 40 CFR 61.245(c), and shall

visually inspect each source (including sealing materials) for evidence of visible defects such as gaps or tears. This monitoring and inspection shall be conducted semiannually and at any other time the cover is removed.

1. If an instrument reading indicates an organic chemical concentration more than 500 ppm above a background concentration, as measured by Method 21, a leak is detected.

2. If visible defects such as gaps in sealing materials are observed during a visual inspection, a leak is detected.

3. When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected.

4. A first attempt at repair of any leak or visible defect shall be made no later than 5 calendar days after each leak is detected [40 CFR 61.133(c)].

v. The Permittee shall comply with 40 CFR 61.135 - Standard: Equipment leaks.

A. Each piece of equipment in benzene service to which 40 CFR 61 Subpart L applies shall be marked in such a manner that it can be distinguished readily from other pieces of equipment in benzene service [40 CFR 61.135(c)].

B. Each owner or operator of equipment in benzene service shall comply with requirements of 40 CFR 61, Subpart V.

C. The provisions of 40 CFR 61.242-3 and 61.242-9 of Subpart V do not apply to Subpart L.

b. 40 CFR Part 61, Subpart V:

40 CFR 61.242-10: Standards: Delay of Repair

i. Delay of repair of equipment for which leaks have been detected will be allowed if repair within 15 days is technically infeasible without a process unit shutdown. Repair of this equipment shall occur before the end of the next process unit shutdown.

ii. Delay of repair of equipment for which leaks have been detected will be allowed for equipment that is

isolated from the process and that does not remain in VHAP (volatile hazardous air pollutant) service.

iii. Delay of repair for valves will be allowed if:

A. The owner or operator demonstrates that emissions of purged material resulting from immediate repair are greater than the fugitive emissions likely to result from delay of repair; and

B. When repair procedures are affected, the purged material is collected and destroyed or recovered in a control device complying with 40 CFR 61.242-11.

iv. Delay of repair for pumps will be allowed if:

A. Repair requires the use of a dual mechanical seal system that includes a barrier fluid system; and

B. Repair is completed as soon as practicable, but not later than 6 months after the leak was detected.

v. Delay of repair beyond a process unit shutdown will be allowed for a valve if valve assembly replacement is necessary during the process unit shutdown, valve assembly supplies have been depleted, and valve assembly supplies had been sufficiently stocked before the supplies were depleted. Delay of repair beyond the next process unit shutdown will not be allowed unless the next process unit shutdown occurs sooner than 6 months after the first process unit shutdown.

c. 40 CFR 61 Subpart FF (61.355(a)(3) through (a)(5)).

i. Pursuant to 40 CFR 61.355(a)(3), if the total annual benzene quantity from facility waste is equal to or greater than 10 Mg/yr (11 tons/yr), then the owner or operator shall comply with the requirements of 40 CFR 61.342(c), (d), or (e).

ii. Pursuant to 40 CFR 61.355(a)(4), if the total annual benzene quantity from facility waste is less than 10 Mg/yr (11 tons/yr) but is equal to or greater than 1 Mg/yr, (1.1 ton/yr), then the owner or operator shall:

A. Comply with the recordkeeping requirements of 40 CFR 61.356 and reporting requirements of 40 CFR 61.357; and

B. Repeat the determination of total annual benzene quantity from facility waste at least once per year and whenever there is a change in the process generating the waste that could cause the total annual benzene quantity from facility waste to increase to 10 Mg/yr (11 ton/yr) or more.

iii. Pursuant to 40 CFR 61.355(a)(5), if the total annual benzene quantity from facility waste is less than 1 Mg/yr (1.1 ton/yr), then the owner or operator shall:

A. Comply with the recordkeeping requirements of 40 CFR 61.356 and reporting requirements of 40 CFR 61.357; and

B. Repeat the determination of total annual benzene quantity from facility waste whenever there is a change in the process generating the waste that could cause the total annual benzene quantity from facility waste to increase to 1 Mg/yr (1.1 ton/yr) or more.

d. The COG flare shall be operated with a flame present at all times when COG is vented to the flare [Section 39.5(7)(a) of the Act].

7.3.7 Production and Emission Limits for the COG Desulfurization System from Permit 06070022

a. The Permittee shall operate COG desulfurization system (COG-DS) at all times the by-products plant is producing COG, except when undertaking maintenance or repairs of the system. This total “outage” period shall not exceed 35 days (840 hours) per calendar year.

b. i. Raw COG production during periods of time when the COG-DS is not operating shall not exceed 1,092 mmscf/year.

ii. Total amount of COG generated by Coke Oven Batteries A and B and processed by by-products plant shall not exceed 1,140 mmscf/month and 11,400 mmscf/year.

c. i. The COG-DS shall be operated and maintained in conformance with good air pollution control practices.

ii. The thermal oxidizer combustion chamber for the sulfur recovery unit shall be operated at a temperature that is greater than 1,100°F.

d. i. The H_2S content of the raw COG entering the COG-DS shall not exceed 500 grains of H_2S/100 scf of COG, daily average.

ii. The H_2S content of desulfurized COG exiting the COG-DS shall not exceed 66 grains/100 scf of COG, annual average.

iii. During periods of time when the COG-DS is operating, the H_2S content of COG shall not exceed the following limits: 25 grains of H_2S/100 scf of COG, monthly average, excluding outages, startup, shutdown, and upsets such as failure of fans, pumps or heat exchangers and aberrations in the composition or condition of the raw COG.

e. i. Emissions from the thermal oxidizer on the COG-DS shall not exceed the following limits:

PM_{10}		SO_2	
(Lbs/Hr)	(Tons/Yr)	(Lbs/Hr)	(Tons/Yr)
5.6	24.6	67.3	294.7

ii. Combined emissions of PM_{10} and SO_2 from the thermal oxidizer on COG-DS and combustion of coke oven gas shall not exceed 246.8 and 1,074.1 tons/year for PM_{10} and SO_2, respectively [T1].

iii. Compliance with the annual limits in Conditions 7.3.7(b) and (e) shall be determined from a running total of 12 months of data, unless otherwise specified [T1].

7.3.8 Testing Requirements

a. The Permittee, as the owner or operator of a by-products plant, subject to the provisions of 40 CFR Part 61 Subpart L, shall comply with the requirements in 40 CFR 61.245.

b. The Permittee shall determine the total annual benzene (TAB) quantity of the facility using the test methods and procedures for determination in 40 CFR 61.355(a)(5). In particular, if the total annual benzene quantity from facility waste is less than 1 Mg/yr (1.1 ton/yr), then the owner or operator shall repeat the determination of total annual benzene quantity from facility waste whenever there is a change in the process generating the waste that could cause the total annual benzene quantity from facility waste to increase to 1 Mg/yr (1.1 ton/yr) or more.

c. For the COG flare and the thermal oxidizer in the COG-DS, the Permittee shall conduct observations for visible emissions and/or opacity, using USEPA Method 22 and 9, respectively. These observations shall be conducted by individual(s) certified to observe opacity by USEPA Method 9. The observer(s) may either conduct observations for opacity or conduct observations for visible emissions, immediately followed by observations for opacity if visible

emissions are observed. Observations shall be conducted in at least a monthly basis for the COG flare and an annual basis for the COG-DS thermal oxidizer. In addition, for the COG flare, observations shall be coordinated with weather conditions so that at least two observations are made in each calendar year during elevated wind speed conditions, i.e., wind speed of at least 16 miles per hour.

d. Upon the written request from the Illinois EPA, the emission tests shall be conducted by the Permittee for the COG-DS to verify compliance with emission limits in Condition 7.3.7(e) as follows [Section 39.5(7)(d) and (p) of the Act]:

i. The following USEPA test methods shall be used, unless another USEPA method is approved by the Illinois EPA.

Location of Sample Points	Method 1
Gas Flow and Velocity	Method 2
Flue Gas Weight	Method 3
Moisture	Method 4
PM_{10}	Method 201 or 201A
SO_2	Method 6

ii. Observations of opacity shall be conducted during these emission tests in accordance with Method 9 and the results of these observations included in the reports for emission testing.

iii. For this emission testing, test notifications and reporting shall be done by the Permittee in accordance with Conditions 8.6.2 and 8.6.3 of this permit.

7.3.9 Monitoring Requirements

a. For the coke by-product recovery plant, when equipment operated in benzene service is tested for compliance with or monitored for no detectable emissions, the owner or operator shall comply with the following requirements [40 CFR 61.245(c)]:

i. The requirements of 40 CFR 61.245 (b) (1) through (4) shall apply.

ii. The background level shall be determined, as set forth in Method 21.

iii. The instrument probe shall be traversed around all potential leak interfaces as close to the interface as possible as described in Method 21.

iv. The arithmetic difference between the maximum concentration indicated by the instrument and the background level is compared with 500 ppm for determining compliance.

b. Alternatives procedures are not established for each exhauster, as provided by 40 CFR 61.135(e) through (g) and 40 CFR 61.136(d). Therefore, pursuant to 40 CFR 61.135(d), each exhauster shall be monitored quarterly to detect leaks 10,000 ppm or greater by the methods specified in 40 CFR 61.245(b).

c. For the coke by-product recovery plant, the owner or operator shall monitor the connections and seals on each control system to determine if it is operating with no detectable emissions, using Method 21 (40 CFR Part 60, Appendix A) and procedures specified in 40 CFR 61.245(c), and shall visually inspect each source (including sealing materials) and the ductwork of the control system for evidence of visible defects such as gaps or tears. This monitoring and inspection shall be conducted on a semiannual basis and at any other time after the control system is repressurized with blanketing gas following removal of the cover or opening of the access hatch.

i. If an instrument reading indicates an organic chemical concentration more than 500 ppm above a background concentration, as measured by Method 21, a leak is detected.

ii. If visible defects such as gaps in sealing materials are observed during a visual inspection, a leak is detected.

iii. When a leak is detected, it shall be repaired by the Permittee as soon as practicable, but not later than 15 calendar days after it is detected.

iv. A first attempt at repair of any leak or visible defect shall be made by the Permittee no later than 5 calendar days after each leak is detected.

d. Pursuant to 40 CFR Part 61.132(a), the Permittee shall operate and maintain Control Systems on the coke by-product plant in accordance with the work practices in 40 CFR Part 61 Subpart L, as specified below. This Control System consists of a Positive Pressure Gas Blanketing System supplied with clean coke oven gas controlling the light oil area and a Negative Pressure or Steam Blanketing System controlling tar, ammonia and liquor tanks.

i. The following procedures shall be conducted on the control system on a semiannual basis and after each time the control system is repressurized and the Permittee shall [40 CFR 61.132(b)]:

A. Inspect the ductwork for evidence of visible defects such as gaps or tears.

B. Monitor the connections and seals to determine if operating with no detectable emissions.

ii. A maintenance inspection of the control system shall be conducted on an annual basis for evidence of system abnormalities such as blocked or plugged lines, sticking valves, plugged condensate traps and other maintenance defects that could result in abnormal system operation. The owner or operator shall make a first attempt at repair within 5 days, with repair within 15 days of detection [40 CFR 61.132(c)].

e. COG flare

Pursuant to Sections 39.5(7)(a) and (d) of the Act, for the COG flare:

i. The Permittee shall either:

A. Install, operate and maintain instrumentation, with alarm, to confirm the presence of a flame at the flare tip; or

B. Monitor for the presence of a pilot flame using a thermocouple or other equivalent device to detect the presence of a flame; or

C. Verify, once per shift, the presence of a flame at the tip of the flare, and that the flare gas header has a positive pressure.

ii. The Permittee shall perform the following inspections of the flare:

A. An inspection of the ignition system on an annual basis;

B. A detailed maintenance and repair inspection during the period when the flare is out of service and/or idled.

f. Monitoring requirements for COG established by FESOP 94120017, Permit 06070022 and Section 39.5(7)(a) of the Act:

i. The Permittee shall operate systems for monitoring the hydrogen sulfide (H_2S) content of the COG exiting the affected by-product plant and exiting the COG-DS.

The H_2S concentration shall be measured on a wet gas basis.

ii. These H_2S monitoring systems shall be equipped with a strip chart recorder or disk storage and shall be capable of recording the H_2S content in grains per standard cubic feet.

iii. These H_2S monitoring systems shall meet the applicable requirements of Performance Specification 7 of 40 CFR 60, Appendix B. These H_2S monitoring systems shall be operated, and data collected, reduced and maintained, in accordance with the applicable requirements of 40 CFR 60.13 and 35 IAC Part 201 Subpart L.

iv. The H_2S monitoring system for COG exiting the by-product plant shall comply with the following requirements for collection of data:

A. The system shall collect hourly average H_2S content data for at least 75% of the daily operating hours in which COG is not treated by the COG-DS (e.g., at 24 hours/day COG production, at least 18 hourly averages of H_2S content must be obtained). In the event that this minimum data requirement cannot be met by the H_2S monitoring system, the H_2S content data shall be supplemented or obtained by one of the following alternative methods.

I. H_2S determined by type of coal used during that period and previous recorded H_2S content when using this coal type. This method shall only be used for a maximum of 15 days per calendar year.

II. A manual sample of COG shall be taken daily and the H_2S content shall be determined by 40 CFR 60, Appendix A, Method 11, as adapted to measure higher ranges of H_2S. This value, or a value based on the mean of the daily values plus two standard deviations for the previous 90 days for which a reading was obtained, whichever is higher, shall be used. Should a coal blend change occur during the period this alternative method is being used, the mean value plus two standard deviations will be adjusted to reflect any potential change in the H_2S content from that of the previous coal blend.

B. The system shall collect H_2S content data for at least 75% of the daily operating hours in which COG is treated by the COG-DS with this data being the average over at least 5 minutes in each such operating hour. In the event that this minimum data requirement cannot be met by the H_2S monitoring system or can only be met with manual cycling of the H_2S monitoring system for treated COG data shall be supplemented or obtained by one of the following alternative methods:

I. H_2S data as obtained by manual sampling and analysis at least one per day; or

II. H_2S data as obtained from the H_2S monitoring system for treated COG at least twice per day, at least 8 hours apart.

C. The alternative methods provided for in this condition shall only be used in the event of a malfunction or breakdown of the H_2S monitoring systems, i.e., not during periods when a monitoring system is functioning properly to collect valid data.

v. These H_2S monitors shall be tested at least every 12 months in accordance with 40 CFR 60, Appendix B, Performance Specification 7. The results of these tests shall be sent to the IEPA’s Division of Air Pollution, Control Permit Section and Regional Office within 14 days after summarizing of results. In addition, the results shall be maintained in accordance with the recordkeeping specified in this permit. For the H_2S monitoring system for COG exiting the by-product plant, this testing shall be conducted as follows:

A. The H_2S content in grains per standard cubic foot of COG shall be determined using 40 CFR 60, Appendix A, Method 11 as adapted to measure higher ranges of H_2S.

B. The following revisions shall be made to Method 11 to allow the measuring of higher ranges of H_2S:

1. Diluent air shall mean air containing less than 0.5 ppm total sulfur compounds and less than 10 ppm each of moisture and hydrocarbons.

2. 7.0 Procedure - Located after the sampling valve, there will be a gas mixing box with a metered supply of (heated) diluent air. This metered supply of diluent air will be introduced prior to sampling and adjusted so that the final dilution of the sample will be 1:20 (i.e., 0.05 liters/min of sample to 0.95 liters/min of dilution air).

3. 9.4 - Vm = Volume of gas sample through the gas meter (meter conditions), liters/20.

Vm_{CSTD} = (Corrected) volume at standard conditions of gas sampled through the dry gas meter. (Standard Liters).

vi. In the event of malfunction or breakdown of the H2S monitoring systems, the Permittee shall repair and recalibrate the meter or monitoring systems as soon as practicable but no later than 10 days after the malfunction or breakdown is detected, unless prior Illinois EPA approval is obtained by submitting adequate justification to the Illinois EPA detailing the reasons for delay. Records of repair and recalibration must be maintained in accordance with the recordkeeping requirements of this permit. This condition does not relieve the Permittee of the minimum data collection requirements of this permit.

g. The Permittee shall equip the thermal oxidizer in the COG-DS with a continuous monitoring system, which shall be calibrated, maintained, and operated at all times the COG-DS thermal oxidizer is in operation, to monitor the combustion chamber temperature of the thermal oxidizer [Sections 39.5(7)(a) and (d) of the Act].

h. The Permittee shall sample and analyze the COG exiting the byproduct plant and treated COG from the COG-DS for PM content using appropriate ASTM methods or other comparable methodology. These measurements shall be conducted at least annually. The records for this activity shall also include data for the H_2S content of COG at the time of sampling [Sections 39.5.7(a) and (d) of the Act].

7.3.10 Recordkeeping Requirements

The Permittee shall maintain records of the following items for the affected by-product recovery plant, the COG-DS and COG flare, pursuant to Sections 39.5(7)(a) and (e) of the Act:

a. 40 CFR Part 61 Subpart L (40 CFR 61.138):

i. The following information pertaining to the design of control equipment installed to comply with 40 CFR 61.132 through 61.134 shall be recorded and kept in a readily accessible location:

A. Detailed schematics, design specifications, and piping and instrumentation diagrams.

B. The dates and descriptions of any changes in the design specifications.

ii. The following information pertaining to sources subject to 40 CFR 61.132 and sources subject to 40 CFR 61.133 shall be recorded and maintained for 2 years following each semiannual (and other) inspection and each annual maintenance inspection:

A. The date of the inspection and the name of the inspector.

B. A brief description of each visible defect in the source or control equipment and the method and date of repair of the defect.

C. The presence of a leak, as measured using the method described in 40 CFR 61.245(c). The record shall include the date of attempted and actual repair and method of repair of the leak.

D. A brief description of any system abnormalities found during the annual maintenance inspection, the repairs made, the date of attempted repair, and the date of actual repair.

b. 40 CFR Part 61 Subpart FF (40 CFR 61.356):

i. Each owner or operator of a facility subject to the provisions of Subpart FF shall comply with the recordkeeping requirements of 40 CFR 61.356. Each record shall be maintained in a readily accessible location at the facility site for a period not less than two years from the date the information is recorded unless otherwise specified [40 CFR 61.356(a)].

ii. Each owner or operator shall maintain records that identify each waste stream at the facility subject to Subpart FF, and indicate whether or not the waste stream is controlled for benzene emissions in accordance with this subpart. In addition the owner or operator shall maintain the following records [40 CFR 61.356(b)]:

A. For each waste stream not controlled for benzene emissions in accordance with Subpart FF, the records shall include all test results, measurements, calculations, and other documentation used to determine the following information for the waste stream: waste stream identification, water content, whether or not the waste stream is a process wastewater stream, annual waste quantity, range of benzene concentrations, annual average flow-weighted benzene concentration, and annual benzene quantity.

B. For each waste stream exempt from 40 CFR 61.342(c)(1) in accordance with 40 CFR 61.342(c)(3), the records shall include:

1. All measurements, calculations, and other documentation used to determine that the continuous flow of process wastewater is less than 0.02 liters (0.005 gallons) per minute or the annual waste quantity of process wastewater is less than 10 Mg/yr (11 ton/yr) in accordance with 40 CFR 61.342(c)(3)(i), or

2. All measurements, calculations, and other documentation used to determine that the sum of the total annual benzene quantity in all exempt waste streams does not exceed 2.0 Mg/yr (2.2 ton/yr) in accordance with 40 CFR 61.342(c)(3)(ii).

C. For each facility where process wastewater streams are controlled for benzene emissions in accordance with 40 CFR 61.342(d), the records shall include for each treated process wastewater stream all measurements, calculations, and other documentation used to determine the annual benzene quantity in the process wastewater stream exiting the treatment process.

D. For each facility where waste streams are controlled for benzene emissions in accordance with 40 CFR 61.342(e), the records shall include for each waste stream all measurements, including the locations of the measurements, calculations, and other documentation used to determine that the total benzene quantity does not exceed 6.0 Mg/yr (6.6 ton/yr).

E. For each facility where the annual waste quantity for process unit turnaround waste is determined in accordance with 40 CFR

61.355(b)(5), the records shall include all test results, measurements, calculations, and other documentation used to determine the following information: identification of each process unit at the facility that undergoes turnarounds, the date of the most recent turnaround for each process unit, identification of each process unit turnaround waste, the water content of each process unit turnaround waste, the annual waste quantity determined in accordance with 40 CFR 61.355(b)(5), the range of benzene concentrations in the waste, the annual average flow-weighted benzene concentration of the waste, and the annual benzene quantity calculated in accordance with 40 CFR 61.355(a)(1)(iii).

F. For each facility where wastewater streams are controlled for benzene emissions in accordance with 40 CFR 61.348(b)(2), the records shall include all measurements, calculations, and other documentation used to determine the annual benzene content of the waste streams and the total annual benzene quantity contained in all waste streams managed or treated in exempt waste management units.

iii. An owner or operator shall maintain a record for each visual inspection required by 40 CFR 61.343 through 61.347 that identifies a problem (such as a broken seal, gap or other problem) which could result in benzene emissions. The record shall include the date of the inspection, waste management unit and control equipment location where the problem is identified, a description of the problem, a description of the corrective action taken, and the date the corrective action was completed [40 CFR 61.356(g)].

c. 40 CFR Part 61 Subpart V (40 CFR 61.246):

i. A. Each owner or operator subject to the provisions of Subpart V shall comply with the recordkeeping requirements of 40 CFR 61.246 [40 CFR 61.246(a)(1)].

B. An owner or operator of more than one process unit subject to the provisions of Subpart V may comply with the recordkeeping requirements for these process units in one recordkeeping system if the system identifies each record by each process unit [40 CFR 61.246(a)(2)].

ii. When each leak is detected as specified in 40 CFR 61.242-2, 61.242-3, 61.242-7, 61.242-8, and 61.135,

the following requirements apply to the Permittee [40 CFR 61.246(b)]:

A. A weatherproof and readily visible identification, marked with the equipment identification number, shall be attached to the leaking equipment.

B. The identification on a valve may be removed after it has been monitored for 2 successive months as specified in 40 CFR 61.242-7(c) and no leak has been detected during those 2 months.

C. The identification on equipment, except on a valve, may be removed after it has been repaired.

iii. When each leak is detected as specified in 40 CFR 61.242-2, 61.242-3, 61.242-7, 61.242-8, and 61.135, the following information shall be recorded by the Permittee in a log and shall be kept for 2 years in a readily accessible location [40 CFR 61.246(c)]:

A. The instrument and operator identification numbers and the equipment identification number.

B. The date the leak was detected and the dates of each attempt to repair the leak.

C. Repair methods applied in each attempt to repair the leak.

D. Above 10,000 if the maximum instrument reading measured by the methods specified in 40 CFR 61.245(a) after each repair attempt is equal to or greater than 10,000 ppm.

E. Repair delayed and the reason for the delay if a leak is not repaired within 15 calendar days after discovery of the leak.

F. The signature of the owner or operator (or designate) whose decision it was that repair could not be effected without a process shutdown.

G. The expected date of successful repair of the leak if a leak is not repaired within 15 calendar days.

H. Dates of process unit shutdowns that occur while the equipment is unrepaired.

I. The date of successful repair of the leak.

iv. The following information pertaining to all equipment to which a standard applies shall be recorded in a log that is kept in a readily accessible location by the Permittee [40 CFR 61.246(e)]:

A. A list of identification numbers for equipment (except welded fittings) subject to the requirements of Subpart V.

B. 1. A list of identification numbers for equipment that the owner or operator elects to designate for no detectable emissions as indicated by an instrument reading of less than 500 ppm above background.

2. The designation of this equipment for no detectable emissions shall be signed by the owner or operator.

C. A list of equipment identification numbers for pressure relief devices required to comply with 40 CFR 61.242-4(a).

D. 1. The dates of each compliance test required in 40 CFR 61.242-2(e), 61.242-3(i), 61.242-4, 61.242-7(f), and 61.135(g).

2. The background level measured during each compliance test.

3. The maximum instrument reading measured at the equipment during each compliance test.

E. A list of identification numbers for equipment in vacuum service.

v. The following information pertaining to all valves subject to the requirements of 40 CFR 61.242-7(g) and (h) and to all pumps subject to the requirements of 40 CFR 61.242-2(g) shall be recorded by the Permittee in a log that is kept in a readily accessible location [40 CFR 61.246(f)]:

A. A list of identification numbers for valves and pumps that are designated as unsafe to monitor, an explanation for each valve or pump stating why the valve or pump is unsafe to monitor, and the plan for monitoring each valve or pump.

B. A list of identification numbers for valves that are designated as difficult to monitor, an explanation for each valve stating why the valve is difficult to monitor, and the planned schedule for monitoring each valve.

vi. The following information shall be recorded by the Permittee for valves complying with 40 CFR 61.243-2 [40 CFR 61.246(g)]:

A. A schedule of monitoring.

B. The percent of valves found leaking during each monitoring period.

vii. The following information shall be recorded in a log by the Permittee that is kept in a readily accessible location [40 CFR 61.246(h)]:

A. Design criterion required in 40 CFR 61.242-2(d)(5), 61.242-3(e)(2), and 61.135(e)(4) and an explanation of the design criterion; and

B. Any changes to this criterion and the reasons for the changes.

viii. The following information shall be recorded in a log by the Permittee that is kept in a readily accessible location for use in determining exemptions as provided in the applicability section of this subpart and other specific Subparts [40 CFR 61.246(i)]:

A. An analysis demonstrating the design capacity of the process unit, and

B. An analysis demonstrating that equipment is not in VHAP service.

ix. Information and data used to demonstrate that a piece of equipment is not in VHAP service shall be recorded in a log by the Permittee that is kept in a readily accessible location [40 CFR 61.246(j)].

d. The Permittee shall keep the following records for the COG flare [Section 39.5(7)(e) of the Act]:

i. Records of inspections and maintenance or repair activities conducted pursuant to Condition 7.3.9(e)(ii).

ii. H_2S content in the COG with supporting calculations of SO_2 emissions from the flare.

e. The following records for the COG-DS pursuant to Permit 06070022:

i. Temperature monitoring system for thermal oxidizer on the Claus Sulfur Recovery Unit:

A. Recorded data.

B. A log of operating time for the control system or devices, monitoring system, and the coke oven byproducts plant.

C. A maintenance log for the oxidizer and monitoring device detailing all routine and non-routine maintenance performed including dates and duration of any outages.

ii. Operating Records for the Packed Tower Amine Unit:

A. Amine temperature leaving the unit (°F).

B. Amine flow (gallons/minute).

C. COG flow into or out of the unit.

iii. Logs:

A. Operating logs.

B. Maintenance logs detailing all routine and non-routine maintenance performed including dates and duration of any outages.

iv. Production Records:

A. COG production during periods of time when the COG-DS is operating (mmscf/month and mmscf/year).

B. COG production during periods of time when the COG-DS is not operating (mmscf/month and mmscf/year).

v. Records of H_2S content in COG, with supporting data and calculations:

A. H_2S content of COG exiting the by-product plant, daily average.

B. H_2S content of COG, annual average.

C. H_2S content of treated COG, excluding outages, startup, shutdown, and upsets, monthly average.

vi. Emission Records for the COG Desulfurization System (Claus Sulfur Recovery Unit) [Sections 39.5.7(a) and (d) of the Act]

A. A file containing the emission factors used by the Permittee to determine emissions of PM_{10} and SO_2 from the Claus Sulfur Recovery Unit, with supporting documentation. These records shall be reviewed and updated by the Permittee as necessary to assure that the emission factors that it uses to determine emissions of this unit do not understate actual emissions. These records shall be prepared and copies sent to the Illinois EPA in accordance with Condition 5.9.6(c).

B. Engineering calculations for typical and maximum hourly PM_{10} and SO_2 emissions (lbs/hour) Claus Sulfur Recovery Unit, with supporting documentation.

C. Records for the concentration of SO_2 and H_2S (percent by volume) in the tail gas of the Claus Sulfur Recovery Unit, which is sent to the thermal oxidizer, as measured by process instrumentation.

D. Records for any periods of operation of the Claus Sulfur Recovery Unit that are not otherwise addressed in the required records during which the established emission factor in Condition 7.3.10(e)(vi)(A) would understate actual emissions of this unit, with description of the period of operation and an estimate of the additional emissions during such period that would not be accounted for by the established factor, with supporting explanation and calculations.

D. Records for any periods of operation of the Claus Sulfur Recovery Unit that are not otherwise addressed in the required records during which the established emission rate in Condition 7.3.10(e)(vi)(B) would understate the actual emissions of this unit, with description of the period of operation, including date, time and duration, explanation, and an estimate of the additional emissions during such period that would not be accounted for by the established rate, with supporting explanation and calculations.

F. Records for the annual PM_{10} and SO_2 emissions of the Claus Sulfur Recovery Unit for comparison to the limits in Conditions 7.3.7(e), with supporting calculations.

Note: Records for PM_{10} and SO_2 emissions associated with combustion of COG at the facility are contained in Condition 5.9.1(e).

f. The following records for the H_2S monitoring system for COG exiting the by-product plant, pursuant to FESOP 94120017:

i. The hourly average, 3-hour average and daily average H_2S content of the COG in grains per standard cubic foot.

ii. The H_2S monitor strip chart or disk storage.

iii. Thousand standard cubic feet of COG used per 3-hours for slab reheat furnaces 1-3 and ladle drying preheaters and per day for each unit operating group.

iv. The calibration, maintenance and repair of the H_2S monitor used in compliance calculations.

g. Other Records

i. Records of the amount of raw coke oven gas being received from the coke ovens (scf/mo and acf/yr).

ii. Records of the following by-products being produced:

A. Clean coke oven gas (scf/mo and scf/yr);

B. Light oil (gal/mo and gal/yr); and

C. Tar (ton/mo and ton/yr).

iii. If the Permittee operates under manufacturer’s specifications or manufacturer’s instructions, such manufacturer’s documentation shall be kept at the source as part of the required records.

iv. Records of annual benzene waste generated on site (tons/yr).

v. Annual emissions of VOM from the affected by-product recovery plant.

h. Records for Malfunctions or Breakdowns

Pursuant to 35 IAC 201.263, the Permittee shall maintain records of continued operation of the affected COG flare as addressed by Condition 7.3.5 during malfunctions or breakdowns, which at a minimum, shall include the following records. The preparation of these records shall be completed within 45 days of an incident, unless the Permittee conducts a root cause analysis for the incident, in which case the preparation of these records, other than

the root cause analysis, shall be completed within 120 days of the incident.

i. Date, time and duration of the incident.

ii. A detailed description of the incident, including:

A. A chronology of significant events during and leading up to the incident.

B. Relevant operating data for the unit, including information such as operator log entries and directives provided by management during the incident.

C. The measures taken to reduce the quantity of emissions and the duration of the incident including the resources utilized to address the incident.

D. The magnitude of emissions during the incident.

iii. An explanation why continued operation of an affected COG flare was necessary to prevent personnel injury or prevent equipment damage.

iv. A discussion of the cause(s) or probable cause(s) of the incident including the following:

A. Whether the incident was sudden, unavoidable, or preventable, including:

1. Why the equipment design did not prevent the incident;

2. Why better maintenance could not have avoided the incident;

3. Why better operating practices could not have avoided the incident; and

4. Why there was no advance indication for the incident.

B. Whether the incident stemmed from any activity or event that could have been foreseen, avoided or planned for.

C. Whether the incident was or is part of a recurring pattern indicative of inadequate design, operation or maintenance.

v. A description of any steps taken or to be taken to prevent similar future incidents or reduce their frequency and severity.

vi. As an alternative to keeping the records required by Condition 7.3.10(h)(iv), the Permittee may perform a root cause analysis. For this purpose, a root cause analysis is an analysis whose purpose is to determine, correct and eliminate the primary causes of the incident and the excess emissions resulting there from. If the Permittee performs a root cause analysis method that would define the problem, define all causal relationships, provide a causal path to the root cause, delineate the evidence, and provide solutions to prevent a recurrence. Such an analysis shall be completed within one year of the incident.

7.3.11 Reporting Requirements

The Permittee shall submit the following reports pursuant to Section 39.5(7)(a) and (c) of the Act:

a. 40 CFR 61 Subpart L (40 CFR 61.138):

i. A report shall be submitted to the Illinois EPA semiannually starting 6 months after the initial reports required in 40 CFR 61.138(e) and 40 CFR 61.10, which includes the following information [40 CFR 61.138(f)]:

A. For sources subject to 40 CFR 61.132 and sources subject to 40 CFR 61.133:

1. A brief description of any visible defect in the source or ductwork;

2. The number of leaks detected and repaired; and

3. A brief description of any system abnormalities found during each annual maintenance inspection that occurred in the reporting period and the repairs made.

B. For equipment in benzene service subject to 40 CFR 61.135(a), information required by 40 CFR 61.247(b).

C. For each exhauster subject to 40 CFR 61.135 for each quarter during the semiannual reporting period:

1. The number of exhausters for which leaks were detected as described in 40 CFR 61.135(d) and (e)(5);

2. The number of exhausters for which leaks were repaired as required in 40 CFR 61.135(d) and (e)(6); and

3. The results of performance tests to determine compliance with 40 CFR 61.135(g) conducted within the semiannual reporting period.

D. A statement signed by the owner or operator stating whether all provisions of 40 CFR part 61, subpart L, have been fulfilled during the semiannual reporting period.

b. 40 CFR 61 Subpart V (40 CFR 61.247):

i. An owner or operator of any piece of equipment to which Subpart V applies shall submit a statement in writing notifying the Illinois EPA that the requirements of 40 CFR 61.242, 61.245, 61.246, and 61.247 are being implemented [40 CFR 61.247(a)(1)].

ii. A report shall be submitted to the Illinois EPA semiannually starting 6 months after the initial report required in 40 CFR 61.247(a), that includes the following information [40 CFR 61.247(b)]:

A. Process unit identification.

B. For each month during the semiannual reporting period:

1. Number of valves for which leaks were detected as described in 40 CFR 61.242-7(b) of 61.243-2.

2. Number of valves for which leaks were not repaired as required in 40 CFR 61.242-7(d).

3. Number of pumps for which leaks were detected as described in 40 CFR 61.242-2(b) and (d)(6).

4. Number of pumps for which leaks were not repaired as required in 40 CFR 61.242-2(c) and (d)(6).

5. Number of compressors for which leaks were detected as described in 40 CFR 61.242-3(f).

6. Number of compressors for which leaks were not repaired as required in 40 CFR 61.242-3(g).

7. The facts that explain any delay of repairs and, where appropriate, why a process unit shutdown was technically infeasible.

C. Dates of process unit shutdowns which occurred within the semiannual reporting period.

D. Revisions to items reported according to 40 CFR 61.247(a) if changes have occurred since the initial report or subsequent revisions to the initial report.

E. The results of all performance tests and monitoring to determine compliance with no detectable emissions and with 40 CFR 61.243-1 and 61.243-2 conducted within the semiannual reporting period.

c. 40 CFR 61 Subpart FF (40 CFR 61.357)

i. If the total annual benzene quantity from facility waste is less than 1 Mg/yr (1.1 ton/yr), then the owner or operator shall submit to the Illinois EPA and the Administrator a report that updates the information listed in 40 CFR 61.357(a)(1) through (a)(3) whenever there is a change in the process generating the waste stream that could cause the total annual benzene quantity from facility waste to increase to 1 Mg/yr (1.1 ton/yr) or more [40 CFR 61.357(b)].

ii. If the total annual benzene quantity from facility waste is less than 10 Mg/yr (11 ton/yr) but is equal to or greater than 1 Mg/yr (1.1 ton/yr) then the owner or operator shall submit to the Illinois EPA and the Administrator a report that updates the information listed in 40 CFR 61.357 (a)(1) through (a)(3). The report shall be submitted annually and whenever there is a change in the process generating the waste stream that could cause the total annual benzene quantity from facility waste to increase to 10 Mg/yr (11 ton/yr) or more. If the information in the annual report required by 40 CFR 61.357 (a)(1) through (a)(3) is not changed in the following year, the owner or operator may submit a statement to that effect [40 CFR 61.357(c)].

iii. If the total annual benzene quantity from facility waste is equal to or greater than 10 Mg/yr (11 ton/yr), then the owner or operator shall submit to the Illinois EPA and the Administrator reports described in 40 CFR 61.357(d) [40 CFR 61.357(d)].

d. i. Pursuant to Section 39.5(7)(f)(ii) of the Act, the Permittee shall promptly notify the Illinois EPA, Air Compliance Section, within 30 days of deviations by the affected coke by-product recovery plant, COG system and COG flare from applicable requirements, unless a NESHAP standard specifies a different timeframe, as follows:

A. Requirements in Condition 7.3.3(e), (f) and (g).

B. Requirements in Condition 7.3.6.

C. Requirements in Condition 7.3.7.

ii. All such deviations shall be summarized and reported as part of the semiannual monitoring report required by Condition 8.6.1.

iii. The Permittee shall notify the Illinois EPA, Air Compliance Section, of all other deviations as part of the semiannual monitoring reports required by Condition 8.6.1.

iv. All required deviation reports described in Condition 7.3.11(d) above shall contain the following information:

A. Date, time and duration of the deviation;

B. Description of the deviation;

C. Probable cause of the deviation; and

D. Any corrective action or preventive measures taken.

e. Reporting on the State malfunction and breakdown authorization shall be performed in accordance with Condition 5.10.5-2.

f. Reporting on the Federal SSM authorization shall be performed in accordance with Condition 5.10.5-3.

7.3.12 Operational Flexibility/Anticipated Operating Scenarios

The following requirements established by Construction Permit 09030019 shall be followed during idling of the affected coke batteries and coke by-product recovery plant:

This permit authorizes operation of adsorber systems to control emissions from the equipment in the Coke By-Product Recovery Plant, as an alternative to the various blanketing systems on the by-products plant during idling or other interruptions in

these blanketing systems, as addressed by Permit 09030019, subject to the following requirements:

a. Each system will use a canister-type vessel containing activated carbon to “filter” organic material from the exhaust from the units. The adsorber vessels will not be regenerated on-site but replaced when the capacity of the vessel to adsorb organic material is approached.

b. Various equipment or affected operations at the by-products plant, including processing vessels such as tar decanters, light oil decanters and storage tanks which are subject to NESHAP (the associated operations).

i. The affected adsorbers shall be designed and operated to achieve at least 98 percent control of emissions of benzene from the associated operations, as required by 40 CFR 61.139(a), with compliance determined in accordance with applicable requirements of 40 CFR 61.139(b) and (h).

ii. As the by-products plant is subject to 40 CFR 61, Subpart L, the Permittee will continue to be subject to applicable requirements of 40 CFR 61, Subpart A, General Provisions for associated operations, including 40 CFR 61.12(c), which requires that the Permittee maintain and operate these operations, including associated equipment for air pollution control, in a manner consistent with good air pollution control practice for minimizing emissions.

iii. A. The Permittee shall have access to sampling equipment and other capabilities necessary to conduct monitoring for the affected adsorbers, i.e., operational measurements for the concentration of benzene or hydrocarbons in the exhaust from the adsorbers.

B. While the adsorbers serve to control emissions from the associated operations, the Permittee shall conduct applicable monitoring for the affected adsorbers required by 40 CFR 61, Subparts A and L, including 40 CFR 61.139(e).

iv. For the associated operations while controlled by the adsorbers, the Permittee shall fulfill applicable recordkeeping requirements of 40 CFR 61, Subparts A and L, including 40 CFR 61.139(i).

v. The Permittee shall keep a file for each adsorber system that contains documentation for the adsorption capacity of the adsorption vessel and engineering calculations for the rate at which the associated operations would generate emissions and the expected operating life of an adsorption vessel in days.

vi. The operating records that the Permittee maintains for the associated operations and adsorbers shall include the following information, in addition to other required information:

A. The date that an adsorber vessel is switched out, with reason and measured hydrocarbon concentration in the exhaust prior to switchout.

B. For periods when the adsorbers operated properly, i.e., in accordance with Condition 7.3.12(a), relevant information to generally confirm proper operation.

C. For periods when an adsorber did not operate properly, identification of each such period and the associated operations that were operating, with detailed information describing: 1) The operation of the adsorber, including the monitored exhaust concentration; 2) The potential consequences for additional emissions of organic material with an estimate of the additional emissions, with explanation; 3) The actions taken to restore proper operation; and 4) Any actions taken to prevent similar events in the future.

vii. The maintenance records that the Permittee maintains for the associated operations and adsorbers shall include the following information, in addition to other required information:

A. Until the operations are idled, date and time that an inspection or maintenance/repair activity on the units was performed, with description of activity and name(s) of the responsible personnel.

B. While the associated operations are idled, date and time that an inspection or maintenance/repair activity for the preservation measures on the operations was performed, with description of activity and name(s) of the responsible personnel.

viii. The Permittee shall fulfill applicable reporting requirements of 40 CFR 61, Subparts A and L, for the associated operations while they are controlled by the affected adsorbers.

ix. The Permittee shall notify the Illinois EPA of the following events for the coke by-product plant:

A. The date that existing control systems for the plant are shut off, within 15 days of such date. This report shall describe any difficulties that were encountered in the transition to control with the affected adsorbers, confirm the integrity of the ductwork of each affected adsorber, and include the results of initial measurements for the hydrocarbon concentrations in the exhaust from each affected adsorber, conducted in accordance with Condition 7.3.12(a).

B. The date that operation of all adsorbers is no longer required by 40 CFR 61, Subpart L, within 30 days of such date. This report shall indicate the date when the emptying and cleaning of each group of the associated operations was completed, the current status of each affected adsorber (i.e., physically removed from the plant, scheduled to be removed, or left in place pending further developments), and the actions that are planned to maintain the condition and integrity of the affected associated operations while they are idle.

Note: During a period when the affected plant is idle, even if all associated operations are cleaned and emptied, the Permittee must continue to submit the routine semiannual compliance reports required by 40 CFR 61, Subpart L.

C. The date that resumption of normal operation of the by-product plant is planned, at least 10 days prior to such date. This report shall generally describe the sequence of events that will accompany resumption of operation of the existing control systems for the plant.

7.3.13 Compliance Procedures

For the affected coke by-product recovery plant, COG system and COG flare, compliance with Conditions 7.3.3 and 7.3.7 is addressed by the work practices, testing, monitoring, recordkeeping and reporting requirements in Section 7.3 of this permit.

7.3.14 State-Only Conditions

State-only conditions are not being established.

7.4 Blast Furnaces

7.4.1 Description

Blast Furnaces and Casthouse:

Iron ore is converted to molten iron in the “A” and “B” Blast Furnaces. Iron ore, coke and a variety of fluxes (collectively called the burden) are charged into the top of the furnace, while heated air is blown up through the burden at a high velocity. Molten iron and slag accumulate in the bottom of the furnace, where a taphole is periodically drilled. The molten iron and slag pour out of the furnace into a trough, where the slag is separated from the iron. The iron moves down runners until it pours into torpedo cars. From here, the iron is taken to the Basic Oxygen Furnace (BOF) shop, where it is converted into steel. The slag travels down a separate runner and dumps into the slag pits. The molten slag is quenched with a mixture of water and potassium permanganate solution.

Charging of the Blast Furnace generates particulate matter emissions. Each furnace has a double-bell system to minimize emissions from charging.

Casthouse emissions consisting of particulate matter, sulfur dioxide, nitrogen oxides, carbon monoxide, and organic materials are generated during tapping of the furnace and the miscellaneous operations that take place within the casthouse structure. Emissions are controlled by the Casthouse Baghouse and the Iron Spout Baghouse.

Emissions may also be discharged from a blast furnace during startup, malfunctions and shutdowns for routine maintenance. Each furnace is equipped with bleeder valves which will relieve to the atmosphere if the furnace becomes over pressurized. This can occur during furnace slops when material in the furnace bridges forming a void and then collapses. Slips can cause over pressurization. In this condition, the stock in the furnace will bridge and cause a void to develop. The void will increase until the bridge collapses. Backdrafting of the blast furnaces is conducted to perform certain repairs, both routine and non-routine. Steam is utilized to draw furnace gases back through the tuyeres and out of backdraft stacks.

Blast Air Stoves:

The blast air stoves heat the blast air for the blast furnaces. Emissions from the stoves consist of particulate matter, sulfur dioxide, nitrogen oxides, and carbon monoxide generated as by-products of the combustion of Blast Furnace Gas (BFG) and Coke Oven Gas (COG). In addition, the blast furnaces can also use fuel oil in the event that other fuels are not available.

The byproduct gases from the blast furnaces are first cleaned in a BFG Pretreatment system with mechanical separation and water

wash to remove entrained dust and are then combusted in the stoves for the blast furnaces and other units at the source. BFG is primarily made up of carbon monoxide. The heat generated by the combustion of these gases is used to heat the brick inside of the stoves. The air flow is switched and this stored heat is then transferred to the blast air that is blown into the blast furnaces as part of the iron making process. There are three stoves for each furnace, which enables a continuous supply of blast air to the blast furnace. Only two of the three stoves will burn at any given time. All three stoves are exhausted to a common stack.

Excess BFG is also used in the various other fuel combustion emission units at the source. BFG that cannot be used as fuel is flared in either BFG flare #1 or #2.

Note: This narrative description is for informational purposes only and is not enforceable.

7.4.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Date Constructed	Emission Control Equipment
Blast Furnaces	• Blast Furnaces (A and B including charging and BFG pretreatment system)	Before 1972	None
	• Blast Furnace Casthouse (Tapping, Iron and Slag Runner, Slag Pits and Torpedo Car Loading Emissions From A and B Furnaces)		Casthouse Baghouse; and Iron Spout Baghouse;
	• Blast Furnace Gas Flare #1		None
	• (6) Blast Air Stoves (BFG,COG and natural Gas) (3 per each furnace)	Before 1972	None
	• Blast Furnace Gas Flare #2	2008	None
	• Slag pits	Before 1972	None

7.4.3 Applicable Provisions

a. The “affected blast furnace processes” for the purpose of these unit-specific conditions, are the emission units and activities described in Conditions 7.4.1 and 7.4.2.

b. Pursuant to 35 IAC 212.445, emissions of PM shall not exceed the following limits:

i. Uncaptured particulate matter from any opening in a blast furnace cast house shall not exceed 20 percent opacity on a six (6) minute rolling average basis beginning from initiation of the opening of the tap hole up to the point where the iron and slag stops flowing in the trough. Opacity observations shall be taken in accordance with the procedures of 40 CFR 60, Appendix A, Method 9 [35 IAC 212.445(a)].

ii. A. Particulate matter emissions from control equipment used to collect any of the emissions from the tap hole, trough, iron or slag runners or iron or slag spouts shall not exceed 0.023 g/dscm (0.010 gr/dscf). Compliance with this standard shall be determined in accordance with the procedures set out in 40 CFR 60, Appendix A, Methods 1 through 5, incorporated by reference in 35 IAC 212.113 and shall be based on the duration of a cast. For this purpose, a cast is defined as the initiation of the opening of the tap hole up to the point where the iron and slag stop flowing through the trough consistent with 35 IAC 212.445(a)(i) [35 IAC 212.445(b)(1)].

B. The opacity of emissions from control equipment used to collect any of the particulate matter emissions from the tap hole, trough, iron or slag runners or iron or slag spouts shall not exceed 10 percent on a six (6) minute rolling average basis [35 IAC 212.445(b)(2)].

c. Pursuant to 35 IAC 214.301, the affected blast furnace processes shall comply with the following: no person shall cause or allow the emission of sulfur dioxide into the atmosphere from any process emission source to exceed 2000 ppm.

d. The affected blast furnace processes other than the cast house are subject to 35 IAC 212.123(a), which provides that no person shall cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere from any emission unit other than those emission units subject to the requirements of 35 IAC 212.122, except as allowed by 35 IAC 212.123(b) and 212.124.

e. Pursuant to 40 CFR 63.7790(a) and Paragraph 7 of Table 1, of 40 CFR 63 Subpart FFFFF, the emissions shall not exceed the following limits from each casthouse at an existing blast furnace:

i. Particulate matter emissions from a control device shall not exceed 0.01 gr/dscf; and

ii. Any secondary emissions that exit any opening in the casthouse or structure housing the blast furnace shall not exceed opacity greater than 20 percent (6 minute average).

f. Pursuant to 40 CFR 63.7790(b)(1), the Permittee must operate each capture system applied to emissions from blast furnace casthouse at or above the lowest value or settings established for the operating limits in the Permittee's operation and maintenance plan.

g. Pursuant to 35 IAC 212.316(f), uncaptured particulate matter emissions from blast furnace charging shall not exceed opacity of 20 percent.

h. Pursuant to 35 IAC 212.458(b)(7) and (c), blast furnace stoves shall comply with the following: No person shall cause or allow emissions of PM_{10} into the atmosphere to exceed 22.9 mg/scm (0.01 gr/scf) during any one hour period, provided that this limit shall not apply if there are no visible emissions, except if a stack test is performed, the absence of visible emissions is not a defense to a finding violation.

7.4.4 Non-Applicability of Regulations of Concern

a. The emission limitations of 35 IAC 212.324 are not applicable to any affected blast furnace processes that are subject to a specific emissions standard or limitation contained in 35 IAC Part 212 Subpart R, Primary and Fabricated Metal Products and Machinery Manufacture, pursuant to 35 IAC 212.324 (a)(3).

b. The affected blast furnace processes are not subject to 35 IAC 212.321 and 35 IAC 212.322, pursuant 35 IAC 212.441, which provides that, except where noted, 35 IAC 212.321 and 212.322 shall not apply to the steel manufacturing processes subject to 35 IAC 212.442 through 35 IAC 212.452.

c. This permit is issued based on the affected blast furnace processes not being subject to the applicable requirements of 35 IAC 219.301 because the affected processes do not emit photochemically reactive organic material as defined in 35 IAC 211.4690.

d. The affected blast furnace processes are not subject to 35 IAC 216.121 because the affected blast furnace processes are not the fuel combustion emission sources, as defined 35 IAC 211.2470.

e. Pursuant to 40 CFR 63.7491(g), the Blast Furnace Stoves are not subject to any applicable requirements in 40 CFR Part

63, Subpart DDDDD, NESHAP: Industrial, Commercial, and Institutional Boilers and Process Heaters.

7.4.5-1 Work Practices: Operation and Maintenance Plan (40 CFR 63.7800)

a. As required by 40 CFR 63.6(e)(1)(i), the Permittee shall always operate and maintain the affected blast furnace processes that are subject 40 CFR 63 Subpart FFFFF, including air pollution control and monitoring equipment, in a manner consistent with good air pollution control practices for minimizing emissions at least to the levels required by 40 CFR 63 Subpart FFFFF.

b. The Permittee shall prepare and operate at all times each capture system or control device according to a written operation and maintenance plan for affected blast furnace casthouse. Each written operation and maintenance plan shall address the following elements:

i. Monthly inspections of the equipment that is important to the performance of the total capture system (*e.g.*, pressure sensors, dampers, and damper switches). This inspection must include observations of the physical appearance of the equipment (*e.g.*, presence of holes in ductwork or hoods, flow constrictions caused by dents or accumulated dust in the ductwork, and fan erosion). The operation and maintenance plan also must include requirements to repair any defect or deficiency in the capture system before the next scheduled inspection.

ii. Preventative maintenance for each control device, including a preventative maintenance schedule that is consistent with the manufacturer’s instructions for routine and long-term maintenance.

iii. Operating limits for each capture system applied to emissions from a blast furnace casthouse. The Permittee shall establish the operating limits according to the following requirements in 40 CFR 63.7800(b)(3)(i) through (iii):

A. Select operating limit parameters appropriate for the capture system design that are representative and reliable indicators of the performance of the capture system. At a minimum, the Permittee shall use appropriate operating limit parameters that indicate the level of the ventilation draft and the damper position settings for the capture system when operating to collect emissions, including revised settings for seasonal variations.

Appropriate operating limit parameters for ventilation draft include, but are not limited to, volumetric flow rate through each separately ducted hood, total volumetric flow rate at the inlet to the control device to which the capture system is vented, fan motor amperage, or static pressure.

B. For each operating limit parameter selected as described above, the Permittee shall designate the value or setting for the parameter at which the capture system operates during the process operation. If the operation allows for more than one process to be operating simultaneously, the Permittee shall designate the value or setting for the parameter at which the capture system operates during each possible configuration that the source may operate.

C. Include documentation in the plan to support selection of the operating limits established for the capture system. This documentation must include a description of the capture system design, a description of the capture system operating during production, a description of each selected operating limit parameter, a rationale for why the Permittee chose the parameter, a description of the method used to monitor the parameter according to the requirements of 40 CFR 63.7830(a), and the data used to set the value or setting for the parameter for each process configurations.

iv. Pursuant to 40 CFR 63.7800(b)(4), corrective action procedures for baghouses equipped with bag leak detection systems. In the event a bag leak detection system alarm is triggered, the Permittee shall initiate corrective action to determine the cause of the alarm within 1 hour of the alarm, initiate corrective action to correct the cause of the problem within 24 hours of the alarm, and complete the corrective action. Corrective actions may include, but are not limited to:

A. Inspecting the baghouse for air leaks, torn or broken bags or filter media, or any other condition that may cause an increase in emissions [40 CFR 63.7800(b)(4)(i)].

B. Sealing off defective bags or filter media [40 CFR 63.7800(b)(4)(ii)].

C. Replacing defective bags or filter media or otherwise repairing the control device [40 CFR 63.7800(b)(4)(iii)].

D. Sealing off a defective baghouse compartment [40 CFR 63.7800(b)(4)(iv)].

E. Cleaning the bag leak detection system probe, or otherwise repair the bag leak detection system [40 CFR 63.7800(b)(4)(v)].

F. Shutting down the process producing the particulate emissions [40 CFR 63.7800(b)(4)(vi)].

7.4.5-2 Work Practices: Startup, Shutdown and Malfunction

a. Provisions Related to 40 CFR 63, Subpart FFFFF

i. Pursuant to 40 CFR 63.7810, the Permittee must be in compliance with the emission limitations and operation and maintenance requirements in 40 CFR 63 Subpart FFFFF at all times, except during periods of startup, shutdown and malfunction as defined in 40 CFR 63.2

ii. Pursuant to 40 CFR 63.7810(c), the Permittee shall develop a written startup, shutdown, and malfunction plan for the affected blast furnaces and casthouses according to the provisions established in 40 CFR 63.6(e)(3).

iii. Pursuant to 40 CFR 63.7835, consistent with 40 CFR 63.6(e) and 63.7(e)(1), deviations that occur during a period of startup, shutdown, or malfunction are not violations if the Permittee demonstrates that it was operating in accordance with 40 CFR 63.6(e)(1).

iv. The Permittee shall fulfill the applicable reporting requirements identified in 40 CFR 63.10(d) (Condition 5.10.5(b)) and 40 CFR 63.7841(b)(4).

v. The Permittee shall keep records in accordance with 40 CFR 63.7842(a)(2) related to startup, shutdown and malfunction.

b. Startup and Malfunction/Breakdown Authorizations

i. Malfunction and Breakdown, pursuant to 201.149 and Part 201, Subpart I

A. Subject to the following terms and conditions, the Permittee is authorized to continue operation of the affected blast furnace processes in excess of the applicable state standards in 35 IAC 212.445(b)(1) in the event of a malfunction or breakdown. This shall include blast furnace over pressurization, slips, use of auxiliary tap-holes, and back-drafting associated with periods of malfunction and breakdown.

   Note: This authorization is provided because the Permittee applied for such authorization in its CAAPP application, generally explaining why such continued operation would be required to prevent injury to personnel or severe damage to equipment, and describing the measures that will be taken to minimize emissions from any malfunctions and breakdowns.

B. This authorization only allows such continued operation as necessary to prevent injury to personnel or severe damage to equipment and does not extend to continued operation solely for the economic benefit of the Permittee.

C. Upon occurrence of excess emissions due to malfunction or breakdown, the Permittee shall repair the affected emission/process units and/or re-establish applicable control practices.

D. The Permittee shall fulfill the applicable recordkeeping and reporting requirements of Conditions 7.4.9(e) and 5.10.5-2, respectively. For these purposes, time shall be measured from the start of a particular incident. The absence of excess emissions for a short period shall not be considered to end the incident if excess emissions resume.

E. Following notification to the Illinois EPA (see Condition 5.10.5-2(a)(ii))of a malfunction or breakdown with excess emissions, the Permittee shall comply with all reasonable directives of the Illinois EPA with respect to such incident.

F. This authorization does not relieve the Permittee from the continuing obligation to minimize excess emissions during malfunction or breakdown. As provided by 35 IAC 201.265, an authorization in a permit for continued operation with excess emissions during malfunction and breakdown does not shield the

Permittee from enforcement for any such violation and only constitutes a prima facie defense to such an enforcement action provided that the Permittee has fully complied with all terms and conditions connected with such authorization.

ii. Startup, pursuant to 35 IAC 201.149 and Part 201, Subpart I

A. Subject to the following terms and conditions, for the affected blast furnace, the Permittee is authorized to violate the applicable standards of 35 IAC 212.445(b)(1), 212.445(b)(2) and 35 IAC 214.301 during startup.

Note: This authorization is provided because the Permittee applied for such authorization in its CAAPP application, generally describing the efforts that will be used "…to minimize startup emissions, duration of individual starts, and frequency of startups".

B. This authorization does not relieve the Permittee from the continuing obligation to demonstrate that all reasonable efforts are made to minimize startup emissions, duration of individual startups and frequency of startups.

C. The Permittee shall follow the written startup, shutdown, and malfunction plan for the affected blast furnace processes prepared pursuant to 40 CFR 63.6(e)(3) and Condition 7.4.5-2. In addition, the Permittee shall also review the operating condition of the affected blast furnace process prior to initiating startup.

D. The Permittee shall fulfill applicable recordkeeping requirements of Condition 7.4.9(d).

E. The Permittee shall fulfill applicable reporting requirements of Condition 5.10.5-1.

F. As provided by 35 IAC 201.265, an authorization in a permit for excess emissions during startup does not shield a Permittee from enforcement for any violation of applicable emission standard(s) that occurs during startup and only constitutes a prima facie defense to such an enforcement action provided that the Permittee has fully complied with all terms and conditions connected with such authorization.

7.4.5-3 Work Practices from State Permits

a. Except during periods of runner maintenance, the hot metal runners and the short slag runner shall be covered with permanent type runner covers [72080034, 72080036, T1].

b. Water spraying of the slag for the purpose of cooling and minimizing slag load-out emissions will take place after completion of the slagging operation and prior to slag-loadout [85030039, T1].

c. BFG flare #1 shall be operated with no visible emissions as determined by USEPA Method 22, except for periods not to exceed a total of 5 minutes during any 2 consecutive hours [0607023, T1].

d. Requirements for BFG Flare #2 from Permit 06070023:

i. BFG flare #2 shall be operated to comply with the following equipment work practices [T1]:

A. BFG flare #2 shall be operated with no visible emissions as determined by the methods specified in 40 CFR 60.18(f), except for periods not to exceed a total of 5 minutes during any 2 consecutive hours.

B. BFG flare #2 shall be operated with a flame present at all times.

ii. Emissions of PM and PM_{10} from BFG flare #2 shall be controlled by the existing BFG pretreatment system, which entails treatment by dust catchers and wet scrubbers [T1].

iii. BFG and natural gas shall be the only fuels combusted in BFG flare #2 [T1].

7.4.5-4 Other Work Practices

The following requirements are established pursuant to Section 39.5(7)(a) of the Act:

a. The Permittee shall maintain the double-bell system of the blast furnaces in order to minimize emissions from furnace charging.

b. The Permittee shall develop and implement operating practices plan for slag handling processing associated with the slag pits for minimizing emissions and keeping them below the levels established in Condition 7.4.6(e).

7.4.6 Production and Emission Limitations from Existing Permits

a. i. Total combined production of hot metal (a.k.a., iron) from blast furnaces A and B shall not exceed 9,849 net tons per day, averaged over any calendar month [72080034,7208036,95010001, T1]; and

ii. Maximum amount of pellets charged shall not exceed 4,308,581 tons/yr [95010001, T1].

b. Casthouse Baghouse emissions shall not exceed the following limits [95010001, T1]:

Pollutant	Emission Factors (Lbs/Ton Iron)	Maximum Emissions (Tons/Yr)
PM	0.0703	111.19
PM_{10}	0.0703	111.19
SO_2	0.2006	422.00
NO_x	0.0144	22.79
VOM	0.0946	149.68

c. Blast Furnace uncaptured fugitives emissions shall not exceed the following limits [95010001, T1]:

Pollutant	Emission Factors (Lbs/Ton Iron)	Maximum Emissions (Tons/Yr)
PM	0.031	49.06
PM_{10}	0.0155	24.53
SO_2	0.0104	21.94
NO_x	0.0007	1.14
VOM	0.0047	7.42

d. Blast Furnace Charging emissions shall not exceed the following limits [95010001, T1]:

Pollutant	Emission Factors (Lbs/Ton Pellets)	Maximum Emissions (Tons/Yr)
PM	0.0024	5.17
PM_{10}	0.0024	5.17

e. Slag Pits emissions shall not exceed the following limits [95010001, T1]:

Pollutant	Emission Factors (Lbs/Ton Iron)	Maximum Emissions (Tons/Yr)
PM	0.00417	6.60
PM_{10}	0.00417	6.60
SO_2	0.0100	15.83

f. Iron Spout Baghouse emissions shall not exceed the following limits [95010001, T1]:

Pollutant	Emission Factors (Lbs/Ton Iron)	Maximum Emissions (Tons/Yr)
PM	0.02548	40.32
PM_{10}	0.02548	40.32
SO_2	0.0073	13.89

g. Total emissions from blast furnace operations shall not exceed the following limits, tons/yr [95010001, T1]:

	PM*	PM_{10}*	SO_2	NO_x	VOM
Blast Furnace Operations	212	188	474	24	157

* Limit does not address the iron pellet screen (See Section 7.1)

h. Compliance with the daily limit of Condition 7.4.6(a)(i) shall be determined from a monthly total of the relevant daily data divided by the number of days in the month [95010001].

i. Compliance with the annual limits of Condition 7.4.6(a)(2) and Conditions 7.4.6(b) through (g) shall be determined based on a calendar year [95010001].

j. Overlapping casting of “A” and “B” Blast Furnaces shall not exceed a casting rate of 6 tons per minute per furnace [72080034 and 7208036, T1].

k. The PM content of the BFG burned at the facility shall not exceed 0.01 grains/dscf [06070023, T1].

7.4.7 Testing Requirements

a. Blast furnace casthouse pursuant to NESHAP.

The Permittee shall comply with the following testing requirements pursuant to 40 CFR Part 63 Subpart FFFFF:

i. Pursuant to 40 CFR 63.7821(c), for each emissions unit equipped with a baghouse, the Permittee must conduct performance tests no less frequently than once every five years.

ii. Test methods for compliance demonstration with the emission limits for particulate matter [40 CFR 63.7822(b)]:

A. Determine the concentration of particulate matter according to the following test methods in Appendix A to 40 CFR Part 60.

1. Method 1 to select sampling port locations and the number of traverse points. Sampling sites must be located at the outlet of the control device and prior to any releases to the atmosphere.

2. Method 2, 2F, or 2G to determine the volumetric flow rate of the stack gas.

3. Method 3, 3A, or 3B to determine the dry molecular weight of the stack gas.

4. Method 4 to determine the moisture content of the stack gas.

5. Method 5, 5D, or 17, as applicable, to determine the concentration of particulate matter (front half filterable catch only).

B. Collect a minimum sample volume of 60 dry standard cubic feet (dscf) of gas during each particulate matter test run. Three valid test runs are needed to comprise a performance test.

iii. Test methods for compliance demonstration with the opacity limits [40 CFR 63.7823(b) and (c)]:

A. The Permittee shall conduct each visible emissions performance test such that the opacity observations overlap with the performance test for particulate matter [40 CFR 63.7823(b)].

B. To determine compliance with the applicable opacity limit for a blast furnace casthouse, the Permittee shall:

1. Use a certified observer to determine the opacity of emissions according to Method 9 in Appendix A to 40 CFR Part 60.

2. Obtain a minimum of 30 6-minute block averages. For a blast furnace casthouse, the Permittee shall make observations during tapping of the furnace. Tapping begins when the furnace is opened, usually by creating a hole near the

bottom of the furnace, and ends when the hole is plugged.

b. Blast furnace casthouse.

The Permittee shall comply with the following testing requirements pursuant to Sections 39.5(7)(d) and (p) of the Act:

i. For uncaptured emissions (roof monitor) or secondary emissions:

A. The Permittee shall have the opacity (6-minute average), of the exhaust of the building housing the blast furnace casthouse determined by a qualified observer in accordance with USEPA Method 9 while the affected blast furnace(s) are being tapped, as further specified below.

B. The duration of opacity observations for each test shall be at least 30 minutes unless no visible emissions are observed as determined by USEPA Method 22 or the average opacities for the first 12 minutes of observations conducted for the point of release that displays the greatest opacity, 6-minute average, are both no more than 10.0 percent.

C. 1. Observations of opacity shall be conducted on the following frequency unless absence of adequate daylight or weather conditions preclude scheduled observation, in which case, the next observations shall be conducted on the next day during which observations of opacity can properly be conducted in accordance with USEPA Method 9:

I. On a weekly basis (at least once every 7 operating days of the casthouse) except as provided below.

II. On a daily basis (at least 5 days out of 7 operating days of the casthouse) if the maximum opacity observed during any of the five previous observations was 18 percent or more, 6-minute average, continuing on a daily basis until the maximum opacities measured in five consecutive daily observations are all less than 18 percent, 6-minute average, at which time

observations on a weekly basis shall resume.

2. Upon written request by the Illinois EPA, additional opacity observations shall be conducted within five operating days for the casthouse from the date of the request by the Illinois EPA or on the date agreed upon by the Illinois EPA, whichever is later. For such observations conducted pursuant to a request from the Illinois EPA:

I. The Permittee shall notify the Illinois EPA at least 24 hours in advance of the date and time of these observations, in order to enable the Illinois EPA to witness the observations. This notification shall include the name and employer of the qualified observer(s).

II. The Permittee shall promptly notify the Illinois EPA of any changes in the time or date for observations.

III. The duration of these observations shall cover a complete heat or cycle of the affected blast furnace.

IV. The Permittee shall provide a copy of the current certification for the opacity observer and observer’s readings to the Illinois EPA at the time of the observations, if the Illinois EPA personnel are present.

D. The Permittee shall keep records for all opacity measurements for the casthouse made in accordance with USEPA Method 9 that the Permittee conducts or that are conducted at its behest by individuals who are qualified to make such observations. For each occasion on which such measurements are made, these records shall include the formal report for the measurements if conducted pursuant to Condition 7.4.7(b)(i)(2), or otherwise the identity of the observer, a description of the measurements that were made, the operating condition of the casthouse, the observed opacity, and copies of the raw data sheets for the measurements.

ii. Emissions from control equipment [35 IAC 212.445(b)]:

A. Upon request from the Illinois EPA, compliance with emission limits of 35 IAC 212.445(b)(1)(see also Condition 7.4.3(b)(ii)(A)) shall be determined in accordance with the procedures set out in 40 CFR Part 60, Appendix A, Methods 1 through 5, incorporated by reference in 35 IAC 212.113, and shall be based on the arithmetic average of three runs. Calculations shall be based on the duration of a cast defined in 35 IAC 212.445(a)(1).

B. Upon request from the Illinois EPA, opacity readings, for verifying compliance with emission limit of 35 IAC 212.445(b)(2)(see also Condition 7.4.3(b)(ii)(B)), shall be taken in accordance with the observation procedures set out in 40 CFR part 60, Appendix A, Method 9, incorporated by reference in 35 IAC 212.113.

c. Additional Emission Testing for the Casthouse Baghouse and the Iron Spout Baghouse, pursuant to Sections 39.5(7)(d) and (p) of the Act:

i. As part of the emission testing required by Condition 7.4.7(a), the Permittee shall also measure the SO_2, NO_x and VOM emissions from each baghouse.

ii. The following USEPA Test Methods shall be used for testing of emissions, unless another USEPA Test Method is approved by the Illinois EPA.

Location of Sample Points	Method 1
Gas Flow and Velocity	Method 2
Flue Gas Weight	Method 3
Moisture	Method 4
SO_2	Method 6
NO_x	Method 7
VOM	Method 25

iii. For this emission testing, test notification and reporting shall be done by the Permittee in accordance with Conditions 8.6.2 and 8.6.3 of this permit.

d. BFG Flares:

Pursuant to Sections 39.5(7)(d) and (p) of the Act, the Permittee shall conduct observations for each BFG flare for the presence of visible emissions and/or opacity, using USEPA Method 22 and 9, respectively. These observations shall be conducted on at least a monthly basis for each

flare. In addition, observations shall be coordinated with weather conditions so that at least two observations are made in each calendar year during elevated wind speed conditions, i.e., wind speed of at least 16 miles per hour. These observations shall be conducted by individual(s) certified to observe opacity by USEPA Method 9. The observer(s) shall initially conduct observations for visible emissions. If any visible emissions are observed, the observations shall continue for two hours or until the cumulative duration of visible emissions exceeds ten minutes, whichever occurs first. If any visible emissions are observed, observations for opacity shall also be conducted.

7.4.8 Monitoring Requirements

a. Monitoring requirements pursuant to 40 CFR 63.7830(a)

For each capture system subject to an operating limit in 40 CFR 63.7790(b)(1) established in the Permittee’s capture system operation and maintenance plan, the Permittee must install, operate, and maintain a CPMS according to the following requirements:

Dampers that are manually set and remain in the same position are exempt from the requirement to install and operate a CPMS. If dampers are not manually set and remain in the same position, the Permittee shall make a visual check at least once every 24 hours to verify that each damper for the capture system is in the same position as during the initial performance test.

b. Monitoring requirements pursuant to 40 CFR 7830(b)(1)

The casthouse baghouse and iron spout baghouse shall each be equipped with a bag leak detection system which the Permittee shall operate and maintain according to the following requirements of 40 CFR 63.7831(f):

i. The system must be certified by the manufacturer to be capable of detecting emissions of particulate matter at concentrations of 10 milligrams per actual cubic meter (0.0044 grains per actual cubic foot) or less [40 CFR 63.7831(f)(1)].

ii. The system must provide output of relative changes in particulate matter loadings [40 CFR 63.7831(f)(2)].

iii. The system must be equipped with an alarm that will sound when an increase in relative particulate loadings is detected over a preset level. The alarm must be located such that it can be heard by the appropriate plant personnel [40 CFR 63.7831(f)(3)].

iv. Each system that works based on the triboelectric effect must be installed, operated, and maintained in a manner consistent with the guidance document, “Fabric Filter Bag Leak Detection Guidance,” EPA–454/R–98–015, September 1997 [40 CFR 63.7831(f)(4)].

v. Following the initial adjustment, do not adjust the sensitivity or range, averaging period, alarm set points, or alarm delay time, except as detailed in your operation and maintenance plan. Do not increase the sensitivity by more than 100 percent or decrease the sensitivity by more than 50 percent over a 365-day period unless a responsible official certifies, in writing, that the baghouse has been inspected and found to be in good operating condition [40 CFR 63.7831(f)(6)].

c. The Permittee shall conduct inspections of each baghouse at the specified frequencies according to the following requirements [40 CFR 63.7830(b)(4)]:

i. Monitor the pressure drop across each baghouse cell each day to ensure pressure drop is within the normal operating range identified in the operation and maintenance plan manual.

ii. Confirm that dust is being removed from hoppers through weekly visual inspections or other means of ensuring the proper functioning of removal mechanisms.

iii. Check the compressed air supply for pulse-jet baghouses each day.

iv. Monitor cleaning cycles to ensure proper operation using an appropriate methodology.

v. Check bag cleaning mechanisms for proper functioning through monthly visual inspection or equivalent means.

vi. Make monthly visual checks of bag tension on reverse air and shaker-type baghouses to ensure that bags are not kinked (kneed or bent) or laying on their sides. You do not have to make this check for shaker-type baghouses using self-tensioning (spring-loaded) devices.

vii. Confirm the physical integrity of the baghouse through quarterly visual inspections of the baghouse interior for air leaks.

viii. Inspect fans for wear, material buildup, and corrosion through quarterly visual inspections, vibration detectors, or equivalent means.

d. Site-specific monitoring plan requirements pursuant to 40 CFR 63.7831(a)

For each CPMS required in 40 CFR 63.7830, the Permittee shall develop and make available for inspection upon request by the Illinois EPA a site-specific monitoring plan that addresses the following requirements of 40 CFR 63.7831(a)(1) through (a)(6), including:

i. Installation of the CPMS sampling probe or other interface at a measurement location relative to each affected process unit such that the measurement is representative of control of the exhaust emissions (*e.g.*, on or downstream of the last control device) [40 CFR 63.7831(a)(1)];

ii. Performance and equipment specifications for the sample interface, the parametric signal analyzer, and the data collection and reduction system [40 CFR 63.7831(a)(2);

iii. Performance evaluation procedures and acceptance criteria (*e.g.*, calibrations) [40 CFR 63.7831(a)(3);

iv. Ongoing operation and maintenance procedures in accordance with the general requirements of 40 CFR 63.8(c)(1), (c)(3), (c)(4)(ii), (c)(7), and (c)(8) [40 CFR 63.7831(a)(4);

v. Ongoing data quality assurance procedures in accordance with the general requirements of 40 CFR 63.8(d) [40 CFR 63.7831(a)(5); and

vi. Ongoing recordkeeping and reporting procedures in accordance with the general requirements of 40 CFR 63.10(c), (e)(1), and (e)(2)(i) [40 CFR 63.7831(a)(6).

e. Pursuant to 40 CFR 63.7831(b), unless otherwise specified by the NESHAP, each CPMS must:

i. Complete a minimum of one cycle of operation for each successive 15-minute period and collect a minimum of three of the required four data points to constitute a valid hour of data;

ii. Provide valid hourly data for at least 95 percent of every averaging period; and

iii. Determine and record the hourly average of all recorded readings.

f. Pursuant to 40 CFR 63.7831(c), the Permittee shall conduct a performance evaluation of each CPMS in accordance with the site-specific monitoring plan.

g. Pursuant to 40 CFR 63.7831(d), the Permittee shall operate and maintain the CPMS in continuous operation according to the site-specific monitoring plan.

h. Pursuant to 40 CFR 63.7790(b)(1) and 63.7800(b)(3)(i), the Permittee shall operate each capture system applied to emissions from a blast furnace casthouse at or above the lowest value or settings as established in the Permittee's operation and maintenance plan and which are currently as follows:

i. Casthouse Baghouse:

A. Motor amperage (total), both blast furnaces casting: 245 amps

B. Motor amperage, one blast furnace casting: 125 amps

ii. Iron Spout Baghouse:

A. Motor amperage, both blast furnaces casting (total): 245 amps

B. Motor amperage, one blast furnace casting: 131 amps

C. Blast Furnace A iron spout damper positions (3): 2 or less open all of the time; 3 open less than 5 minutes

D. Blast Furnace B tilting runner damper position: open

i. Pursuant to 40 CFR 63.7824(c), the Permittee may change the operating limits for the capture system if the Permittee meets the following requirements:

i. Submits a written notification to the Illinois EPA of the Permittee's request to conduct a new performance test to revise the operating limit.

ii. Conducts a performance test to demonstrate compliance with the applicable emission in Table 1 to 40 CFR 63 Subpart FFFFF.

iii. Establishes revised operating limits according to the applicable procedures in 40 CFR 63.7824(a).

j. Monitoring and Collecting Data pursuant to 40 CFR 63.7832:

i. Except for monitoring malfunctions, out-of-control periods as specified in 40 CFR 63.8(c)(7), associated repairs, and required quality assurance or control activities (including as applicable, calibration checks and required zero and span adjustments), the Permittee shall monitor continuously (or collect data at all required intervals) at all times an affected source is operating.

ii. The Permittee may not use data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities in data averages and calculations used to report emission or operating levels or to fulfill a minimum data availability requirement, if applicable. The Permittee shall use all the data collected during all other periods in assessing compliance.

iii. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.

k. Pursuant to the operation and maintenance requirements of the O/M plan required by 40 CFR 63.7800(b), the Permittee shall comply with following inspection procedures for the capture systems:

Monthly inspections of the equipment that is important to the performance of the total capture system. This inspection must include observations of the physical appearance of the equipment (e.g., presence of holes in ductwork or hoods, flow constrictions caused by dents or accumulated dust in the ductwork, and fan erosion). Repair of any defect or deficiency in the capture system shall be done before the next scheduled inspection.

l. Inspection and Monitoring for BFG Flares [Section 39.5(7)(d) of the Act]

i. For BFG flare #1, the Permittee shall either:

A. Install, operate and maintain instrumentation, with alarm, to confirm the presence of a flame at the flare tip; or

B. Monitor the presence of a pilot flame in accordance with Condition 7.4.8(l)(ii); or

C. Verify daily, the following to ensure BFG flare #1 is operating: The presence of a flame or thermal plume at the tip of the flare and that the flare gas header has a positive pressure.

ii. For BFG flare #2, the Permittee shall monitor the presence of a flare pilot flame using a thermocouple or other equivalent device to detect the presence of a flame.

iii. The Permittee shall perform detailed inspections of each BFG flare every 18 months. These inspections shall include all maintenance and repair activities performed based on the inspection results. If the flare cannot be inspected within 18 months, as required, the Permittee may request in writing from IEPA's Permit Section an extension of time to complete this inspection. The request for an extension must be supported with adequate justification for the extension and an assurance that the flare is continuing to operate without any problems. Under no circumstances shall the extension go beyond an additional 6 months.

m. Pursuant to Permits 72080034 and 72080036 [T1]:

i. The Permittee shall maintain and operate a pressure drop continuous recording system on the casthouse baghouse. The recorded data shall be retained for a period of six months shall be made available to the Illinois EPA personnel upon request.

ii. The Permittee shall maintain and operate a continuous pressure drop recording system on the iron spout baghouse.

n. The Permittee shall conduct observations for opacity for operations associated with the blast furnace in accordance with USEPA Method 9 for a minimum of 30 minutes for each operation unless no visible emissions are observed during the first 12 minutes of observations:

i. Blast furnace charging: Annually

ii. Blast furnace stoves stacks: Semiannually

iii. Slag pits: Quarterly

7.4.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items for the affected Blast Furnaces Processes, pursuant to Sections 39.5(7)(a), (e) and (p) of the Act:

a. 40 CFR Part 63 Subpart FFFFF (40 CFR 63.7842 and 63.7843):

i. The Permittee shall keep the following records, as specified in 40 CFR 63.7842 (a)(1) through (a)(3):

A. A copy of each notification and report that the Permittee submitted to comply with 40 CFR 63 Subpart FFFFF, including all documentation supporting any initial notification or notification of compliance status that the Permittee submitted, according to the requirements in 40 CFR 63.10(b)(2)(xiv).

B. The records in 40 CFR 63.6(e)(3)(iii) through (v) related to startup, shutdown, and malfunction.

C. Records of performance tests, performance evaluations, and opacity observations as required in 40 CFR 63.10(b)(2)(viii).

ii. The Permittee shall keep the records in 40 CFR 63.6(h)(6) for visual observations.

iii. The Permittee shall keep the records required in 40 CFR 63.7833 and 63.7834 (including a current copy of the operation and maintenance plan) to show continuous compliance with each emission limitation and operation and maintenance requirement that applies to the Permittee.

iv. The Permittee shall keep its records in a form suitable and readily available for expeditious review, according to 40 CFR 63.10(b)(1).

v. As specified in 40 CFR 63.10(b)(1), the Permittee shall keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.

vi. The Permittee shall keep each record on site for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report,

or record, according to 40 CFR 63.10(b)(1). The Permittee may keep the records offsite for the remaining 3 years.

b. 40 CFR Part 63 Subpart FFFFF [40 CFR 63.7834(b)]:

The Permittee shall maintain a current copy of the operation and maintenance plan required in 40 CFR 63.7800(b) onsite and available for inspection upon request.

c. The following records of Permits #72080034, #72080036 and #95010001:

i. The Permittee shall maintain records for each beaching event in which iron is beached that, as a minimum, shall include:

A. An explanation why beaching occurred.

B. The date, time and duration of beaching.

C. The measures used to reduce the amount of beaching.

D. The maximum rate of beaching, tons/minute, (or information showing that the beaching rate did not exceed 20 tons/minute).

d. Records for Startups of Affected Blast Furnace Processes, pursuant to Section 39.5(7)(b) of the Act

i. The Permittee shall maintain startup procedures for each affected blast furnace process, as required by Condition 7.4.5-2(b)(ii)(C).

ii. The Permittee shall maintain the following records for each startup of an affected blast furnace process:

A. Date, time and duration of the startup.

B. A description of the startup and reason(s) for the startup.

C. Whether a violation of an applicable standard may have occurred during startup accompanied by the information in Condition 7.4.9(d)(iv) if a violation may have or did occur.

D. Whether the established startup procedures, maintained above, were followed accompanied by the information in Condition 7.4.9(d)(iii) if there were departure(s) from those procedures.

iii. If the established startup procedures were not followed during a startup, the Permittee shall maintain the following records:

A. A description of the departure(s) from the established procedures.

B. The reason(s) for the departure(s) from the established procedures.

C. An explanation of the consequences of the departure(s) for emissions, such as whether the departure(s) prolonged the startup or resulted in additional emissions, and if so,

1. The actions taken to minimize emissions and the duration of the startup; and

2. An explanation whether similar incidents might be prevented in the future and if so, the corrective actions taken or to be taken to prevent similar incidents.

iv. If a violation did or may have occurred during a startup, the Permittee shall maintain the following records:

A. Identification of the applicable standard(s) that were or may have been violated.

B. An explanation of the nature of such violation(s), including the magnitude of such excess emissions.

C. A description of the actions taken to minimize the magnitude of emissions and duration of the startup.

D. An explanation whether similar incidents could be prevented or ameliorated in the future and if so, a description of the actions taken or to be taken to prevent similar incidents in the future.

e. Records for Malfunctions or Breakdowns

Pursuant to 35 IAC 201.263, the Permittee shall maintain records of continued operation of the affected Blast Furnace Processes as addressed by Condition 7.4.5-2(b)(i), during malfunctions or breakdowns, which at a minimum, shall include the following records. The preparation of these records shall be completed within 45 days of an incident, unless the Permittee conducts a root cause analysis for the incident, in which case the preparation of

these records, other than the root cause analysis, shall be completed within 120 days of the incident.

i. Date, time and duration of the incident.

ii. A detailed description of the incident, including:

A. A chronology of significant events during and leading up to the incident.

B. Relevant operating data for the unit, including information such as operator log entries and directives provided by management during the incident.

C. The measures taken to reduce the quantity of emissions and the duration of the incident including the resources utilized to address the incident.

D. The magnitude of emissions during the incident.

iii. An explanation why continued operation of an affected blast furnace was necessary to prevent personnel injury or prevent equipment damage.

iv. A discussion of the cause(s) or probable cause(s) of the incident including the following:

A. Whether the incident was sudden, unavoidable, or preventable, including:

1. Why the equipment design did not prevent the incident;

2. Why better maintenance could not have avoided the incident;

3. Why better operating practices could not have avoided the incident; and

4. Why there was no advance indication for the incident.

B. Whether the incident stemmed from any activity or event that could have been foreseen, avoided or planned for.

C. Whether the incident was or is part of a recurring pattern indicative of inadequate design, operation or maintenance.

v. A description of any steps taken to prevent similar future incidents or reduce their frequency and severity.

vi. As an alternative to keeping the records required by Condition 7.4.9(e)(iv), the Permittee may perform a root cause analysis. For this purpose, a root cause analysis is an analysis whose purpose is to determine, correct and eliminate the primary causes of the incident and the excess emissions resulting there from. If the Permittee performs a root cause analysis method that would define the problem, define all causal relationships, provide a causal path to the root cause, delineate the evidence, and provide solutions to prevent a recurrence. Such an analysis shall be completed within one year of the incident.

f. Recordkeeping for Backdrafting.

The Permittee shall maintain records for each period when an affected blast furnace is backdrafted. These records shall include, at a minimum for each occurrence, the blast furnace identification, date and timeframe of backdraft, reason for backdrafting (e.g., planned shutdowns and/or routine maintenance), and steps taken to minimize emissions during the backdraft period.

g. Records for BFG Flares

The Permittee shall maintain the following records for BFG flares:

i. Records of opacity observations performed as required by Condition 7.4.7(d).

ii. Records of inspections and maintenance activities conducted pursuant to Condition 7.4.8(l).

iii. For BFG flare #2, date and duration of any time when the pilot flame monitoring equipment of the affected unit was not in operation, with explanation.

iv. Date and duration of any time when there was no pilot flame present at the flare, with explanation.

v. Date, duration and description of any other deviations.

h. The Permittee shall maintain the following operating records for the affected blast furnaces:

i. Monthly and annual usage of natural gas, blast furnace gas and coke oven gas (million ft^3) used by the affected blast furnace stoves.

ii. Blast Furnace hot metal production (total combined daily, monthly and annual in tons), including documentation on iron and slag losses.

iii. Records of iron pellets charged (tons/month and tons/year).

iv. Records of slag processed (tons/month and tons/year).

v. For overlapping tapping of both furnaces, records to demonstrate that the tapping rate of each furnace does not exceed 6 tons per minute.

vi. If the Permittee operates under manufacturer's specifications or manufacturer's instructions, the Permittee shall maintain such manufacturer's documentation, which shall be kept at the facility as part of the required records.

vii. Records identifying process upsets in the operations at the casthouse that result in the generation of additional opacity or PM emissions, such as refractory clay falling into the trough during a missed stop. For these upsets, these records shall include the time of the upset, a description of the upset and a discussion of the consequences for opacity and PM emissions from the casthouse.

i. The Permittee shall keep the following records related to the emissions of the affected blast furnace processes to verify compliance with the applicable limits in Condition 7.4.6(b) through (g):

i. A file containing the emission factors used by the Permittee to determine emissions of different pollutants from the various processes, with supporting documentation. These records shall be reviewed and updated by the Permittee as necessary to assure that the emission factors that it uses to determine emissions of the processes do not understate actual emissions, including review when emission testing is conducted for such processes. These records shall be prepared and copies sent to the Illinois EPA in accordance with Condition 5.9.6(c).

ii. Records for any periods of operation of such processes that are not otherwise addressed in the required records during which the established emission factor in Condition 7.4.9(i)(i) would understate actual emissions of the process, with description of the period of operation and an estimate of the additional emissions during such period that would not be accounted for by the established factor, with supporting explanation and calculations.

iii. Records for the annual emissions of such processes for comparison to the limits in Conditions 7.4.6(b) through (f), with supporting calculations.

iv. Records for combined annual emissions of the affected processes, based on the summation of the above data, for comparison to the limits in Condition 7.4.6(g).

7.4.10 Reporting Requirements

a. 40 CFR 63 Subpart FFFFF (40 CFR 63.7841):

i. Compliance report due dates. The Permittee shall submit the semiannual compliance reports to the Illinois EPA according to the following requirements:

A. Semi-annual compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.

B. Each compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date comes first after the end of the semiannual reporting period.

ii. Compliance report contents. Each compliance report must include the following information:

A. Company name and address.

B. Statement by a responsible official, with that official's name, title, and signature, certifying the truth, accuracy, and completeness of the content of the report.

C. Date of report and beginning and ending dates of the reporting period.

D. If the Permittee had a startup, shutdown, or malfunction during the reporting period and the Permittee took actions consistent with the source’s startup, shutdown, and malfunction plan, the compliance report must include the information in 40 CFR 63.10(d)(5)(i).

E. If there were no deviations from the continuous compliance requirements in 40 CFR 63.7833 and 63.7834 that apply to the Permittee, a statement that there were no deviations from the emission limitations or operation and

maintenance requirements during the reporting period.

F. If there were no periods during which a continuous monitoring system (including a CPMS, COMS, or continuous emission monitoring system (CEMS)) was out-of-control as specified in 40 CFR 63.8(c)(7), a statement that there were no periods during which the CPMS was out-of-control during the reporting period.

G. For each deviation from an emission limitation in 40 CFR 63.7790 that occurs at an affected source where the Permittee is not using a continuous monitoring system (including a CPMS, COMS, or CEMS) to comply with an emission limitation in Subpart FFFFF, the compliance report must contain the information described in Condition 7.4.10(a)(ii) and the following information (this includes periods of startup, shutdown, and malfunction):

1. The total operating time of each affected source during the reporting period.

2. Information on the number, duration, and cause of deviations (including unknown cause, if applicable) as applicable and the corrective action taken.

H. For each deviation from an emission limitation occurring at an affected source where the Permittee is using a continuous monitoring system (including a CPMS or COMS) to comply with the emission limitation in Subpart FFFFF, the Permittee must include the information described in Condition 7.4.10(a)(ii) and the following information (this includes periods of startup, shutdown, and malfunction):

1. The date and time that each malfunction started and stopped.

2. The date and time that each continuous monitoring was inoperative, except for zero (low-level) and high-level checks.

3. The date, time, and duration that each continuous monitoring system was out-of-control as specified in 40 CFR 63.8(c)(7), including the information in 40 CFR 63.8(c)(8).

4. The date and time that each deviation started and stopped, and whether each deviation occurred during a period of startup, shutdown, or malfunction or during another period.

5. A summary of the total duration of the deviation during the reporting period and the total duration as a percent of the total source operating time during that reporting period.

6. A breakdown of the total duration of the deviations during the reporting period including those that are due to startup, shutdown, control equipment problems, process problems, other known causes, and other unknown causes.

7. A summary of the total duration of continuous monitoring system downtime during the reporting period and the total duration of continuous monitoring system downtime as a percent of the total source operating time during the reporting period.

8. A brief description of the Blast Furnace processes.

9. A brief description of the continuous monitoring system.

10. The date of the latest continuous monitoring system certification or audit.

11. A description of any changes in continuous monitoring systems, processes, or controls since the last reporting period.

iii. Immediate startup, shutdown, and malfunction report. If the Permittee had a startup, shutdown, or malfunction during the semiannual reporting period that was not consistent with the source’s startup, shutdown, and malfunction plan, the Permittee shall submit an immediate startup, shutdown, and malfunction report according to the requirements in 40 CFR 63.10(d)(5)(ii).

b. Reporting requirements for malfunctions and breakdowns (Permits #72080034, #72080036 and #95010001):

The Permittee shall notify the Illinois EPA’s regional office by telephone as soon as possible during normal working hours, but no later than the next Agency business day, upon the occurrence of excess emissions due to malfunctions or breakdowns. The Permittee shall submit a quarterly report to the Illinois EPA’s regional office in Collinsville providing an explanation of the occurrence of such events.

c. i. Pursuant to Section 39.5(7)(f)(ii) of the Act, the Permittee shall promptly notify the Illinois EPA, Air Compliance Section, within 30 days of deviations by the affected blast furnace processes from applicable requirements unless a NESHAP standard specifies a different timeframe, as follows:

A. Requirements in Condition 7.4.3(b) through (f).

B. Requirements in Condition 7.4.5-1.

C. Requirements in Condition 7.4.5-3.

D. Requirements in Condition 7.4.5-4.

E. Requirements in Condition 7.4.6(a) through (j).

ii. All such deviations shall be summarized and reported as part of the semiannual monitoring report required by Condition 8.6.1.

iii. The Permittee shall notify the Illinois EPA, Air Compliance Section, of all other deviations as part of the semiannual monitoring reports required by Condition 8.6.1.

iv. All required deviation reports described in Condition 7.4.10(c) above shall contain the following information:

A. Date, time and duration of the deviation;

B. Description of deviation;

C. Probable cause of the deviation;

D. Any corrective action or preventative measures taken;

d. Reporting on the State startup authorization shall be performed in accordance with Condition 5.10.5-1.

e. Reporting on the Federal SSM authorization shall be performed in accordance with Condition 5.10.5-3.

7.4.11 Operational Flexibility

Backdrafting the blast furnaces in order to conduct planned/routine maintenance (not associated with malfunction and breakdowns) shall follow procedures designed to minimize the release of emissions during such activities.

7.4.12 Compliance Procedures

a. For affected blast furnace processes, compliance with the applicable standards of Condition 7.4.3 is addressed by the work practices, testing, monitoring, recordkeeping and reporting requirements in Section 7.4 of this permit.

b. Compliance with the production/emission limits of Conditions 7.4.6 and 5.6.2 is addressed by the work practices, testing, monitoring, recordkeeping, and reporting requirements in Sections 7.4 and 5 of this permit.

7.4.13 Compliance Schedule and Current Enforcement Status

a. The Permittee shall comply with the following schedule of compliance related to SO_2 emissions from combustion of Blast Furnace Gas in various emission units at the source, as established in accordance with Consent Order No. 05-CH-750 (December 18, 2007 as amended on December 23, 2009):

Commitment	Timing
Use the correct emission factor for the Blast Furnace Gas SO_2 emissions when calculating, recording and reporting SO_2 emissions and for any other purpose under the Act.	Immediately and at all times going forward.
Work with the Illinois EPA, including providing additional information to the Agency when requested.	Within 30 days of the request.
Obtain a revised PSD Construction Permit.	Subject to Agency final issuance.

b. Submittal of Progress Reports

Quarterly Progress Reports shall be submitted beginning with the fourth quarter of 2009 and ending upon the achievement of compliance. Each quarterly report shall be submitted no later than 30 days after the end of the

corresponding calendar quarter. The Progress Report shall contain at least the following:

i. The required date for achieving commitments, and actual dates when such commitments were achieved.

ii. Any commitments accepted by the Permittee or otherwise established for the affected BOF as part of the resolution of the above referenced Consent Order, with the associated timing for each commitment.

iii. A discussion of progress in complying with commitments that is subject to future deadlines.

iv. If any commitment was not met, an explanation of why the required timeframe or commitment was not met, and any preventive or corrective measures adopted to achieve required commitment.

c. After completion of all required commitments and certification of compliance, as identified in Condition 7.4.13(a) no further Quarterly Progress Reports are required to be submitted.

Note: US Steel informed the Illinois EPA during deliberations on Consent Order 05-CH-750 of possible violations involving SO2 emissions from use of Blast Furnace Gas. The violations involved exceedances of the SO2 limit in Construction Permit 95010001 issued on July 23, 1996. The violations were addressed, working with the Office of the Illinois Attorney General, in Consent Order 05-CH-750, which was entered on December 18, 2007 in the Circuit Court for the Third Judicial Circuit, Madison County, Illinois. This Consent Order required US Steel to submit a complete and accurate application including required SO2 modeling to modify Construction Permit 95010001 by January 31, 2008. That application has been submitted by US Steel.

7.4.14 State-Only Conditions

State-only conditions are not being established.

7.5 Basic Oxygen Processes

7.5.1 Description

Reladling and Desulfurization Stations:

Molten iron from the blast furnaces is transported to the BOF by torpedo cars. The iron is then transferred to the charging ladles at the reladling station. In the desulfurization stations a combination of lime and magnesium is injected into the molten iron to remove the sulfur. The sulfur reacts with the lime and magnesium and forms a layer of slag on the surface of the iron. A collection system with a positive pressure baghouse is used to control emissions of particulate matter from these stations.

Slag Skimming:

After the molten iron is desulfurized, the ladle it is moved to this station where a mechanical arm is used to scrape slag from the surface of the iron. This slag is scraped from the iron ladles and into slag pots. A collection system with a baghouse is used to control emissions from this process.

Basic Oxygen Furnaces (BOF):

A fresh BOF charge usually begins with scrap metal. The scrap is charged into the BOF vessel. Molten iron is then charged into the vessel. A secondary hood is utilized to capture emissions during the charge. During periods of reduced molten iron availability scrap may be preheated with a natural gas fired lance to increase the temperature and reduce the amount of molten iron needed for a heat of steel. The BOF is then closed off and an oxygen lance is inserted to begin the melting and refining process. The oxygen lance openings on each BOF is equipped with steam rings. The steam rings are control measures for emissions of particulate matter from the BOF during the “oxygen blow” or refining phase when oxygen is being fed into the furnaces. The steam rings would inject steam in the area between the oxygen lance and the “lance hole” in the lid of the furnaces, acting to suppress the emissions of particulate through this area during the refining phase. In the BOF, the injected oxygen reacts exothermically with the carbon in the iron generating heat which melts the scrap and reducing the amount of carbon in the bath thus converting the iron to steel. When the refining process is completed, the molten steel is poured into a steel transfer ladle. Materials such as aluminum, silica, and manganese are added, as required, depending upon the particular steel alloy being produced. After the molten steel is tapped, the remaining slag is then dumped into a slag ladle. Emissions from these operations are captured and controlled with an electrostatic precipitator (ESP).

Ladle Preheating and Drying:

In this unit, lances combust either natural gas or coke oven gas to produce the heat needed to dry and preheat iron and steel handling ladles. The refractory linings of freshly re-bricked or repaired ladles must be completely dried and preheated before use. The drying process is necessary because any moisture left in the refractory would immediately vaporize and expand when the ladles are filled with molten iron or steel. This sudden expansion could cause the refractory lining to split which would allow the molten iron and steel to come into contact with, and damage the shell of the ladle. Emissions from this unit consist of particulate matter, sulfur dioxide, nitrogen oxides, carbon monoxide and organic materials generated by fuel combustion.

Ladle Metallurgy Furnaces (LMF) and Argon Stirring Stations:

At the LMF station and the argon stirring stations, final adjustments are made to the composition of a ladle of steel and the steel is held pending casting. At the LMF station, electricity can also be used to heat a ladle of steel if it has cooled below the range at which steel can be cast.

If the steel does not need to be reheated and at most minor adjustments are needed to its composition, the ladle of steel goes to one of the two argon stirring stations. At these stations, stirring lances are inserted into the steel and argon is pumped into the steel to maintain uniform composition and temperature. A baghouse is also used to control emissions from the operations.

Note: This narrative description is for informational purposes only and is not enforceable.

7.5.2 List of Emission Units and Air Pollution Control Equipment

Location	Basic Oxygen Process Descriptions	Date Constructed	Emission Control Equipment
Basic Oxygen Process Furnace Shop (BOPF)	Hot Metal Transfer Station	Prior to 05/1983	Reladle/ Desulfurization Baghouse
	(2) Hot Metal Desulfurization Stations		
	Slag Skimming Station	1985	Skimmer Baghouse
	Basic Oxygen Furnaces (BOF) #1 and #2 with Steam Rings	Prior to 08/1972	Electrostatic Precipitator
	Ladle Drying/Preheating (coke oven gas and natural gas modes)	Prior to 08/1972	None

Location	Basic Oxygen Process Descriptions	Date Constructed	Emission Control Equipment
	Ladle Metallurgy Furnace (LMF) Station	Prior to 1986	Baghouse #2
	Argon Stirring Stations	Around 1988	

7.5.3 Applicable Provisions

a. Pursuant to 35 IAC 212.446, emissions of particulate matter from basic oxygen processes shall be controlled as follows:

i. Charging, Refining and Tapping (BOF Operations). Particulate matter emissions from all basic oxygen furnaces (BOF) shall be collected and ducted to pollution control equipment. Emissions from basic oxygen furnace operations during the entire cycle (operations from the beginning of the charging process through the end of the tapping process) shall not exceed the allowable emission rate specified by 35 IAC 212.322. For purposes of computing the process weight rate, nongaseous material charged to the furnace and process oxygen shall be included. No material shall be included more than once [35 IAC 212.446(a)].

ii. Hot Metal Transfer, Hot Metal Desulfurization and Ladle Lancing.

Particulate matter emissions from hot metal transfers to a mixer or ladle, hot metal desulfurization operations and ladle lancing shall be collected and ducted to pollution control equipment, and emissions from the pollution control equipment shall not exceed 69 mg/dscm (0.03 gr/dscf) [35 IAC 212.446(b)(1)].

iii. For openings in the building housing the BOF, no person shall cause or allow emissions to exceed an opacity of 20 percent, as determined by averaging any 12 consecutive observations taken at 15 second intervals [35 IAC 212.446(c)].

b. Pursuant to 35 IAC 212.458, no person shall cause or allow emissions of PM_{10}, other than that of fugitive particulate matter, into the atmosphere to exceed the following limits during any one hour period:

i. 32.25 ng/J (0.075 lbs/mmBtu) of heat input from the burning of coke oven gas (at ladle dryers/preheaters) [35 IAC 212.458(b)(9)].

ii. 27.24 kg/hr (60 lbs/hr) and 0.1125 kg/Mg (0.225 lbs/T) of total steel in process whichever limit is more stringent for the total of all basic oxygen furnace operations (charging, refining and tapping, as described in 35 IAC 212.446(a)) and measured at the BOF stack [35 IAC 212.458(b)(23)].

iii. 22.9 mg/scm (0.01 gr/scf) from any process emissions unit, except as otherwise provided in 35 IAC 212.458 or in 212.443 and 212.446 [35 IAC 212.458(b)(7)].

c. Pursuant to 35 IAC 212.123(a), no person shall cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere from any emission unit other than those emission units subject to the requirements of 35 IAC 212.122, except as allowed by 35 IAC 212.123(b) and 212.124.

d. The Basic Oxygen Processes are subject to 40 CFR Part 63, Subpart FFFFF, Integrated Iron and Steel Manufacturing Facilities. Applicable provisions of this NESHAP are addressed below and in other conditions of this section of the permit.

e. Pursuant to 40 CFR 63.7790(a) and Table 1 to 40 CFR Part 63 Subpart FFFFF, the emissions from the Basic Oxygen Processes shall not exceed the following limits applicable to operation at existing basic oxygen process furnace (BOPF) identified in paragraphs 9 through 12 of Table 1 to Subpart FFFFF:

i. The Permittee must not cause to be discharged to the atmosphere any gases that exit from a primary emission control system for a BOPF with an open hood system at an existing BOPF shop that contain, on a flow-weighted basis, particulate matter in excess of 0.02 gr/dscf during the steel production cycle.

ii. For each hot metal transfer, slag skimming, and hot metal desulfurization operation, the Permittee must not cause to be discharged to the atmosphere any gases that exit from a control device that contain particulate matter in excess of 0.01 gr/dscf.

iii. For each ladle metallurgy furnace operation, the Permittee must not cause to be discharged to the atmosphere any gases that exit from a control device that contain particulate matter in excess of 0.01 gr/dscf.

iv. For each roof monitor on the BOPF Shop, the Permittee must not cause to be discharged to the atmosphere any secondary emissions that exit any opening in the BOPF shop or any other building housing the BOF or basic

oxygen process that exhibit opacity greater than 20 percent (3-minute average).

f. Pursuant to 40 CFR 63.7790(b)(3), for the electrostatic precipitator applied to control emissions from a BOF, the Permittee must maintain the hourly average opacity of emissions exiting the control device at or below 10 percent.

g. The basic oxygen furnaces are subject to 35 IAC 214.301, which provides that no person shall cause or allow the emission of sulfur dioxide into the atmosphere from any process emission source to exceed 2000 ppm.

7.5.4 Non-Applicability of Regulations of Concern

a. Pursuant to 35 IAC 212.324(a)(3) and 212.316(f), the emission limitations of 35 IAC 212.324 and 212.316 are not applicable to the basic oxygen processes because these operations are subject to specific emission standards and limitations contained in 35 IAC Part 212 Subpart R, as addressed in Condition 7.5.3(a).

b. Except where noted, 35 IAC 212.321 and 35 IAC 212.322 shall not apply to the steel manufacturing processes subject to 35 IAC 212.442 through 35 IAC 212.452 [35 IAC 212.441].

c. This permit is issued based on the affected basic oxygen processes not being subject to the applicable requirements of 35 IAC 219.301 because these processes do not emit photochemically reactive organic material as defined in 35 IAC 211.4690.

d. The basic oxygen processes are not subject to 35 IAC 216.121 because they are not fuel combustion emission units as defined in 35 IAC 211.2470.

7.5.5-1 Work Practices Provisions for Operation and Maintenance Plan (40 CFR 63.7800)

a. Pursuant to 40 CFR 63.6(e)(1)(i), the Permittee must always operate and maintain the basic oxygen processes, including air pollution control and monitoring equipment, in a manner consistent with good air pollution control practices for minimizing emissions at least to the levels required by 40 CFR 63 Subpart FFFFF.

b. The Permittee shall prepare and operate at all times according to a written operation and maintenance plan for each capture system or control device subject to an operating limit in 40 CFR 63.7790(b). Each plan shall address the following elements:

i. Monthly inspections of the equipment that is important to the performance of the total capture system (*e.g.*, pressure sensors, dampers, and damper switches). This inspection shall include observations of the physical appearance of the equipment (*e.g.*, presence of holes in ductwork or hoods, flow constrictions caused by dents or accumulated dust in the ductwork, and fan erosion). The operation and maintenance plan also must include requirements to repair any defect or deficiency in the capture system before the next scheduled inspection.

ii. Preventative maintenance for each control device, including a preventative maintenance schedule that is consistent with the manufacturer’s instructions for routine and long-term maintenance.

iii. Corrective action procedures for baghouses equipped with bag leak detection systems. In the event a bag leak detection system alarm is triggered, the Permittee shall initiate corrective action to determine the cause of the alarm within 1 hour of the alarm, initiate corrective action to correct the cause of the problem within 24 hours of the alarm, and complete the corrective action as soon as practicable. Corrective actions may include, but are not limited to:

A. Inspecting the baghouse for air leaks, torn or broken bags or filter media, or any other condition that may cause an increase in emissions.

B. Sealing off defective bags or filter media.

C. Replacing defective bags or filter media or otherwise repairing the control device.

D. Sealing off a defective baghouse compartment.

E. Cleaning the bag leak detection system probe, or otherwise repair the bag leak detection system.

F. Shutting down the process producing the particulate emissions.

iv. Corrective action procedures for electrostatic precipitator (ESP) equipped with COMS. In the event an ESP exceeds the operating limit in 40 CFR 63.7790(b)(3), the Permittee shall take corrective

actions consistent with the site-specific monitoring plan in accordance with 40 CFR 63.7831(a).

7.5.5-2 Work Practices Provisions for Startup, Shutdown and Malfunction Plans and associated procedures

a. NESHAP Provisions

i. Pursuant to 40 CFR 63.7810, the Permittee must be in compliance with the emission limitations and operation and maintenance requirements in 40 CFR 63 Subpart FFFFF at all times, except during periods of startup, shutdown and malfunction as defined in 40 CFR 63.2

ii. Pursuant to 40 CFR 63.7810(c), the Permittee shall develop a written startup, shutdown, and malfunction plan for BOF according to the provisions of 40 CFR 63.6(e)(3).

iii. Pursuant to 40 CFR 63.7835:

A. Consistent with 40 CFR 63.6(e) and 63.7(e)(1), deviations from NESHAP requirements that occur during a period of startup, shutdown, or malfunction are not violations if the Permittee demonstrates to the Illinois EPA that the Permittee was operating in accordance with 40 CFR 63.6(e)(1).

B. The Illinois EPA will determine whether deviations that occur during a period of startup, shutdown, or malfunction are violations, according to the provisions in 40 CFR 63.6(e).

iv. The Permittee shall fulfill the applicable reporting requirements identified in Condition 5.10.5(b) and 40 CFR 63.7841(b)(4) and (c).

v. The Permittee shall keep records in accordance with 40 CFR 63.7842(a)(2) related to startup, shutdown and malfunction.

b. Provisions of State Emission Standards, pursuant to 35 IAC 201.149 and Part 201 Subpart I

i. Subject to the following terms and conditions, the Permittee is authorized to continue to operate in violation of the applicable standards as specified below in the event of a malfunction or breakdown.

A. For the basic oxygen furnace, the applicable state standards in Condition 7.5.3(a)(iii), (b)(ii) and (c)), and

B. For the LMF, the applicable state standards in Conditions 7.5.3(b)(iii) and (c).

Note: This authorization is provided because the Permittee applied for such authorization in its CAAPP application, generally explaining why such continued operation would be required to prevent injury to personnel or severe damage to equipment, and describing the measures that will be taken to minimize emissions from any malfunctions and breakdowns.

ii. This authorization only allows such continued operation as necessary to prevent injury to personnel or severe damage to equipment and does not extend to continued operation solely for the economic benefit of the Permittee.

iv. Upon occurrence of excess emissions due to malfunction or breakdown, the Permittee shall, as soon as practicable, repair the units and/or re-establish applicable control practices.

v. The Permittee shall fulfill the applicable recordkeeping requirements of Condition 7.5.9(g) and reporting requirements of Condition 5.10.5-2.

vi. Following notification to the Illinois EPA (see Condition 5.10.5-2(a)(i)) of a malfunction or breakdown with excess emissions, the Permittee shall comply with all reasonable directives of the Illinois EPA with respect to such incident.

vii. This authorization does not relieve the Permittee from the continuing obligation to minimize excess emissions during malfunction or breakdown. As provided by 35 IAC 201.265, an authorization in a permit for continued operation with excess emissions during malfunction and breakdown does not shield the Permittee from enforcement for any such violation and only constitutes a prima facie defense to such an enforcement action provided that the Permittee has fully complied with all terms and conditions connected with such authorization.

7.5.5-3 Work Practices from Permits 72080043, 95010001 and 10080021

a. Pursuant to Permit 72080043 [T1]:

i. Overlapping operations of the BOF vessels is allowed under the following conditions:

A. The hot metal charge of the second vessel shall be initiated and completed during the time between completion of the blow and start of tap on the first vessel while sufficient draft at the ESP capture system is established and maintained for both vessels.

B. The charge and/or blow on one vessel shall not begin until sufficient draft has been established at the associated ESP capture system (a.k.a., doghouse) and the alloy addition at the vessel tapping has been completed for at least 1 minute.

C. Sufficient draft at the ESP capture system of the vessel being tapped shall be maintained for at least 1 minute after alloy addition has been completed. After such period, the capture system draft may be transferred over to the other vessel in order to satisfy Condition (A) above.

D. Only overlapping of the hot metal charge of the second vessel after the end of blow and prior to onset of tap of the first vessel and overlapping of tapping of the first vessel, after alloy addition, and the hot metal charge and/or blow on the second vessel are allowed.

E. Condition (B) and (C) above shall be part of the Standard Operating Procedure (SOP) of the BOF vessels.

ii. Each BOF vessel shall be equipped with a Fume Suppression System which shall be in use at all times that tapping is occurring during overlapping operations.

b. Pursuant to Permit 95010001 [T1]:

i. The BOF capture system shall be operated at the above minimum set points (see Condition 7.5.6(h)) until and unless the Illinois EPA approves a lower minimum set point based on a demonstration that a better level of particulate matter control will occur, except for purposes of emissions testing as related to the set point [T1].

ii. The Permittee shall operate, maintain, and repair the BOF ESP in a manner that assures compliance with the conditions of Permit 95010001 [T1].

iii. The Permittee shall maintain an adequate inventory of spare parts for the BOF ESP at all times [T1].

c. Pursuant to Permit 10080021 [T1]:

i. Beginning October 31, 2012, during the refining phase of operation, the steam rings on the BOFs shall be operated in accordance with written procedures developed by the Permittee that set forth the timing and rate of steam injection as related to furnace operation and reflect good air pollution control practice to minimize emissions of particulate matter.

ii. Prior to October 31, 2012, during the refining phase of operation, the steam rings on the BOFs shall be operated in accordance with good air pollution control practice to minimize emissions of particulate matter.

7.5.6 Production and Emission Limitations from Permit 95010001

a. Total combined production of liquid steel from the affected BOFs shall not exceed 11,000 net tons per day, averaged over any calendar month [T1].

b. BOF Shop Emissions (tons/yr total) shall not exceed the following limits [T1]:

PM	PM_{10}	NO_x	VOM	CO	Lead
510	451	70	12	16,097	1.43

c. BOF ESP Stack (charge, refine, tap) emissions shall not exceed the following limits [T1]:

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.16	262.80
PM_{10}	0.16	262.80
NO_x	0.0389	69.63
VOM	0.0060	10.74
CO	8.993	16,097.47
Lead	0.1934 lbs/hr	1.26

d. BOF Roof Monitor emissions shall not exceed the following limits [T1]:

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.0987	176.71
PM_{10}	0.06614	118.40
Lead	0.0129 lbs/hr	0.08

e. Hot Metal Desulfurization and Hot Metal Transfer emissions shall not exceed the following limits [T1]:

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.03721	58.88
PM_{10}	0.03721	58.88
VOM	0.0010	1.58
Lead	0.0133 lbs/hr	0.09

f. Hot metal charging and ladle slag skimming emissions shall not exceed the following limits [T1]:

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.0050	7.94
PM_{10}	0.0050	7.94

g. Emissions from Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy Baghouse #2) shall not exceed the following limits (see Section 7.1):

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00715	12.80
PM_{10}	0.00715	12.80

h. The stack gas pulpit set point of the BOF ESP control system shall be set in accordance with the following, so as to establish sufficient particulate matter capture efficiency of the charging and primary hoods [T1]:

i. Set point requirements while only a single BOF vessel is in operation:

A. Minimum set point during charging operation: 550,000 cfm;

B. Minimum set point during refining operation: 650,000 cfm; and

C. Minimum set point during tapping operation: 200,000 cfm (until one minute after completing alloy addition).

ii. During dual operation of BOF vessels (a.k.a., overlapping BOF operation) the minimum set point shall be 700,000 cfm.

i. Compliance with the annual limits shall be determined on a calendar year basis [T1].

Note: These provisions (Conditions 7.5.6(a) through (i)) were originally established in Construction Permit 95010001.

j. Emissions of particulate matter from the Ladle metallurgy station and the existing argon stirring station shall not exceed 16.20 TPY [T1].

k. The maximum process weight for 1) argon stirring, 2) ladle reheat, 3) alloy addition, 4) ladle slag skimming, and 5) hot metal desulfurization shall not exceed 356.7 t/hr for 8,760 hours per year [T1].

Note: These provisions (Conditions 7.5.6(j) and (k)) were originally established in Permit 83050042.

7.5.7 Testing Requirements

a. Testing requirements in 40 CFR Part 63 Subpart FFFFF:

i. Pursuant to 40 CFR 63.7821(b), for the Basic Oxygen Furnaces (which are equipped with a control device other than a baghouse), the Permittee shall conduct subsequent performance tests no less frequently than twice (at mid-term and renewal) during each term of the title V operating permit (i.e., this CAAPP permit).

ii. Pursuant to 40 CFR 63.7821(c), for each Basic Oxygen Furnace Process equipped with a baghouse, the Permittee shall conduct subsequent performance tests no less frequently than once during each term of the Title V operating permit (every 60 months).

iii. The Permittee shall use the following test methods for compliance demonstration with the emission limits for particulate matter [40 CFR 63.7822(b)]:

A. The Permittee shall determine the concentration of particulate matter according to the following test methods in Appendix A to 40 CFR Part 60.

1. Method 1 to select sampling port locations and the number of traverse points. Sampling ports must be located at the outlet of the control device and prior to any releases to the atmosphere.

2. Method 2, 2F, or 2G to determine the volumetric flow rate of the stack gas.

3. Method 3, 3A, or 3B to determine the dry molecular weight of the stack gas.

4. Method 4 to determine the moisture content of the stack gas.

5. Method 5, 5D, or 17, as applicable, to determine the concentration of particulate matter (front half filterable catch only).

B. The Permittee shall collect a minimum sample volume of 60 dry standard cubic feet (dscf) of gas during each particulate matter test run. Three valid test runs are needed to comprise a performance test.

iv. Pursuant to 40 CFR 63.7822(g), for the BOF ESP (which is a primary emission control system applied to emissions from a BOF with an open hood system), the Permittee shall complete the following requirements:

A. Sample only during the steel production cycle. The Permittee shall conduct sampling under conditions that are representative of normal operation. The Permittee shall record the start and end time of each steel production cycle and each period of abnormal operation; and

B. Sample for an integral number of steel production cycles. The steel production cycle begins when the scrap is charged to the BOF and ends 3 minutes after the slag is emptied from the vessel into the slag pot.

v. Pursuant to 40 CFR 63.7822(h), for a control device applied to emissions from BOPF shop ancillary operations (hot metal transfer, slag skimming, hot metal desulfurization, or ladle metallurgy), the Permittee shall sample only when the operation(s) is being conducted.

vi. The Permittee shall conduct each visible emissions performance test such that the opacity observations overlap with the performance test for particulate matter [40 CFR 63.7823(b)].

vii. The following test methods shall be used for opacity observations pursuant to 40 CFR 63.7823(d):

Using a certified observer, the Permittee shall determine the opacity of emissions according to Method 9 in Appendix A to Part 60 as specified below:

A. Instead of procedures in section 2.4 of Method 9 in Appendix A to 40 CFR Part 60, the Permittee shall record observations to the nearest 5 percent at 15-second intervals for at least three steel production cycles.

B. Instead of procedures in section 2.5 of Method 9 in Appendix A to 40 CFR Part 60, the Permittee shall determine the 3-minute block average opacity from the average of 12 consecutive observations recorded at 15-second intervals.

b. Pursuant to Sections 39.5(7)(d) and (p) of the Act, in conjunction with the testing of emissions required for an emission unit in the BOF shop by the NESHAP (Condition 7.5.7(a) which requires testing at the midterm and renewal of this CAAPP permit), the Permittee shall also have testing conducted to measure emissions of other pollutants as follows.

i. Testing shall be conducted for PM/PM_{10}*, lead and other pollutants as follow: BOF Furnaces (ESP) – NO_x, VOM and CO; and Hot Metal Desulfurization and Slag Skimming (Baghouses) – VOM.

* As an alternative to measurements for PM_{10} emissions, the measured results for PM, as determined in accordance with the NESHAP, shall be considered PM10, as provided for by 35 IAC 212.108.

ii. The relevant test method specified by the NESHAP or the following USEPA test methods shall be used for this testing, unless another USEPA test method is approved by the Illinois EPA during the review of a Test Plan submitted by the Permittee prior to testing.

Location of Sample Points	Method 1
Gas Flow and Velocity	Method 2
Flue Gas Weight	Method 3
Moisture	Method 4
VOM	Method 18 or 25A
NO_x	Method 7E or 19
CO	Method 10 or 10B
Lead	Method 29

iii. For this emission testing, test notifications and reporting shall be done by the Permittee in accordance with Condition 8.6.2 and 8.6.3 of this permit.

c. As provided by 35 IAC 212.446(c), observations to determine compliance with the opacity standard in 35 IAC 212.446(c) (see Condition 7.5.3(a)(iii)) shall be performed in accordance with 40 CFR Part 60, Appendix A, Method 9, incorporated by reference in 35 IAC 212.113, except that compliance shall be determined by averaging any 12 consecutive observations taken at 15 second intervals.

7.5.8 Monitoring and Inspection Requirements

a. Monitoring (40 CFR 63.7830)

i. For the capture system for secondary emissions from the Basic Oxygen Furnaces (which are subject to an operating limit in 40 CFR 63.7790(b)(1) established in Permittee's capture system operation and maintenance plan), the Permittee shall install, operate, and maintain a continuous parameter monitoring system (CPMS) according to the requirements in 40 CFR 63.7831(e) and the requirements in 40 CFR 63.7830(a)(1) through (3).

ii. The Permittee shall operate and maintain a bag leak detection system on Baghouse #2 and the slag skimmer baghouse according to 40 CFR 63.7831(f) and monitor the relative change in particulate matter loadings according to the requirements in 40 CFR 63.7832.

iii. The Permittee shall conduct inspections of each baghouse at the specified frequencies according to the following requirements [40 CFR 63.7830(b)(4)]:

A. Monitor the pressure drop across each baghouse cell each day to ensure pressure drop is within the normal operating range identified in the operation and maintenance manual.

B. Confirm that dust is being removed from hoppers through weekly visual inspections or other means of ensuring the proper functioning of removal mechanisms.

C. Check the compressed air supply for pulse-jet baghouses each day.

D. Monitor cleaning cycles to ensure proper operation using an appropriate methodology.

E. Check bag cleaning mechanisms for proper functioning through monthly visual inspections or equivalent means.

F. Make monthly visual checks of bag tension on reverse air and shaker-type baghouses to ensure that bags are not kinked (kneed or bent) or laying on their sides. The Permittee does not have to make this check for shaker-type baghouses using self-tensioning (spring-loaded) devices.

G. Confirm the physical integrity of the baghouse through quarterly visual inspections of the baghouse interior for air leaks.

H. Inspect fans for wear, material buildup, and corrosion through quarterly visual inspections, vibration detectors, or equivalent means.

iv. For the ESP controlling the BOF furnaces (which are subject to an opacity limit of 10 percent, hourly average, pursuant to 40 CFR 63.7790(b)(3)), the Permittee shall operate and maintain a continuous opacity monitoring system (COMS) according to the requirements in 40 CFR 63.7831(h) and monitor the hourly average opacity of emissions exiting the stack according to the requirements in 40 CFR 63.7832 [40 CFR 63.7830(d)].

If the hourly average opacity for the ESP exceeds the operating limit, the Permittee shall follow the following procedures [40 CFR 63.7833(g)]:

A. The Permittee shall initiate corrective action to determine the cause of the exceedance within 1 hour. During any period of corrective action, the Permittee must continue to monitor and record all required operating parameters for equipment that remains in operation. Within 24 hours of the exceedance, the Permittee shall measure and record the hourly average operating parameter value for the emission unit on which corrective action was taken. If the hourly average parameter value meets the applicable operating limit, then the corrective action was successful and the emission unit is in compliance with the applicable operating limit.

B. If the required initial corrective action was not successful, the Permittee shall complete additional corrective action within the next 24 hours (48 hours from the time of the exceedance). During any period of corrective action, the Permittee shall continue to monitor

and record all required operating parameters for equipment that remains in operation. After this second 24-hour period, the Permittee shall again measure and record the hourly average operating parameter value for the emission unit on which corrective action was taken. If the hourly average parameter value meets the applicable operating limit, then the corrective action was successful and the emission unit is in compliance with the applicable operating limit.

C. For purposes of 40 CFR 63.7833(g)(1) and (2), in the case of an exceedance of the hourly average opacity operating limit for an ESP, measurements of the hourly average opacity based on visible emission observations in accordance with Method 9 may be taken to evaluate the effectiveness of corrective action.

D. If the second attempt at corrective action required in paragraph 40 CFR 63.7833 (g)(2) was not successful, the Permittee shall report the exceedance as a deviation in the next semiannual compliance report according to 40 CFR 63.7841(b).

b. Installation, operation, and maintenance requirements for monitors [40 CFR 63.7831]

i. For the slag skimmer baghouse and Baghouse #2 (which are subject to 40 CFR 63.7830(b)(1)), the Permittee shall operate and maintain the bag leak detection system according to the following requirements [40 CFR 63.7831(f)]:

A. The system must be certified by the manufacturer to be capable of detecting emissions of particulate matter at concentrations of 10 milligrams per actual cubic meter (0.0044 grains per actual cubic foot) or less.

B. The system must provide output of relative changes in particulate matter loadings.

C. The system must be equipped with an alarm that will sound when an increase in relative particulate loadings is detected over a preset level. The alarm must be located such that it

can be heard by the appropriate plant personnel.

D. Each system that works based on the triboelectric effect must be installed, operated, and maintained in a manner consistent with the guidance document, “Fabric Filter Bag Leak Detection Guidance,” EPA-454/R-98-015, September 1997. The Permittee may install, operate, and maintain other types of bag leak detection systems in a manner consistent with the manufacturer’s written specifications and recommendations.

E. To make the initial adjustment of the system, the Permittee shall establish the baseline output by adjusting the sensitivity (range) and the averaging period of the device. Then, the Permittee shall establish the alarm set points and the alarm delay time.

F. Following the initial adjustment, the Permittee may not adjust the sensitivity or range, averaging period, alarm set points, or alarm delay time, except as detailed in the Permittee’s operation and maintenance plan. The Permittee may not increase the sensitivity by more than 100 percent or decrease the sensitivity by more than 50 percent over a 365-day period unless a responsible official certifies, in writing, that the baghouse has been inspected and found to be in good operating condition.

G. Where multiple detectors are required, the system’s instrumentation and alarm may be shared among detectors.

ii. For the ESP (which is subject to the opacity limit in 40 CFR 63.7790(b)(3)), the Permittee shall install, operate, and maintain a COMS according to the following requirements in 40 CFR 63.7831 (h)(1) through (4):

A. The Permittee shall install, operate, and maintain each COMS according to Performance Specification 1 in 40 CFR Part 60, Appendix B.

B. The Permittee shall conduct a performance evaluation of each COMS according to 40 CFR 63.8 and Performance Specification 1 in Appendix B to 40 CFR Part 60.

C. Each COMS must complete a minimum of one cycle of sampling and analyzing for each successive 10-second period and one cycle of data recording for each successive 6-minute period.

D. COMS data must be reduced to 6-minute averages as specified in 40 CFR 63.8(g)(2) and to hourly averages where required by 40 CFR 63 Subpart FFFFF.

c. Pursuant to the operation and maintenance requirements of the O/M plan required by 40 CFR 63.7800(b), the Permittee shall comply with following inspection procedures for the capture systems and controls:

Monthly inspections of the equipment that is important to the performance of the total capture system. This inspection must include observations of the physical appearance of the equipment (e.g., presence of holes in ductwork or hoods, flow constrictions caused by dents or accumulated dust in the ductwork, and fan erosion). Repair of any defect or deficiency in the capture system shall be done before the next scheduled inspection.

d. Monitoring of capture and control systems for Basic Oxygen Furnaces (from Permit 95010001):

i. The Permittee shall operate and maintain the waste gas suction monitor system for the capture system for the Basic Oxygen Furnace that continually measures and records each operation (i.e., for each charge, each refine, each tap) of each steel production cycle the static pressure in the main downcommer duct of the ESP emissions capture and transport system.

A. The Permittee shall use the waste gas suction monitoring system as a mechanism to ensure sufficient draft is maintained in the emissions capture hoods and transport ducts so as to maximize emissions capture and transport and minimize uncaptured emissions and emission leaks.

B. The Permittee shall operate and maintain the system to ensure that accurate and useful data is collected.

C. The Permittee shall continuously record the static pressure in the main down comer duct of the ESP emissions capture and transport system.

ii. The Permittee shall calibrate, operate, and maintain a continuous strip chart recorder or disk storage of the ESP stack gas flow rate as measured by the stack gas flow meter during ESP use.

iii. The stack gas flow meter shall be calibrated on at least a quarterly basis.

iv. A. The Permittee shall visually inspect at least monthly all visible BOF vessel enclosures, hooding and ducts used to capture and transport emissions for the BOF ESP control system.

B. A log shall be maintained of these inspections which includes observations of the physical appearance of the capture system and any noted deficiencies (e.g., the presence of any holes in ductwork or hoods, flow constrictions caused by dents or accumulated dust in ductwork, and fan erosion).

C. Any leaks or areas otherwise noted to be in need of repair, shall be repaired expeditiously.

e. Opacity observations for 35 IAC 212.446(c);

The following opacity observations shall be performed pursuant to Section 39.5(7)(a) and (p) of the Act:

i. The Permittee shall have the opacity of the exhaust of the building housing the BOF determined by a qualified observer in accordance with USEPA Method 9 while the affected BOF(s) is operating, as further specified below.

A. Observations of opacity shall be conducted on the following frequency unless absence of adequate daylight or weather conditions preclude scheduled observation, in which case, the next observations shall be conducted on the next operating day of the BOF during which observations of opacity can reasonably be conducted in accordance with USEPA Method 9, except that reading shall be taken as a 3-minute average (12 consecutive observations taken 15 seconds intervals).

B. If a baghouse is not installed for control of tapping emissions from the BOF, these readings shall be performed for at least five days out of every seven. A day is defined as any day when a BOF is in operation for a minimum of

four hours during conditions that are acceptable for Method 9 readings. A minimum of 60 consecutive minutes of opacity readings must be obtained and must encompass at least one steel production cycle. A production cycle is defined as the beginning of scrap charging to the completion of deslagging of the steelmaking vessel. Results of these readings shall be reduced to three minute rolling averages.

C. Beginning 30 days after initial startup of a baghouse for control of tapping emissions from the BOFs, the Permittee shall have the opacity of the exhaust of the building housing the BOF determined by a qualified observer in accordance with USEPA Method 9 while the affected BOF(s) are operating, as further specified below.

1. The duration of opacity observations for each test shall be one complete steel making cycle.

2. Observations of opacity shall be conducted on the following frequency unless absence of adequate daylight or weather conditions preclude scheduled observation, in which case, the next observations shall be conducted on the next operating day of the BOF during which observations of opacity can reasonably be conducted in accordance with USEPA Method 9.

3. On a weekly basis (at least once every seven operating days of BOF) except as provided below.

4. On a daily basis (at least 5 days out of seven operating days of BOF) if any of the five previous 3-minute average observations measured opacity of 18 percent or more, continuing on a daily basis until the maximum opacities measured in five consecutive daily observations are all less than 18 percent, at which time observations on a weekly basis shall resume.

ii. Upon written request by the Illinois EPA, additional opacity observations shall be conducted within 5 operating days for the BOF from the date of the request by the Illinois EPA or on the date agreed upon by the Illinois EPA, whichever is later. For

such observations conducted pursuant to a request from the Illinois EPA:

A. The Permittee shall notify the Illinois EPA at least 24 hours in advance of the date and time of these observations, in order to enable the Illinois EPA to witness the observations. This notification shall include the name and employer of the qualified observer(s).

B. The Permittee shall promptly notify the Illinois EPA of any changes in the time or date for observations.

C. The duration of these observations shall cover a complete heat or cycle of the affected BOF.

D. The Permittee shall provide a copy of the current certification for the opacity observer and observer’s readings to the Illinois EPA at the time of the observations, if the Illinois EPA personnel are present.

E. The Permittee shall keep records for all opacity measurements for the BOF made in accordance with USEPA Method 9 for the affected operations that the Permittee conducts or that are conducted at its behest by individuals who are qualified to make such observations. For each occasion on which such measurements are made, these records shall include the formal report for the measurements, a description of the measurements that were made, the operating condition of the affected operations, the observed opacity, and copies of the raw data sheets for the measurements.

iii. A. The Permittee shall determine the opacity from the BOF ESP stack for at least one hour on any normal work day that the continuous opacity monitor on the BOF ESP stack has an outage that exceeds two consecutive hours and is still down. The readings shall commence as soon as possible after the opacity monitor has been down for two consecutive hours. If meteorological conditions or lack of visibility preclude these observations from being conducted, then this shall be noted in the log book.

B. The opacity shall be determined in accordance with the observation procedures set out in 40 CFR Part 60, Appendix A, Method 9.

f. Monitoring and Collecting Data [40 CFR 63.7832]:

i. For purposes of the NESHAP, 40 CFR 63 Subpart FFFFF, except for monitoring malfunctions, out-of-control periods as specified in 40 CFR 63.8(c)(7), associated repairs, and required quality assurance or control activities (including as applicable, calibration checks and required zero and span adjustments), the Permittee shall monitor continuously (or collect data at all required intervals) at all times a subject control/capture system is operating.

ii. The Permittee may not use data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities in data averages and calculations used to report emission or operating levels or to fulfill a minimum data availability requirement, if applicable. The Permittee shall use all the data collected during all other periods in assessing compliance.

iii. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.

g. Operational Monitoring for Steam Rings from Construction Permit 10080021:

The Permittee shall install, maintain and operate a continuous monitoring system on each steam ring for the steam valve position (open or closed) and the rate at which steam is being injected.

7.5.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items pursuant to Sections 39.5(7)(a) and (e) of the Act:

a. 40 CFR 63 Subpart FFFFF (40 CFR 63.7842 and 63.7843)

i. The Permittee shall keep the following records specified in 40 CFR 63.7842 (a)(1) through (a)(3):

A. A copy of each notification and report that the Permittee submitted to comply with 40 CFR 63 Subpart FFFFF, including all documentation supporting any initial notification or notification of compliance status that the Permittee submitted, according to the requirements in 40 CFR 63.10(b)(2)(xiv).

B. The records in 40 CFR 63.6(e)(3)(iii) through (v) related to startup, shutdown, and malfunction.

C. Records of performance tests, performance evaluations, and opacity observations as required in 40 CFR 63.10(b)(2)(viii).

ii. For each COMS, the Permittee shall keep the following records specified in 40 CFR 63.7842 (b)(1) through (4):

A. Records described in 40 CFR 63.10(b)(2)(vi) through (xi).

B. Monitoring data for a performance evaluation as required in 40 CFR 63.6(h)(7)(i) and (ii).

C. Previous (that is, superseded) versions of the performance evaluation plan as required in 40 CFR 63.8(d)(3).

D. Records of the date and time that each deviation started and stopped, and whether the deviation occurred during a period of startup, shutdown, or malfunction or during another period.

iii. The Permittee shall keep the records specified in 40 CFR 63.6(h)(6) for visual observations.

iv. The Permittee shall keep the records required in 40 CFR 63.7833 and 63.7834 to show continuous compliance with each emission limitation and operation and maintenance requirement that applies to the Permittee.

v. The Permittee shall keep the records in a form suitable and readily available for expeditious review, according to 40 CFR 63.10(b)(1).

vi. As specified in 40 CFR 63.10(b)(1), the Permittee shall keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.

vii. The Permittee shall keep each record on site for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to 40 CFR 63.10(b)(1). The

Permittee may keep the records offsite for the remaining 3 years.

viii. The Permittee shall maintain a current copy of the operation and maintenance plan required in 40 CFR 63.7800(b) onsite and available for inspection upon request.

ix. A. The Permittee shall maintain a copy of the site-specific monitoring plan for each CPMS required by 40 CFR 63.7830, pursuant to 40 CFR 63.7831(a).

B. If the Permittee operates under manufacturer's specifications or manufacturer's instructions, such manufacturer's documentation shall be kept at the source as part of the required records.

b. Recordkeeping from Permits 72080043 and 95010001:

i. Operating time of the BOFs;

ii. Operating time of the capture systems and performance parameters, including air flow and fan amperage through the fan motors, gas temperature at inlet to ESP, damper settings, and steam injection rate;

iii. Operating time of the ESP and performance parameters, including voltage and amperage of each transformer/rectifier set, number of sections in use;

iv. All routine and nonroutine maintenance performed, including dates and duration of outages, inspection schedule and findings, leaks detected, repair actions, and replacements;

v. Total production of molten steel at the BOFs (daily, monthly, and annual production in tons);

vi. The Permittee shall keep a continuous strip chart recorder or disk storage of the stack gas flow rate during ESP use.

vii. The Permittee shall records for each steel production cycle the various stack gas flow rates for each process (i.e., for each charge, each refine, each tap) of each steel production cycle. That is, the Permittee shall be able to distinguish the measured flow rate of stack gas during each production cycle.

ix. Records of all opacity observations.

c. Recordkeeping carried over from Permit 08110016:

The operating and maintenance records that the Permittee maintains for the ESP shall include the following information for the induced draft fans on the ESP, in addition to other required information:

i. The periods of time when the BOFs operated with less than three properly functioning fans, with description and explanation.

ii. The periods of time when the BOFs are operating and a spare fan is not available, with the identity of the fan(s) that were not available and explanation, e.g., spare fan not available due to regularly scheduled maintenance or spare fan not available due to unplanned breakdown of the main bearings.

d. Recordkeeping for the steam rings on the BOF furnaces from Construction Permit 10080021:

i. A. The Permittee shall maintain a record of the steam valve position (open or closed) and the rate at which steam is being injected, as determined by the continuous monitoring systems required by Condition 7.5.8(g).

B. In addition to keeping records of the data measured by these monitoring systems, the Permittee shall keep records of the operation, calibration and maintenance of these systems.

ii. The Permittee shall maintain an operating log or other records for the BOF and steam rings that contain information generally documenting the steam rings are being operated in accordance with Condition 7.5.5-3(c), including information for the timing of the refining phase of each heat of a BOF furnace.

iii. The Permittee shall maintain detailed records of the following information for each heat in a BOF furnace in which the steam ring was not operated during the refining phase:

A. Identification of the heat and the duration of the incident, i.e., start time and time normal operation was achieved or the refining phase was completed.

B. Description of the incident, impact on effectiveness of the steam ring, probable cause, and corrective actions.

C. Verification that the established procedures were followed or a description and explanation why procedures were not followed.

Note: These records may be kept with other logs or records that the Permittee keeps for the BOF furnaces and their instrumentation and need not be kept as a separate record.

e. The Permittee shall keep annual records (tons/year) of steel processed at the slag skimming station, the argon stirring station and ladle metallurgy furnace station.

f. Emission Records

The Permittee shall keep the following records related to the emissions of the affected basic oxygen processes to verify compliance with the applicable limits in Conditions 7.5.6(b) through (g):

i. A file containing the emission factors used by the Permittee to determine emissions of different pollutants from such processes, with supporting documentation. These records shall be reviewed and updated by the Permittee as necessary to assure that the emission factors that it uses to determine emissions of the affected processes do not understate actual emissions, including review when emission testing is conducted for an affected process. These records shall be prepared and copies sent to the Illinois EPA in accordance with Condition 5.9.6(c), except that copies of the initial records shall be submitted to the Illinois EPA no later than August 3, 2012.

ii. Records for any periods of operation of an affected process that are not otherwise addressed in the required records during which the established emission factor in Condition 7.5.9(f)(i) would understate actual emissions of the process, with description of the period of operation and an estimate of the additional emissions during such period that are not accounted for by the established factor, with supporting explanation and calculations.

iii. Records for the annual emissions of such processes for comparison to the limits in Conditions 7.5.6(c) through (g), with supporting calculations.

iv. Records for combined annual emissions of such affected processes, based on the summation of the above data, for comparison to the limits in Condition 7.5.6(b).

g. In the operational logs or other records for the operation of the affected basic oxygen processes, the Permittee shall keep records identifying process upsets that result in the generation of additional opacity or PM emissions, such as loss of the slag cover on the molten metal in a vessel or a spill of molten metal. For these upsets, these records shall include the time of the upset, a description of the upset, and a discussion of the consequences for PM emissions from the affected basic oxygen processes.

h. Records for Malfunctions or Breakdowns

Pursuant to 35 IAC 201.263, the Permittee shall maintain records of continued operation of the affected Basic Oxygen Furnace and Ladle Metallurgy Furnace as addressed by Condition 7.5.5-2(b), during malfunctions or breakdowns, which at a minimum, shall include the following records. The preparation of these records shall be completed within 45 days of an incident, unless the Permittee conducts a root cause analysis for the incident, in which case the preparation of these records, other than the root cause analysis, shall be completed within 120 days of the incident.

i. Date, time and duration of the incident.

ii. A detailed description of the incident, including:

A. A chronology of significant events during and leading up to the incident.

B. Relevant operating data for the unit, including information such as operator log entries and directives provided by management during the incident.

C. The measures taken to reduce the quantity of emissions and the duration of the incident including the resources utilized to address the incident.

D. The magnitude of emissions during the incident.

iii. An explanation why continued operation of an affected basic oxygen furnace was necessary to prevent personnel injury or prevent equipment damage.

iv. A discussion of the cause(s) or probable cause(s) of the incident including the following,

A. Whether the incident was sudden, unavoidable, or preventable, including:

1. Why the equipment design did not prevent the incident;

2. Why better maintenance could not have avoided the incident;

3. Why better operating practices could not have avoided the incident; and

4. Why there was no advance indication for the incident.

B. Whether the incident stemmed from any activity or event that could have been foreseen, avoided or planned for.

C. Whether the incident was or is part of a recurring pattern indicative of inadequate design, operation or maintenance.

v. A description of any steps taken or to be taken to prevent similar future incidents or reduce their frequency and severity.

vi. As an alternative to keeping the records required by Condition 7.5.9(g)(iv), the Permittee may perform a root cause analysis. For this purpose, a root cause analysis is an analysis whose purpose is to determine, correct and eliminate the primary causes of the incident and the excess emissions resulting there from. If the Permittee performs a root cause analysis method that would define the problem, define all causal relationships, provide a causal path to the root cause, delineate the evidence, and provide solutions to prevent a recurrence. Such an analysis shall be completed within one year of the incident.

7.5.10 Reporting Requirements

a. 40 CFR Part 63, Subpart FFFFF (40 CFR 63.7841)

i. Compliance report due dates. Unless the Administrator has approved a different schedule, the Permittee shall submit a semiannual compliance report to the permitting authority according to the following requirements:

A. Semi-annual compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.

B. Each compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date comes first after the end of the semiannual reporting period.

ii. Compliance report contents. Each compliance report shall include the following information:

A. Company name and address.

B. Statement by a responsible official, with that official’s name, title, and signature, certifying the truth, accuracy, and completeness of the content of the report.

C. Date of report and beginning and ending dates of the reporting period.

D. If the Permittee had a startup, shutdown, or malfunction during the reporting period and the Permittee took actions consistent with the source’s startup, shutdown, and malfunction plan, the compliance report must include the information in 40 CFR 63.10(d)(5)(i).

E. If there were no deviations from the continuous compliance requirements in 40 CFR 63.7833 and 63.7834 that apply to the Permittee, a statement that there were no deviations from the emission limitations or operation and maintenance requirements during the reporting period.

F. If there were no periods during which a continuous monitoring system (including a CPMS, COMS, or continuous emission monitoring system (CEMS)) was out-of-control as specified in 40 CFR 63.8(c)(7), a statement that there were no periods during which the CPMS was out-of-control during the reporting period.

G. For each deviation from an emission limitation in 40 CFR 63.7790 that occurs at each Basic Oxygen Process where the Permittee is not using a continuous monitoring system (including a CPMS, COMS, or CEMS) to comply with an emission limitation in 40 CFR Subpart FFFFF, the compliance report must contain the information described in Condition 7.5.10(a)(ii)(A) through (F) and the following information (this includes periods of startup, shutdown, and malfunction):

1. The total operating time of each Basic Oxygen Process during the reporting period.

2. Information on the number, duration, and cause of deviations (including unknown cause, if applicable) as applicable and the corrective action taken.

H. For each deviation from an emission limitation occurring at each Basic Oxygen Furnace Process where the Permittee is using a continuous monitoring system (including a CPMS or COMS) to comply with the emission limitation in 40 CFR 63 Subpart FFFFF, the Permittee shall include the following information (this includes periods of startup, shutdown, and malfunction):

1. The date and time that each malfunction started and stopped.

2. The date and time that each continuous monitoring was inoperative, except for zero (low-level) and high-level checks.

3. The date, time, and duration that each continuous monitoring system was out-of-control as specified in 40 CFR 63.8(c)(7), including the information in 40 CFR 63.8(c)(8).

4. The date and time that each deviation started and stopped, and whether each deviation occurred during a period of startup, shutdown, or malfunction or during another period.

5. A summary of the total duration of the deviation during the reporting period and the total duration as a percent of the total source operating time during that reporting period.

6. A breakdown of the total duration of the deviations during the reporting period including those that are due to startup, shutdown, control equipment problems, process problems, other known causes, and other unknown causes.

7. A summary of the total duration of continuous monitoring system downtime during the reporting period and the total duration of continuous monitoring system downtime as a percent of the total source

operating time during the reporting period.

8. A brief description of the Basic Oxygen Processes.

9. A brief description of the continuous monitoring system.

10. The date of the latest continuous monitoring system certification or audit.

11. A description of any changes in continuous monitoring systems, processes, or controls since the last reporting period.

iii. Immediate startup, shutdown, and malfunction report. If the Permittee had a startup, shutdown, or malfunction during the semiannual reporting period that was not consistent with the source's startup, shutdown, and malfunction plan, the Permittee shall submit an immediate startup, shutdown, and malfunction report according to the requirements in 40 CFR 63.10(d)(5)(ii).

b. Monthly Opacity Exceedance Report.

Monthly opacity exceedance reports for the BOF ESP shall be sent to the Illinois EPA Regional Office. These reports shall contain all opacity measurements which exceed 30 percent, averaged over a six minute period. These "excess opacity" reports shall provide, for each such incident, the percent opacity measured as well as the date and span of such incident. These reports shall state the reasons for the excess opacity. The reports shall also specify the dates of those periods during which the continuous monitoring system was not in operation [Section 39.5(7)(f)(ii) of the Act].

c. Reporting Requirements from Permit 08110016:

After the initial year of operation (12 calendar months) of the BOF with an ESP with four fans, the Permittee shall submit a report to the Illinois EPA that evaluates the impacts of the addition of a fourth fan to the ESP on the particulate matter emissions of the BOF. This report shall, at a minimum, include the following information and address impacts on both stack emissions of particulate matter (i.e., emissions from the ESP stack) and uncaptured emissions of particulate matter (e.g., emissions from the roof monitor of the BOPF Shop). This report shall be

submitted by the end of the third month following the initial year of operation with an ESP with four fans.

i. A description of typical operating scenarios in which the availability of a spare fan resulted in a decrease in short-term emissions, with an assessment of the changes in the hourly emission rates, with supporting documentation and calculations.

ii. A description of typical operating scenarios, if any, in which the availability of a spare fan resulted in an increase in short-term emissions, with an assessment of the changes in the hourly emission rates, with supporting documentation and calculations.

iii. An assessment of the overall effect of the addition of a fourth fan on actual annual emissions of the BOF, with supporting operating data and calculations.

d. i. Pursuant to Section 39.5(7)(f)(ii) of the Act, the Permittee shall promptly notify the Illinois EPA, Air Compliance Section, within 30 days of deviations by the Basic Oxygen Furnace Processes from applicable requirements, unless a NESHAP standard specifies a different timeframe, as follows:

A. Requirements in Condition 7.5.3.

B. Requirements in Condition 7.5.5-1.

C. Requirements in Condition 7.5.5-3.

D. Requirements in Condition 7.5.6(a) through (k).

ii. All such deviations shall be summarized and reported as part of the semiannual monitoring report required by Condition 8.6.1.

iii. The Permittee shall notify the Illinois EPA, Air Compliance Section, of all other deviations as part of the semiannual monitoring reports required by Condition 8.6.1.

iv. All required deviation reports described in Condition 7.5.10(d) above shall contain the following information:

A. Date, time and duration of the deviation;

B. Description of the deviation;

C. Probable cause of the deviation; and

D. Any corrective action or preventative measures taken.

e. Reporting on malfunction and breakdown shall be performed in accordance with Condition 5.10.5-2

f. Reporting Requirements from Permit 10080021:

i. Within six months of initial startup of the steam rings on the affected BOFs, the Permittee shall submit to the Illinois EPA: 1) A Project Report; and 2) A draft of the Permittee's written operating procedures for the steam rings, as required by Condition 7.5.5-3(c), for review and comment by the Illinois EPA. This Project Report shall include the following:

A. An assessment, with supporting documentation, of the effect of the steam rings on the opacity and, as feasible, particulate loading of the exhaust from the roof monitor of the BOPF Shop during refining, correlated with the rate of steam injection and other operating parameters of the BOF's and their control system; and

B. An identification of circumstances, if any, in which the steam rings must be operated to maintain compliance with applicable emission standards.

ii. The Permittee shall submit reports to the Illinois EPA on a semi-annual basis that include the following information for the operation of the steam rings on the affected BOFs:

A. Total number of heats during the reporting period.

B. Number of heats during the reporting period without steam rings operating properly, by type of incident, e.g., breakdown of the steam ring interrupting operation, malfunction of the steam ring with insufficient steam flow, or breakdown of support system.

g. Reporting on the Federal SSM authorization shall be performed in accordance with Condition 5.10.5-3.

7.5.11 Operational Flexibility/Anticipated Operating Scenarios

The Basic Oxygen Furnaces shall only be operated as top oxygen injected vessels, except that, for purposes of checkout and emission testing only, the furnaces may be operated as peripheral and bottom oxygen injected furnaces for a maximum of

120 days. Any further operation of the furnaces as other than top oxygen injected vessels shall be pursuant to a permit granted for such additional operation [72080043].

7.5.12 Compliance Procedures

a. Compliance with the applicable standards of Condition 7.5.3 is addressed by the work practices, testing, monitoring, recordkeeping and reporting requirements in Section 7.5 of this permit.

b. Compliance with the production/emission limits of Conditions 7.5.6 and 5.6.2 is addressed by the work practices, testing monitoring, recordkeeping and reporting requirements in Sections 7.5 and 5 of this permit.

7.5.13 Compliance Schedule and Current Enforcement Status

a. The Permittee shall comply with the following schedule of compliance applicable to BOF shop emissions and established in accordance with modified Consent Order 05-CH-750 (December 23, 2009):

Commitment	Timing
Certify compliance	March 31, 2011

b. Submittal of Progress Reports

Quarterly Progress Reports shall be submitted beginning with September 2011 and ending upon the achievement of compliance. Each quarterly report shall be submitted no later than 5 days after the end of the corresponding calendar month. The Progress Report shall contain at least the following:

i. The required date for achieving commitments, and actual dates when such commitments were achieved.

ii. Any commitments accepted by the Permittee or otherwise established for the affected BOF as part of the resolution of the above referenced Consent Order, with the associated timing for each commitment.

iii. A discussion of progress in complying with commitments that are subject to future deadlines.

iv. If any commitment was not met, an explanation of why the required timeframe or commitment was not met, and any preventive or corrective measures adopted to achieve required commitment.

c. After completion of all required commitments and certification of compliance, as identified in Condition

7.5.13(a) no further Quarterly Progress Reports are required to be submitted.

7.5.14 State-Only Conditions

State-only conditions are not being established.

7.6 Continuous Casting

7.6.1 Description

There are two continuous casting lines in operation in the caster building. Ladles of molten steel are hoisted by crane and placed in revolving turrets located at the top of the casters. Each turret holds two ladles at a time. When one ladle of steel has been cast the turret is rotated and the second ladle is tapped. The empty ladle is then replaced with a full one. The tapping process involves opening the taphole located on the bottom of the ladle and allowing the molten steel to flow into an intermediate chamber called a “Tundish”. The Tundish has a taphole in the bottom through which the molten steel flows directly into the casters. The Tundish maintains a steady stream of molten steel flowing into the caster while ladles are being changed.

The molten steel from the casters continuously passes through a system of rollers and straighteners. Water is sprayed onto the slab throughout this process to complete the solidification of the slab.

Note: This narrative description is for informational purposes only and is not enforceable.

7.6.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Date Constructed	Emission Control Equipment
Continuous Casting	Steel Deslagging Station	Pre-1986	None
	Caster Molds 1 and 2	Pre-1990	None
	Casters #1 and #2: Spray Chambers	Pre-1981 (#1) Around 1988 (#2)	None
	Slab Cut-off	N/A	None
	Slab Ripping	N/A	None

7.6.3 Applicable Provisions and Regulations

a. The “affected continuous casting operations” for the purpose of these unit-specific conditions are the operations and emission units described in Conditions 7.6.1 and 7.6.2.

b. Pursuant to 35 IAC 212.458(b) and (c), the affected continuous casting operations shall comply with the following:

No person shall cause or allow emissions of PM_{10}, other than that of fugitive particulate matter, into the atmosphere to exceed the following limits during any one hour period:

i. 22.9 mg/scm (0.01 gr/scf) from any process emissions unit provided however that this limit shall not apply if there are no visible emissions, except if a stack test is performed, the absence of visible emissions is not a defense to a finding of violation [35 IAC 212.458(b)(7) and (c)]; and

ii. 5 percent opacity for continuous caster spray chambers or continuous casting operations [35 IAC 212.458(b)(8)].

Note: These standards currently do not apply to slab cut-off and slab ripping processes which are not vented through stacks.

c. Pursuant to 35 IAC 212.316(f), the affected continuous casting operations shall comply with the following:

No person shall cause or allow fugitive particulate matter emissions from any emission unit to exceed an opacity of 20 percent.

7.6.4 Non-Applicability of Regulations of Concern

a. The emission limitations of 35 IAC 212.324 are not applicable to any emission unit subject to a specific emissions standard or limitation contained in 35 IAC Part 212 Subpart R, Primary and Fabricated Metal Products and Machinery Manufacture, pursuant to 35 IAC 212.324(a)(3).

b. The affected continuous casting operations are not subject to 40 CFR Part 63 Subpart FFFFF, Integrated Iron and Steel Manufacturing, because continuous casting is not defined as part of BOPF and shop ancillary operations in 40 CFR 63.7782(c).

c. The affected continuous casting operations are not subject to 35 IAC 212.309 and 212.310 because those operations are not identified in 35 IAC 212.304 through 212.308.

7.6.5 Control Requirements and Work Practices

Pursuant to 35 IAC 212.450, particulate matter emissions from liquid steel charging in continuous casting operations shall be controlled by chemical or mechanical shrouds.

7.6.6 Production and Emission Limits from Permit 95010001 [T1]:

a. Emissions from Deslagging Station and associated Material Handling System (see Section 7.1) shall not exceed the following limits:

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00355	6.35
PM_{10}	0.00355	6.35

b. Emissions from Caster Molds – Casting shall not exceed the following limits:

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.006	10.74
PM_{10}	0.006	10.74
NO_x	0.050	89.50

c. Emissions from Casters Spray Chambers shall not exceed the following limits:

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00852	15.25
PM_{10}	0.00852	15.25

d. Emissions from Slab Cut-off shall not exceed the following limits:

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.0071	12.71
PM_{10}	0.0071	12.71

e. Emissions from Slab Ripping shall not exceed the following limits:

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00722	12.92
PM_{10}	0.00722	12.92

f. Total Emissions from Continuous Casting operations shall not exceed the following limits:

	PM (Tons/Yr)	PM_{10} (Tons/Yr)	NO_x (Tons/Yr)
Continuous Casting Operations	71	71	90.0

g. Compliance with annual limits shall be determined on a calendar year basis [T1].

7.6.7 Testing Requirements

a. The Permittee shall conduct opacity observations for the affected continuous casting operations as specified below [Sections 39.5(7)(d) and (p) of the Act]:

i. Semi-annual observations shall be performed by a qualified observer in accordance with USEPA Method 9 for each spray chamber stack and continuous caster building openings while the casters are operating. The duration of opacity observations for each stack and the building shall be at least 30 minutes unless no visible emissions are observed from a stack or the building during the first 12 minutes of observations.

ii. Upon written request by the Illinois EPA, additional opacity observations shall be conducted within 5 operating days from the date of the request or by the date agreed upon by the Illinois EPA, whichever is later. For these observations:

A. The Permittee shall notify the Illinois EPA at least 24 hours in advance of the date and time of these observations, in order to enable the Illinois EPA to witness the observations. This notification shall include the name and employer of the qualified observer(s).

B. The Permittee shall promptly notify the Illinois EPA of any changes in the time or date for observations.

C. The duration of these observations shall be three hours for each spray chamber stack.

D. The Permittee shall provide a copy of the current certification for the opacity observer and observer’s readings to the Illinois EPA at the time of the observations, if the Illinois EPA personnel are present.

b. The Permittee shall have emission tests conducted for the PM/PM_{10} emissions of the spray chambers of the affected continuous casting operations as specified below to verify

compliance with emission limits in Condition 7.6.6(c) [Sections 39.5(7)(d) and (p) of the Act]:

i. A. Emission testing shall be conducted within 30 months of the effective date of this permit condition. This testing shall be conducted for one caster as selected by the Illinois EPA.

B. Upon written request from the Illinois EPA, additional emission testing shall be conducted within 90 operating days from the date of the request or by the date agreed upon by the Illinois EPA, whichever is later.

ii. The following USEPA test methods shall be used for this testing, unless another USEPA method is approved by the Illinois EPA:

A.	Location of Sample Points	Method 1
B.	Gas Flow and Velocity	Method 2
C.	Flue Gas Weight	Method 3
D.	Moisture	Method 4
E.	PM/PM_{10}	Methods 5, 201 or 201A

iii. Observations for visible emissions and opacity shall be conducted during all emission tests in accordance with USEPA Methods 22 and 9, respectively, and the results of these observations included in the reports for emission testing.

iv. For this emission testing, test notifications and reporting shall be done by the Permittee in accordance with Conditions 8.6.2 and 8.6.3 of this permit.

7.6.8 Monitoring Requirements

The Permittee shall perform monthly inspections of the continuous casting operations. These inspections shall include [Sections 39.5(7)(a) and (d) of the Act]:

a. Inspection of the mechanical shrouds on the continuous casting operations to ensure their physical presence and integrity.

b. Observations for visible emissions from stacks conducted in accordance with Method 22. If visible emissions are observed, opacity observations by Method 9 shall be conducted within one week.

7.6.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items for the affected continuous casting operations, pursuant to Sections 39.5(7)(a) and (e) of the Act:

a. Amount of steel cast (ton/mo and ton/yr).

b. The Permittee shall maintain records of the inspections required by Condition 7.6.8.

c. The Permittee shall keep the following records related to the emissions of the affected continuous casting operations:

i. A file containing the emission factors used by the Permittee to determine emissions of different pollutants from the various affected operations, with supporting documentation. These records shall be reviewed and updated by the Permittee as necessary to assure that the emission factors that it uses to determine emissions of the affected operations do not understate actual emissions. These records shall be prepared and copies sent to the Illinois EPA in accordance with Condition 5.9.6(c).

ii. Records for any periods of operation of an affected operations that are not otherwise addressed in the required records during which the established emission factor in Condition 7.6.9(c)(i) would understate actual emissions, with description of the period of operation and an estimate of the additional emissions during such period that would not be accounted for by the established factor, with supporting explanation and calculations.

iii. Records for the annual emissions of the various affected operations for comparison to the limits in Conditions 7.6.6(a) through (e), with supporting calculations.

iv. Records for combined annual emissions of the affected continuous casting operations, based on the summation of the above data, for comparison to the limits in Condition 7.6.6(f).

d. The Permittee shall keep records for all opacity readings for the affected continuous casting operations conducted in accordance with Condition 7.6.7.

7.6.10 Reporting Requirements

a. i. Pursuant to Section 39.5(7)(f)(ii) of the Act, the Permittee shall promptly notify the Illinois EPA, Air Compliance Section, within 30 days of deviations by

the affected continuous casting operations from applicable requirements, as follows:

A. Requirements in Condition 7.6.3(b) and (c).

B. Requirements in Condition 7.6.6.

ii. All such deviations shall be summarized and reported as part of the semiannual monitoring report required by Condition 8.6.1.

b. The Permittee shall notify the Illinois EPA, Air Compliance Section, of all other deviations as part of the semiannual monitoring reports required by Condition 8.6.1.

c. All deviation reports described in Condition 7.6.10 above shall contain the following:

i. Date, time and duration of the deviation;

ii. Description of the deviation;

iii. Probable cause of the deviation; and

iv. Any corrective action or preventive measures taken.

7.6.11 Operational Flexibility/Anticipated Operating Scenarios

Operational flexibility is not set for the affected continuous casting operations.

7.6.12 Compliance Procedures

For affected continuous casting, compliance with the applicable standards of Conditions 7.6.3(b) and (c) and with the limitations of Condition 7.6.6 is addressed by the work practices, testing, monitoring, recordkeeping and reporting requirements in Section 7.6 of this permit.

7.6.13 State-Only Conditions

State-only conditions are not being established.

7.7 Hot Strip Mill Reheat Furnaces

7.7.1 Description

Steel slabs are heated in the slab reheat furnaces, so they can be formed further in the facility's hot strip mill. Some of the slabs are shipped to the facility from outside suppliers.

The following fuels or combination of these fuels are fired by all the four furnaces: natural gas and coke oven gas (COG). In the past, the reheat furnaces also fired oil, but they no longer have that capability.

Note: This narrative description is for informational purposes only and is not enforceable.

7.7.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Date Constructed	Emission Control Equipment
Reheat Furnaces	Slab Reheat Furnaces #1, #2 & #3 equipped with low-NO_x burners Nominal firing rate: 322 mmBtu/hr each	Pre-1972	None
	Slab Reheat Furnace #4 equipped with low-NO_x burners Nominal firing rate: 495 mmBtu/hr	Pre-1977	None

7.7.3 Applicable Provisions and Regulations

a. The "affected slab reheat furnaces" for the purpose of these unit-specific conditions, are the emission/production units as described in Conditions 7.7.1 and 7.7.2 above.

b. The affected slab reheat furnaces are subject to 35 IAC 212.458(b)(10) and (c), which provide that no person shall cause or allow emissions of PM_{10}, other than that of fugitive particulate matter, into the atmosphere to exceed 38.7 ng/J (0.09 lbs/mmBtu) of heat input from the slab furnaces at steel plants in the vicinity of Granite City during any one hour period, provided however that this limit shall not apply if there are no visible emissions, except if a stack test is performed, the absence of visible emissions is not a defense to a finding of violation.

c. The affected slab reheat furnace #4 is subject to 35 IAC 212.321(a), which provides that:

No person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any new process emission unit, which either alone or in combination with the emission of particulate matter from all other similar process emission units for which construction or modification commenced on or after April 14, 1972, at a source or premises, exceeds the allowable emission rates specified in 35 IAC 212.321(c) (See also Attachment 2) [35 IAC 212.321(a)].

d. The affected slab reheat furnaces #1, #2 and #3 are subject to 35 IAC 212.322(a), which provides that:

No person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any process emission unit for which construction or modification commenced prior to April 14, 1972, which, either alone or in combination with the emission of particulate matter from all other similar existing process emission units at a source or premises, exceeds the allowable emission rates specified in 35 IAC 212.322(c) (See also Attachment 2) [35 IAC 212.322(a)].

e. Pursuant to 35 IAC 214.301, the affected slab reheat furnaces shall comply with the following: no person shall cause or allow the emission of sulfur dioxide into the atmosphere from any process emission source to exceed 2000 ppm.

f. Pursuant to 35 IAC 212.123(a), the affected slab reheat furnaces shall comply with the following: no person shall cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere from any emission unit other than those emission units subject to the requirements of 35 IAC 212.122, except as allowed by 35 IAC 212.123(b) and 212.124.

g. Pursuant to 35 IAC 212.458(b)(7) and (c), the affected slab reheat furnaces shall comply with the following:

No person shall cause or allow emissions of PM_{10}, other than that of fugitive particulate matter, into the atmosphere to exceed the following limits during any one hour period:

22.9 mg/scm (0.01 gr/scf) from any process emissions unit provided however that this limit shall not apply if there are no visible emissions, except if a stack test is performed, the absence of visible emissions is not a defense to a finding of violation [35 IAC 212.458(b)(7) and (c)].

7.7.4 Non-Applicability of Regulations of Concern

a. The emission limitations of 35 IAC 212.324 are not applicable to the affected slab reheat furnaces, because

they are subject to a specific emissions standard or limitation contained in 35 IAC Part 212 Subpart R, pursuant to 35 IAC 212.324 (a)(3).

b. The affected slab reheat furnaces are not subject to 40 CFR Part 63 Subpart FFFFF, Integrated Iron and Steel Manufacturing, because reheat furnaces are not covered by this NESHAP [see 40 CFR 63.7782(c)].

c. This permit is issued based on the Permittee not being subject to the work practice and recordkeeping requirements of 35 IAC 212.324(f) because the affected slab reheat furnaces do not use air pollution control equipment for particulate matter.

7.7.5 Startup Provisions

a. Pursuant to 35 IAC 201.149 and Part 201 Subpart I, subject to the following terms and conditions for affected slab reheat furnaces, the Permittee is authorized to violate the applicable opacity standards in 35 IAC 212.123(a) of Condition 7.7.3(f) during startup.

Note: This authorization is provided because the Permittee applied for such authorization in its CAAPP application, generally describing the efforts that will be used "…to minimize startup emissions, duration of individual starts, and frequency of startups".

i. This authorization does not relieve the Permittee from the continuing obligation to demonstrate that all reasonable efforts are made to minimize startup emissions, duration of individual startups and frequency of startups.

ii. The Permittee shall conduct startup of the affected slab reheat furnaces in accordance with written procedures prepared by the Permittee and maintained at the source (see Condition 7.7.10(d)(i)) for the affected slab reheat furnaces, that are specifically developed to minimize emissions from startups and that include, at a minimum:

A. A review of the operational condition of the affected reheat furnaces prior to initiating startup of the furnaces;

B. Initiation of startups to provide adequate time to implement the established startup procedures;

C. Sequential startup of the burners in the different zones of each furnace; and

D. Temperature levels achieved during startup.

iii. The Permittee shall fulfill applicable recordkeeping of Condition 7.7.10(d).

iv. The Permittee shall fulfill applicable reporting of Condition 5.10.5-1.

b. As provided by 35 IAC 201.265, an authorization in a permit for excess emissions during startup does not shield a Permittee from enforcement for any violation of applicable emission standard(s) that occurs during startup and only constitutes a prima facie defense to such an enforcement action provided that the Permittee has fully complied with all terms and conditions connected with such authorization.

7.7.6 Control Requirements and Work Practices

a. Pursuant to Permit 06070022, the affected slab reheat furnaces shall be equipped, operated, and maintained with low NO_x burners. The low NO_x burners shall be operated and maintained in conformance with good air pollution control practices. These low-NO_x burners shall be operated in the following zones of the affected slab reheat furnace [T1R]:

i. Slab reheat furnaces #1 through #3: heat and intermediate zones; and

ii. Slab reheat furnace #4: heat zone.

b. The affected slab reheat furnaces are allowed to burn natural gas and coke oven gas only as a fuel [Section 39.5(7)(a)of the Act].

7.7.7 Operating and Emission Limits

The following operating and emission limits are established for the affected slab reheat furnaces [06070022, T1]:

a. Operation of the affected slab reheat furnaces shall not exceed the following limits:

Emission Unit	Total Gas Usage (mmBtu/year)	COG Usage (mmBtu/year)
Slab Reheat Furnace #3	1,654,304	1,187,790
Slab Reheat Furnace #4	2,206,238	1,544,367
Total (Furnaces 1-4)	7,169,150	2,421,388

b. Emissions of NO_x from the affected slab reheat furnaces shall not exceed the following limits:

Furnace	Limit (Lbs/mmBtu)
Slab Reheat Furnace #1	0.150
Slab Reheat Furnace #2	0.150
Slab Reheat Furnace #3	0.264
Slab Reheat Furnace #4	0.283

c. Emissions of NO_x from the affected slab reheat furnaces (combined) shall not exceed 73 tons/month and 724.09 tons/year.

d. Compliance with above annual limits shall be determined from a running total of 12 months of data.

7.7.8 Testing Requirements

a. Pursuant to Section 39.5(7)(d) and (p) of the Act, the Permittee shall conduct a performance test on each affected slab reheat furnace within 18 months of the effective date of this permit condition and furnish the Illinois EPA a written report of the results of such test(s).

i. These tests shall be conducted while the reheat furnace is firing COG at the maximum level in the normal mix of fuel for the furnace.

ii. The following methods and procedures shall be used for testing of emissions, unless another method is approved by the Illinois EPA: Refer to 40 CFR 60, Appendix A, for USEPA test methods.

Location of Sample Points	USEPA Method 1
Gas Flow and Velocity	USEPA Method 2
Flue Gas Weight	USEPA Method 3
Moisture	USEPA Method 4
NO_x	USEPA Method 7E or 19

b. The Permittee shall conduct tests for PM/PM_{10} and NO_x emissions of the affected reheat furnaces upon written request from the Illinois EPA, for furnace(s) and fuel mix, as specified in the request. This testing shall be completed within 90 days of the request of by such later date agreed to by the Illinois EPA. For NO_x, this testing shall be conducted in accordance with Condition 7.7.8(a)(i). For PM/PM_{10}, testing shall be conducted using USEPA Test Methods as specified in 35 IAC 212.108(a).

c. For all required emission tests, the Permittee shall conduct opacity observations in accordance with USEPA Method 9 during each run and report the results in the test report. The duration of observations for each run shall be 30-minutes unless visible emissions are not observed during

the first 12 minutes. Notwithstanding the above, if weather conditions during the period of testing are not suitable for conducting opacity observations, observations may be conducted within 48 hours of the time of testing, in which case, the duration of observations shall be 3 hours unless visible emissions are not observed during the first 36 minutes of observations.

d. With the reports for all emission testing, the Permittee shall also provide the sulfur content of the COG being combusted during the period of testing, as measured by the monitoring system for COG, and sulfur content of the mixed fuel combusted during the period of testing, with supporting calculations.

e. For this emission testing, test notifications and reporting shall be done by the Permittee in accordance with Conditions 8.6.2 and 8.6.3 of this permit.

7.7.9 Monitoring Requirements

The affected slab reheat furnaces are subject to the following monitoring requirements, pursuant to Sections 39.5(7)(a) and (d) of the Act:

a. The Permittee shall conduct opacity observations for each affected slab reheat furnace on a semi-annual basis, in accordance with USEPA Method 9, for a minimum of 30 minutes per furnace, unless no visible emissions are observed during the first 12 minutes of observations. The results of these observations shall be reported to the Illinois EPA within 45 days after each observation is conducted.

b. Unless annual performance tests or continuous monitoring for emissions of NO_x is being conducted for an affected slab reheat furnace pursuant to 35 IAC Part 217, Subpart D, the Permittee shall perform combustion evaluations/inspections of the burners on each affected slab reheat furnace on a regular basis, including inspections of the various components of the burner for their condition and proper functioning, and diagnostic measures of the NO_x concentration in the exhaust of the furnace before and after performance evaluation. These inspections/evaluations shall be conducted on a semi-annual basis if accommodated by the schedule for maintenance outages on an affected furnace, and otherwise on at least an annual basis.

7.7.10 Recordkeeping Requirements

The Permittee shall maintain records of the following items for the affected slab reheat furnaces, pursuant to Sections 39.5(7)(a) and (e) of the Act:

a. i. Records for heat input:

A. For COG (mmBtu/month and mmBtu/year) for all affected slab reheat furnaces (combined) and for furnaces #3 and #4 (individually).

B. For natural gas (mmBtu/month and mmBtu/year) for all affected slab reheat furnaces (combined) and for furnaces #3 and #4 (individually).

ii. Records for the amount for each type of fuel used (mmscf/mo).

b. A log or other records that will serve to identify the fuel or fuels being fired during each hour in each affected reheat furnace:

i. For furnaces # 1, 2 and 3, whether natural gas or COG is being fired.

ii. For furnace #4, the setting for the mix of natural gas and COG that is being fired.

c. Records for all emission tests and opacity observations for the affected slab reheat furnaces.

d. Records for Startups of Affected Slab reheat furnaces, pursuant to Section 39.5(7)(b) of the Act

i. The Permittee shall maintain startup procedures for each affected slab reheat furnace, as required by Condition 7.7.5(a)(ii).

ii. The Permittee shall maintain the following records for each startup of an affected furnace:

A. Date, time and duration of the startup.

B. A description of the startup and reason(s) for the startup.

C. Whether a violation of an applicable standard may have occurred during startup accompanied by the information in Condition 7.7.9(d)(iv) if a violation may have or did occur.

D. Whether the established startup procedures, maintained above, were followed accompanied by the information in Condition 7.7.9(d)(iii) if there were departure(s) from those procedures.

iii. If the established startup procedures were not followed during a startup, the Permittee shall maintain the following records:

A. A description of the departure(s) from the established procedures.

B. The reason(s) for the departure(s) from the established procedures.

C. An explanation of the consequences of the departure(s) for emissions, such as whether the departure(s) prolonged the startup or resulted in additional emissions, and if so,

1. The actions taken to minimize emissions and the duration of the startup; and

2. An explanation whether similar incidents might be prevented in the future and if so, the corrective actions taken or to be taken to prevent similar incidents.

iv. If a violation did or may have occurred during a startup, the Permittee shall maintain the following records:

A. Identification of the applicable standard(s) that were or may have been violated.

B. An explanation of the nature of such violation(s), including the magnitude of such excess emissions.

C. A description of the actions taken to minimize the magnitude of emissions and duration of the startup.

D. An explanation whether similar incidents could be prevented or ameliorated in the future and if so, a description of the actions taken or to be taken to prevent similar incidents in the future.

e. A maintenance and repair log for each affected slab reheat furnace, listing each activity performed with date.

f. The following records related to the emissions of PM/PM_{10}, SO_2, and NO_x from the affected slab reheat furnaces:

i. A file containing the emission factors used by the Permittee to determine emissions of pollutants other than SO_2 from the affected slab reheat furnaces, with supporting documentation. These records shall be reviewed and updated by the Permittee as necessary to assure that the emission factors that it uses to determine emissions of the affected furnace do not understate actual emissions. These records shall be

prepared and copies sent to the Illinois EPA in accordance with Condition 5.9.6(c).

ii. If different emission factors are used for furnaces #1 and #2, records for the individual usage of fuels by these furnaces (scf/month and scf/year).

iii. Records of emissions of PM/PM_{10}, SO_2, NO_x from the affected slab reheat furnaces (tons/month and tons/year), with supporting calculations.

7.7.11 Reporting Requirements

a. i. Pursuant to Section 39.5(7)(f)(ii) of the Act, the Permittee shall promptly notify the Illinois EPA, Air Compliance Section, within 30 days of deviations by the affected slab reheat furnaces from applicable requirements, as follows:

A. Requirements in Condition 7.7.3(b) through (f).

B. Requirements in Condition 7.7.6.

C. Requirements in Condition 7.7.7.

ii. All such deviations shall be summarized and reported as part of the semiannual monitoring report required by Condition 8.6.1.

b. The Permittee shall notify the Illinois EPA, Air Compliance Section, of all other deviations as part of the semiannual monitoring reports required by Condition 8.6.1.

c. All deviation reports described in Condition 7.7.11 above shall contain the following:

i. Date, time and duration of the deviation;

ii. Description of the deviation;

iii. Probable cause of the deviation; and

v. Any corrective action or preventive measures taken.

d. Reporting on the State startup authorization shall be performed in accordance with Condition 5.10.5-1.

7.7.12 Operational Flexibility/Anticipated Operating Scenarios

No operational flexibility has been established for the affected slab reheat furnaces.

7.7.13 Compliance Procedures

For affected slab reheat furnaces, compliance with the applicable standards of Condition 7.7.3 and with the operating and emission limits of Condition 7.7.7 is addressed by the work practices, testing, monitoring, recordkeeping and reporting requirements in Section 7.7 of this permit.

7.7.14 State-Only Conditions

Pursuant to 35 IAC 217.150, 217.152, and 217.160, by the applicable compliance date for 35 IAC Part 217 Subparts D and I, the Permittee shall comply with applicable requirements of these rules for the affected slab reheat furnaces, including:

a. Certifying to the Illinois EPA that the affected slab reheat furnaces will be in compliance with the applicable emission limitation(s) of 35 IAC 217.244(a) by the applicable compliance date.

b. Operation of each affected slab reheat furnaces in a manner consistent with good air pollution control practices to minimize NO_x emissions,

c. Compliance with the applicable NO_x emission limitation(s) in accordance with 35 IAC 217.154 or 217.157.

d. Compliance with the applicable monitoring, recordkeeping and reporting requirements in accordance with 35 IAC 217.157(b) and 217.156.

7.8 Finishing Operations

7.8.1 Description

Pickling Line:

Coils are processed in this unit to clean the steel and prepare it for other treatments such as cold rolling or galvanizing. At the start of the pickling line, the coils are unwound and the leading edge of each coil is trimmed off square. The leading edge of each coil is then spot (resistance) welded to the trailing edge of the previous coil. By joining the coils in this manner the pickling line runs a continuous ribbon of steel and does not need to be taken out of production to reload. After the steel coils are joined the steel is passed through an acid bath. This acid bath consists of four dip tanks arranged in series and uses a solution of hydrochloric acid and water to clean the surfaces of the steel sheet. A scrubbing system with mist eliminator is used to control hydrogen chloride emissions from this process. When the steel comes out of the fourth acid dip tank it is passed through a cold rinse tank in which cool water is used to rinse the acid off of the steel. The next step is to pass the steel through a hot rinse tank. In this tank hot water is used to rinse any remaining acid away from the steel and to raise the temperature of the steel to speed the drying process. The steel is then passed through a hot air dryer to complete the drying process. The steel that is to be shipped is coated with oil immediately prior to recoiling to inhibit corrosion. In the final step of the pickling process, the steel is recoiled.

Galvanizing Line Steel Preparation:

Steel coils that are to be galvanized in this unit are first joined end to end by spot (resistance) welding the leading edge of one coil to the trailing edge of another coil. The steel is then passed through a rinse station where it is rinsed with either a weak alkaline solution or a weak acid solution. The purpose of this rinse is to clean the steel and break down any oils that may be on the surfaces. The emissions from this unit are exhausted to a packed column wet scrubber. After cleaning and rinsing the steel is dried by a steam dryer.

Galvanizing Line Finishing Processes:

After the steel is coated with zinc, it is cooled and then dipped into a “Chem-treat” bath. This non-organic chemical puts a layer of rust-preventative on the steel. The steel is coated with oil to protect the surfaces, recoiled, and sprayed with edge sealer (oil) to protect the edges of the steel. The oil applied to the steel is a light petroleum based oil used to inhibit corrosion. Edge sealers are oils used to protect the edges of the steel and inhibit corrosion.

Note: This narrative description is for informational purposes only and is not enforceable.

7.8.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Date Constructed	Emission Control Equipment
Finishing Operations	HCL Pickling Line	Pre-1973	Two Fume Scrubbers
	Galvanizing Line #7A; the line is comprised of the following significant components: • Cleaner section • Natural Gas furnace • Galvanizing pot • Miscellaneous heaters	Pre-1973	Fume Scrubber
	Galvanizing Line #8; the line is comprised of the following significant components: • Cleaner Section (with fume scrubber) • Natural gas fired Furnace (with NO_x catalytic converter) • 2 Galvanizing Pots • Space Heaters • Miscellaneous Heaters • Melting Kettle Building and Storage Areas Heaters	1995	Fume Scrubber; NO_x catalytic converter
	Coating Operations	Pre-1973	None

7.8.3 Applicable Provisions and Regulations

a. The “affected finishing operations” for the purpose of these unit-specific conditions, are the emission units described in Conditions 7.8.1 and 7.8.2.

b. Pursuant to 35 IAC 212.458(b)(7) and (c), the affected finishing operations shall comply with the following:

No person shall cause or allow emissions of PM_{10}, other than that of fugitive particulate matter, into the atmosphere to exceed the following limits during any one hour period:

22.9 mg/scm (0.01 gr/scf) from any process emissions unit provided however that this limit shall not apply if there are no visible emissions, except if a stack test is performed. The absence of visible emissions is not a defense to a finding of violation [35 IAC 212.458(b)(7) and (c)]

c. The following process emission units in the affected finishing operation constructed or modified prior to April 14, 1972 are subject to IAC 212.322(a): cleaner section and galvanizing pot of Galvanizing Line #7A and coating operations. No person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any process emission unit for which construction or modification commenced prior to April 14, 1972, which, either alone or in combination with the emission of particulate matter from all other similar process emission units at a source or premises, exceeds the allowable emission rates specified in subsection (c) of 35 IAC 212.322 (see also Attachment 2) [35 IAC 212.322(a)].

d. The following process emission units in the affected finishing operation constructed or modified on or after April 14, 1972 are subject to IAC 212.321(a): cleaner section, two galvanizing pots and the melting kettle of Galvanizing Line #8. No person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any process emission unit for which construction or modification commenced on or after April 14, 1972, which, either alone or in combination with the emission of particulate matter from all other similar process emission units at a source or premises, exceeds the allowable emission rates specified in subsection (c) of 35 IAC 212.321 (see also Attachment 2) [35 IAC 212.321(a)].

e. Coating operations performed as part of the affected finishing operations are subject to 35 IAC 219.204, with which the Permittee must comply by application of compliant coating as established by 35 IAC 219.204(d) for coil coating:

i. No owner or operator of an affected coil coating operation shall apply at any time any coating in which the VOM content exceeds the following emission limitations. The following emission limitation is expressed in units of VOM per volume of coating (minus water and any compounds which are specifically exempted from the definition of VOM) as applied at each coating applicator:

kg/l	lb/gal
0.20	1.7

ii. Compounds which are specifically exempted from the definition of VOM should be treated as water for the purpose of calculating the “less water” part of the coating composites.

f. The HCL pickling line operates as a part of the affected finishing operations and is subject to 40 CFR Part 63 Subpart CCC “National Emission Standards for Hazardous Air Pollutants for Steel Pickling—HCl Process Facilities and Hydrochloric Acid Regeneration Plants”. Specific requirements of Subpart CCC are set forth later in this subsection.

g. Pursuant to 35 IAC 212.123(a), no person shall cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere from any emission unit other than those emission units subject to the requirements of 35 IAC 212.122, except as allowed by 35 IAC 212.123(b) and 212.124.

7.8.4 Non-Applicability of Regulations of Concern

a. The emission limitations of 35 IAC 212.324 are not applicable to any emission unit subject to a specific emissions standard or limitation contained in 35 IAC Part 212 Subpart R, pursuant to 35 IAC 212.324 (a)(3).

b. This permit is issued based on the coating operations operated as a part of the affected finishing operations not being subject to 40 CFR 63 Subpart SSSS “National Emission Standards for Hazardous Air Pollutants: Surface Coating of Metal Coil” pursuant to the definition of coating used by Subpart SSSS (Decorative, protective, or functional materials that consist only of solvents, protective oils, acids, bases, or any combination of these substances are not considered coatings for the purposes of Subpart SSSS).

c. This permit is issued based on the coating operations operated as a part of the affected finishing operations not being subject to 40 CFR 63 Subpart MMMM “National Emission Standards for Hazardous Air Pollutants for Surface Coating of Miscellaneous Metal Parts and Products” pursuant to definition of coating used by Subpart MMMM (Decorative, protective, or functional materials that consist only of solvents, protective oils, acids, bases, or any combination of these substances are not considered coatings for the purposes of Subpart MMMM).

d. The pickling operations are not subject to 35 IAC 212.321 or 212.322 pursuant to 35 IAC 266.190.

7.8.5-1 NESHAP Emission Standards

a. The affected pickling line is subject to 40 CFR 63.1157(a), which provides that no owner or operator of an existing affected continuous or batch pickling line at a steel pickling facility shall cause or allow to be discharged into the atmosphere from such line:

i. Any gases that contain HCl in a concentration in excess of 18 parts per million by volume (ppmv); or

ii. HCl at a mass emission rate that corresponds to a collection efficiency of less than 97 percent.

b. This standard shall apply at all times, including startup, shutdown and malfunction/breakdown, as 40 CFR 63.6(f) has been vacated.

7.8.5-2 NESHAP Work Practices (Galvanizing Lines)

Affected Galvanizing Furnaces #7A and #8 as well as miscellaneous heaters on Galvanizing Line #8 are subject to the NESHAP, 40 CFR Part 63, Subpart DDDDD. Pursuant to 40 CFR 63.7499, these affected units are in the Gas 1 Subcategory for purposes of this NESHAP, as they only burn natural gas.

a. Beginning on of the compliance date of this NESHAP, the Permittee must conduct a tune-up on each affected unit as follows:

i. For Galvanizing Furnaces #7A and #8, the Permittee must conduct a tune-up of each furnace annually [40 CFR 63.7540(a)(10)].

ii. For miscellaneous heaters on galvanizing line #8, the Permittee must conduct a biennial tune-up of each heater [40 CFR 63.7540(a)(11)].

iii. If a unit is not operating on the required date for a tune-up, the tune-up must be conducted within one week of startup [40 CFR 63.7540(a)(12)].

b. Pursuant to 40 CFR 63.7540(a)(10), each required tune-up shall consist of the following:

i. As applicable, inspect the burner, and clean or replace any components of the burner as necessary (the burner inspection may be delayed until the next scheduled unit shutdown, but each burner must be inspected at least once every 36 months) [40 CFR 63.7640(a)(10)(i)];

ii. Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern. The adjustment should be consistent with the manufacturer's specifications, if available [40 CFR 63.7640(a)(10)(ii)];

iii. Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure that it is correctly calibrated and functioning properly [40 CFR 63.7640(a)(10)(iii)];

iv. Optimize total emissions of CO. This optimization should be consistent with the manufacturer's specifications, if available [40 CFR 63.7640(a)(10)(iv)];

v. Measure the concentrations in the effluent stream of CO in parts per million, by volume (ppmv), and oxygen in volume percent, before and after the adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made) [40 CFR 63.7640(a)(10)(v)].

c. Pursuant to 40 CFR 63.7640(a)(10)(vi), the Permittee shall maintain on-site and submit, if requested by the Illinois EPA, an annual report containing the following for the required tune-ups:

i. The concentrations of CO in the effluent stream in ppmv, and oxygen in volume percent, measured before and after the adjustments of the furnace;

ii. A description of any corrective actions taken as a part of the combustion adjustment; and

iii. The type and amount of fuel used over the 12 months prior to the annual adjustment, but only if the unit was physically and legally capable of using more than one type of fuel during that period. Units sharing a fuel meter may estimate the fuel use by each unit.

7.8.6 Control Requirements and Work Practices

a. Hydrochloric acid storage vessels. The owner or operator of an affected vessel shall provide and operate, except during loading and unloading of acid, a closed-vent system for each vessel. Loading and unloading shall be conducted either through enclosed lines or each point where the acid is exposed to the atmosphere shall be equipped with a local fume capture system, ventilated through an air pollution control device [40 CFR 63.1159(b)].

Note: HCL storage tanks associated with the affected pickling line are insignificant activities addressed in

Section 3.0 of this permit. Loading and unloading is currently conducted through enclosed lines.

b. Maintenance requirements [40 CFR 63.1160(b)]

i. The Permittee shall comply with the operation and maintenance requirements prescribed under 40 CFR 63.6(e) for the HCL pickling line.

ii. In addition to the requirements specified in 40 CFR 63.6(e), the Permittee shall operate in accordance with an operation and maintenance plan that it prepares for each emission control device. Such plan shall be consistent with good maintenance practices and, for a scrubber emission control device, shall at a minimum address the following:

A. Require monitoring and recording the pressure drop across the scrubber once per shift while the scrubber is operating in order to identify changes that may indicate a need for maintenance;

B. Require the manufacturer’s recommended maintenance at the recommended intervals on fresh solvent pumps, re-circulating pumps, discharge pumps, and other liquid pumps, in addition to exhaust system and scrubber fans and motors associated with those pumps and fans;

C. Require cleaning of the scrubber internals and mist eliminators at intervals sufficient to prevent buildup of solids or other fouling;

D. Require an inspection of each scrubber at intervals of no less than 3 months with:

1. Cleaning or replacement of any plugged spray nozzles or other liquid delivery devices;

2. Repair or replacement of missing, misaligned, or damaged baffles, trays, or other internal components;

3. Repair or replacement of droplet eliminator elements as needed;

4. Repair or replacement of heat exchanger elements used to control the temperature of fluids entering or leaving the scrubber; and

5. Adjustment of damper settings for consistency with the required air flow.

E. If the scrubber is not equipped with a viewport or access hatch allowing visual inspection, alternate means of inspection approved by the Administrator may be used.

F. The owner or operator shall initiate procedures for corrective action within 1 working day of detection of an operating problem and complete all corrective actions as soon as practicable. Procedures to be initiated are the applicable actions that are specified in the maintenance plan. Failure to initiate or provide appropriate repair, replacement, or other corrective action is a violation of the maintenance requirement of 40 CFR 63, Subpart CCC.

G. The owner or operator shall maintain a record of each inspection, including each item identified in 40 CFR 63.1160(b)(2)(iv), that is signed by the responsible maintenance official and that shows the date of each inspection, the problem identified, a description of the repair, replacement, or other corrective action taken, and the date of the repair, replacement, or other corrective action taken.

7.8.7 Production and Emission Limits from Permit 95010005 [T1].

a. The operation of Galvanizing Line #8 shall not exceed the following [T1]:

i. The maximum firing rate of the furnace shall not exceed 54.6 million British thermal units (mmBtu) per hour.

ii. The maximum firing rate of each of the five space heaters shall not exceed 3.44 mmBtu/hour.

iii. The total combined maximum firing rate of the building and storage area heaters shall not exceed 9.84 mmBtu/hour.

iv. The total combined natural gas usage of the 11 miscellaneous heaters shall not exceed 21,895 ft^3/hour and 191.8 million ft^3/year.

v. The operation of the melting kettle shall not exceed 32,000 tons of product/month and 384,000 tons of product/year.

b. The emissions of Galvanizing Line #8 shall not exceed the following [T1]:

i. Furnace

A. The NO_x emissions of the furnace shall not exceed 2.07 lbs/hour and 9.04 tons/year.

B. Emissions of other pollutants from the furnace shall not exceed the following limits:

Carbon Monoxide:	8.37 tons/year
Particulate Matter:	0.72 tons/year
PM_{10}:	0.72 tons/year
VOM:	0.67 tons/year
SO_2:	0.14 tons/year

ii. Five Space Heaters (total)

A. The total combined NO_x emissions of the 5 space heaters shall not exceed 1.69 lbs/hour and 7.39 tons/year.

B. Total emissions of other pollutants from the 5 space heaters shall not exceed the following limits:

Carbon Monoxide:	1.48 tons/year
Particulate Matter:	0.22 tons/year
PM_{10}:	0.22 tons/year
VOM:	0.39 tons/year
SO_2:	0.04 tons/year

iii. Drying Oven and the Building and Storage Area Heaters (total)

A. The total combined NO_x emissions of the drying oven and the building and storage area heaters shall not exceed 0.97 lbs/hour and 4.29 tons/year.

B. Total emissions of other pollutants from the drying oven and the building and storage area heaters shall not exceed the following limits:

Carbon Monoxide:	0.85 tons/year
Particulate Matter:	0.13 tons/year
PM_{10}:	0.13 tons/year
VOM:	0.22 tons/year
SO_2:	0.03 tons/year

iv. Miscellaneous Heaters (total)

A. Total combined NO_x emissions of the 11 miscellaneous heaters shall not exceed 2.19 lbs/hour and 9.60 tons/year.

B. Total combined emissions of other pollutants from the 11 miscellaneous heaters shall not exceed the following limits:

Carbon Monoxide:	1.92 tons/year
Particulate Matter:	0.29 tons/year
PM_{10}:	0.29 tons/year
VOM:	0.51 tons/year
SO_2:	0.06 tons/year

v. Cleaner Section

Emissions of particulate matter from the cleaner section, which is controlled with a fume scrubber, shall not exceed 0.24 lbs/hour and 1.06 tons/year.

vi. Melting Kettle

Particulate matter emissions from the melting kettle shall not exceed 0.16 tons/month and 1.92 tons/year.

vii. Other emission units

Emissions of NO_x, CO, PM, VOM and SO_2 from the welder, two galvanizing pots and chemical treatment tank shall not exceed negligible rates of 0.1 lb/hour and 0.44 tons/year for each pollutant from each such emission unit.

c. Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total) [T1].

7.8.8 Testing Requirements

a. For testing emissions of the HCl Pickling Line pursuant to 40 CFR 63, Subpart CCC:

i. The Permittee shall use the following test methods in Appendix A of 40 CFR Part 60 pursuant to 40 CFR 63.1161(d), unless an equivalent alternative measurement method is approved by the Administrator, to determine compliance under 40 CFR 63.1157(a):

A. Method 1, to determine the number and location of sampling points, with the exception that no traverse point shall be within one inch of the stack or duct wall;

B. Method 2, to determine gas velocity and volumetric flow rate;

C. Method 3, to determine the molecular weight of the stack gas;

D. Method 4, to determine the moisture content of the stack gas; and

E. Method 26A, “Determination of Hydrogen Halide and Halogen Emissions from Stationary Sources—Isokinetic Method,” to determine the HCl mass flows at the inlet and outlet of a control device or the concentration of HCl discharged to the atmosphere, and also to determine the concentration of Cl_2 discharged to the atmosphere from acid regeneration plants. If compliance with a collection efficiency standard is being demonstrated, inlet and outlet measurements shall be performed simultaneously. The minimum sampling time for each run shall be 60 minutes and the minimum sample volume 0.85 dry standard cubic meters (30 dry standard cubic feet). The concentrations of HCl and Cl_2 shall be calculated for each run as follows:

C_{HCl} (ppmv) = 0.659 C_{HCl} (mg/dscm),
and C_{C12} (ppmv) = 0.339 C_{C12} (mg/dscm),

where C(ppmv) is concentration in ppmv and C(mg/dscm) is concentration in milligrams per dry standard cubic meter as calculated by the procedure given in Method 26A.

ii. Pursuant to 40 CFR 63.1162(a)(1), the Permittee shall conduct performance tests a minimum of once every 2 years to measure the HCl mass flows at the control device inlet and outlet or the concentration of HCL exiting the control.

iii. If any performance test shows that the HCL emission limitation is being exceeded, then the owner or operator is in violation of the emission limit.

b. Upon written request from the Illinois EPA, emission tests shall be conducted by the Permittee for the furnace, melting kettle and cleaner section (all of galvanizing line #8) to verify compliance with emission limits in Condition 7.8.7, as follows [Section 39.5(7)(d) and (p) of the Act].

i. The following USEPA test methods shall be used, unless another USEPA method is approved by the Illinois EPA.

A.	Location of Sample Points	Method 1
B.	Gas Flow and Velocity	Method 2
C.	Flue Gas Weight	Method 3
D.	Moisture	Method 4
E.	PM/PM_{10} (furnace, kettle, and cleaner section)	Methods 5, 201 or 201A
vi.	NO_x (furnace)	Method 7E or 19

ii. Observations of opacity shall be conducted during these emission tests in accordance with Method 9 and the results of these observations included in the reports for emission testing.

c. Upon written request by the Illinois EPA, the Permittee shall conduct opacity observations from any finishing operation, as specified in the request, as follows [Sections 39.5(7)(d) and (p) of the Act]:

i. These observations shall be conducted within 45 calendar days of the requires or by the date agreed upon by the Illinois EPA, whichever is later.

ii. The readings shall be performed by a qualified observer in accordance with USEPA Method 9 while the affected finishing operation is operating.

d. For this testing, test notifications and reporting shall be done by the Permittee in accordance with Conditions 8.6.2 and 8.6.3 of this permit.

7.8.9 Monitoring Requirements

a. For the affected pickling line, the Permittee shall comply with the following requirements of 40 CFR 63.1160(b)(2) and 63.1162(a)(2) Section 39.5(7)(a):

i. The Permittee shall operate, and maintain systems for the measurement and recording of the scrubber makeup water flow rate and, if required, recirculation water flow rate. These flow rates shall be monitored continuously and recorded at least once per shift while the scrubber is operating.* If operation of the wet scrubber results in excursions of scrubber makeup water flow rate and recirculation water flow rate less than the minimum values established, the Permittee shall initiate corrective action within 1

working day as specified by the maintenance requirements in 40 CFR 63.1160(b)(2). Failure to initiate or provide appropriate repair, replacement, or other corrective action is a violation of the maintenance requirement of 40 CFR 63.1160(b)(2).

ii. The Permittee shall monitor and record the pressure drop across the scrubber once per shift* while the scrubber is operating in order to identify changes that may indicate a need for maintenance. The Permittee shall initiate procedures for corrective action within 1 working day of detection of an operating problem and complete all corrective actions as soon as practicable. Procedures to be initiated are the applicable actions that are specified in the maintenance plan. Failure to initiate or provide appropriate repair, replacement, or other corrective action is a violation of the maintenance requirement of 40 CFR 63.1160(b)(2).

* See also Condition 7.8.9(g)

iii. Corrective action as referenced in Condition 7.8.9(a)(i) and (ii) and as prescribed by “the Operation and Maintenance Plan” required by Condition 7.8.6(b)(ii), shall consist of the following:

A. Notify the pickle line shift manager or cold mill shift manager as soon as practicable but not later than the end of the shift of the operating problem detected.

B. The pickle line shift manager or cold mill shift manager shall notify the mechanical or electrical shift manager no later than the end of the shift.

C. Any of the above shift managers shall investigate the nature of the operating problem and implement corrective actions, such as manufacturer’s recommended maintenance on:

1. Pumps;

2. Exhaust systems;

3. Fans and motors;

4. Clean scrubber internals and mist eliminators to remove buildup of solids or other fouling.

D. The pickle line or cold mill shift manager shall complete an upset conditions report upon completion of corrected action.

b. Pursuant 40 CFR 63.1162(a)(4), failure to record each of the operating parameters (scrubber makeup water flow rate and recirculated water flow rate) is a violation of the monitoring requirements of 40 CFR 63 Subpart CCC.

c. Pursuant to 40 CFR 63.1162(a)(5), each monitoring device shall be certified by the manufacturer to be accurate to within 5 percent and shall be calibrated in accordance with the manufacturer's instructions but not less frequently than once per year.

d. Pursuant to 40 CFR 63.1161(b), the Permittee may reestablish compliant operating parameter values as part of any performance test that is conducted subsequent to the initial test or tests.

e. Pursuant to 40 CFR 63.1160(b)(2)(ii) through (iv), the Permittee shall conduct the following maintenance requirements:

   i. Cleaning of the scrubber internals and mist eliminators at intervals sufficient to prevent buildup of solids or other fouling;

   ii. Inspect each scrubber at intervals of no less than 3 months with:

      A. Cleaning or replacement of any plugged spray nozzles or other liquid delivery devices;

      B. Repair or replacement of missing, misaligned, or damaged baffles, trays, or other internal components;

      C. Repair or replacement of droplet eliminator elements as needed;

      D. Repair or replacement of heat exchanger elements used to control the temperature of fluids entering or leaving the scrubber; and

      E. Adjustment of damper settings for consistency with the required air flow.

f. The owner or operator of an affected hydrochloric acid* storage vessel shall inspect each vessel semiannually to determine that the closed-vent system and either the air pollution control device or the enclosed loading and unloading line, whichever is applicable, are installed and operating when required [40 CFR 63.1162(c)].

   * See also Condition 7.8.9(g)

g. Notwithstanding the requirements of 40 CFR 63, Subpart CCC, the Permittee shall:

   i. Record monitored operating data for each scrubber at least twice per shift and initiate corrective action for the scrubber if any recorded data indicates an operating problem with a scrubber;

   ii. Inspect the affected HCL storage vessels on at least a quarterly basis to confirm compliance.

h. Testing for VOM content of coatings shall be performed as follows [35 IAC 219.105(a) and 219.211(a) and Section 39.5(7)(b) of the Act]:

   i. Upon written request by the Illinois EPA, the VOM content of specific coatings used by the coating operations shall be determined according to USEPA Reference Method 24 of 40 CFR 60 Appendix A and the procedures of 35 IAC 219.105(a) and 219.211(a); or

   ii. This testing may be performed by the supplier of a material provided that the supplier provides appropriate documentation for such testing to the Permittee and the Permittee's records directly reflect the application of such materials.

i. Pursuant to Sections 39.5(7)(a) and (d) of the Act, the Permittee shall measure or monitor the pressure differential and scrubbant flow rate on the fume scrubbers controlling the cleaner sections on Galvanizing Lines #7A and #8, as follows:

   i. The pressure differential shall be determined in inches of water column.

   ii. Scrubbant flow rate shall be determined in gallons per minute (gpm).

   iii. Pressure differential and scrubbant flow rate shall be recorded at least once per shift if data is not automatically recorded.

j. Pursuant to Sections 39.5(7)(a) and (d) of the Act, the Permittee shall operate instrumentation for the #8 Galvanizing Furnace for the NO_x concentration (ppm) in the flue gas exhaust stream and the inlet temperature (°C or °F) of the associated NO_x catalytic converter, as follows:

   i. NO_x concentration (ppm) and inlet temperature shall be recorded at least once per shift if hourly average data is not automatically recorded.

ii. The Permittee shall follow manufacturer's procedures for the operation and maintenance of the NO_x instrumentation.

7.8.10 Recordkeeping Requirements

The Permittee shall maintain records of the following items for the affected finishing operations, pursuant to Sections 39.5(7)(a) and (e) of the Act:

a. Recordkeeping required for the pickling line by the NESHAP:

i. The "general records" required by the NESHAP, as required by 40 CFR 63.10(b)(2) and 63.1165.

ii. Records of the following, as required by 40 CFR 63.1165(b), which records shall be retained for 5 years from the date of each record:

A. Scrubber makeup water flow rate and recirculation water flow rate if a wet scrubber is used;

B. Calibration and manufacturer certification that monitoring devices are accurate to within 5 percent; and

C. Each maintenance inspection and repair, replacement, or other corrective action.

iii. The Permittee shall keep the written operation and maintenance plan on record after it is developed to be made available for inspection, upon request, by the Illinois EPA for the life of the affected source or until the source is no longer subject to the provisions of 40 CFR 63 Subpart CCC. In addition, if the operation and maintenance plan is revised, the Permittee shall keep the previous (i.e., superseded) versions of the plan on record to be made available for inspection by the Illinois EPA for a period of 5 years after each revision to the plan.

iv. If the Permittee operates under manufacturer's specifications or manufacturer's instructions, such manufacturer's documentation shall be kept at the source as part of the required records.

b. Recordkeeping requirements for galvanizing lines:

Pursuant to Sections 39.5(7)(a) and (f) of the Act, the Permittee shall keep the following records for the various emission units on the galvanizing lines:

i. The following records related to the tune-ups conducted on furnaces and process heaters on the lines pursuant to 40 CFR 63.7540(a)(10):

A. Records for each tune-up that include the following: Date and time tune-up was conducted and responsible person; Identification of the unit; Summary of inspections performed and required maintenance; Results of all calibrations performed; and CO concentrations in ppmv in the effluent stream and oxygen in volume percent, before and after the adjustments are made.

B. A copy of the manufacturers specifications for burners used for optimization of emissions and flame pattern during tune-ups.

ii. Records for emission tests, opacity observations, engineering calculations and other compliance determinations conducted for units to verify compliance with applicable standards, limitations and other requirements in Conditions 7.8.3, 7.8.6 and 7.8.7.

iii. Pursuant to 40 CFR 63.7555(h), if the Permittee uses an alternative fuel other than natural gas during a period of natural gas curtailment or supply interruption, the Permittee must keep records of the total hours per calendar year that alternative fuel is burned.

c. Recordkeeping for Galvanizing Line #8:

i. The following design and operating records for Galvanizing Line #8:

A. A file containing the rated heat input capacity of the furnace and each other fuel burning unit (mmBtu/hour), with supporting documentation.

B. Records of monthly and annual natural gas usage (mmscf/mo and mmscf/yr) for the furnace and other fuel burning units on the line.

ii. For the melting kettle, the following records:

A. Records of production (tons of product per month and year).

B. A file containing the emission factor used by the Permittee to calculate PM emissions from the kettle, with supporting documentation, which file shall be reviewed and updated if needed when new emission data become available

to assure that the factor does not understate actual PM emissions.

C. Records for actual PM emissions (lbs/month and tons/year), with supporting calculations.

iii. For the furnace and associated catalytic converter, the following records:

A. Engineering calculations for typical and maximum hourly NO_x emissions before and after control by catalytic converter (lbs/hour), with supporting documentation for the controlled emission rate from the furnace.

B. The normal range of operating parameters (inlet temperature and NO_x concentration in the exhaust stream) for the catalytic converter.

C. An operating log or other records for the catalytic converter that include information confirming proper operation on a daily basis and provide detailed information for any upset of the catalytic converter.

D. An inspection and maintenance log or other records for the catalytic converter that identify activities performed, with date, description and the responsible individual(s).

E. Usage or purchases of reagent for the catalytic converter (pounds/year).

F. Records for actual NO_x emissions of the furnace (tons/year), with supporting calculations.

G. A file containing the emission factors used by the Permittee to calculate emissions of PM/PM_{10}, CO, VOM and SO_2 from the furnace, with supporting documentation, and either engineering calculations for the maximum annual emissions of these pollutants (tons/year) or records of actual emissions of these pollutants (tons/year) to verify compliance with applicable limits.

iv. For the various emission units that combust fuel on the line, the following records:

A. A file containing engineering calculations for the maximum hourly emissions of NO_x (lbs/hour) from each unit or group of units, with supporting documentation.

B. A file containing the emission factors used by the Permittee to calculate emissions from these units, with supporting documentation, and either engineering calculations for the maximum annual emissions of NO_x and other pollutants (tons/year) from each unit or group of units or records of actual emissions(tons/year) to verify compliance with applicable limits.

v. For the cleaner section, the following records:

A. Engineering calculations for typical and maximum hourly PM emissions before and after control by the scrubber (lbs/hour), with supporting documentation for the controlled emission rate from the unit.

B. The normal range of operating parameters of the scrubber.

C. An operating log or other records for the scrubber that include information confirming proper operation on a daily basis and provide detailed information for any upset of the scrubber.

D. An inspection and maintenance log or other records for the scrubber that identify activities performed, with date, description and the responsible individual(s).

E. Records for actual PM emissions (tons/year), with supporting calculations.

vi. A. The records required by Conditions 7.8.10(c)(ii)(B), (c)(iii)(G) and (c)(iv)(B) shall be prepared and copies sent to the Illinois EPA in accordance with Condition 5.9.6(c).

B. Copies of the initial records required by Conditions 7.8.10(c)(iii)(A), (c)(iv)(A) and (c)(v)(A) shall be sent to the Illinois EPA within 45 days of the effective date of these conditions. Copies of revisions to these conditions shall be sent to the Illinois EPA in accordance with Condition 5.9.6(c)(ii).

d. Recordkeeping for the coating operations:

i. Records for coating usage (gal/mo and gal/yr, by coating or category of coating).

ii. Records of the VOM content of each coating or category of coating as applied (pounds/gallon, less exempt compounds), with supporting documentation.

iii. Records for testing or analysis conducted for the VOM content of coatings (pounds/gallon, less exempt compounds) that include identification of the tested coating(s), the results of the analysis, documentation for the analysis methodology, and identification of the person or party that performed the analysis.

7.8.11 Reporting Requirements

a. i. Pursuant to Section 39.5(7)(f)(ii) of the Act, the Permittee shall promptly notify the Illinois EPA, Air Compliance Section, within 30 days of deviations by the affected finishing operations from applicable requirements unless a NESHAP standard specifies a different time frame, as follows:

A. Requirements in Condition 7.8.3(b) through (e).

B. Requirements in Condition 7.8.5-1.

C. Requirements in Condition 7.8.6.

D. Requirements in Condition 7.8.7.

ii. All such deviations shall be summarized and reported as part of the semiannual monitoring report required by Condition 8.6.1.

iii. The Permittee shall notify the Illinois EPA of all other deviations as part of the semiannual monitoring reports required by Condition 8.6.1.

iv. All deviation reports required by Condition 7.8.11(a) above shall contain the following:

A. Date, time and duration of the deviation;

B. Description of the deviation;

C. Probable cause of the deviation; and

D. Any corrective action or preventive measures taken.

b. The Permittee shall comply with the reporting requirements of 40 CFR 63.1164, including the following:

i. Reporting results of performance tests. As required by 40 CFR 63.10(d)(2), the owner or operator of an affected source shall report the results of any

performance test as part of the notification of compliance status required in 40 CFR 63.1163.

ii. Progress reports. The owner or operator of an affected source who is required to submit progress reports under 40 CFR 63.6(i) shall submit such reports to the Administrator (or the State with an approved permit program) by the dates specified in the written extension of compliance.

iii. Periodic startup, shutdown, and malfunction reports. Pursuant to 40 CFR 63.6(e), the owner or operator of an affected source shall operate and maintain each affected emission source, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions at least to the level required by the standard at all times, including during any period of startup, shutdown, or malfunction. Malfunctions must be corrected as soon as practicable after their occurrence.

A. Plan. As required by 40 CFR 63.6(e)(3), the owner or operator shall develop a written startup, shutdown, and malfunction plan that describes, in detail, procedures for operating and maintaining the source during periods of startup, shutdown, or malfunction, and a program of corrective action for malfunctioning process and air pollution control equipment used to comply with the relevant standards.

B. Reports. As required by 40 CFR 63.10(d)(5)(i), if actions taken by an owner or operator during a startup, shutdown, or malfunction of an affected source (including actions taken to correct a malfunction) are consistent with the procedures specified in the startup, shutdown, and malfunction plan, the owner or operator shall state such information in a semiannual report. The report, to be certified by the owner or operator or other responsible official, shall be submitted semiannually and delivered or postmarked by the 30th day following the end of each calendar half.

C. Immediate Reports. Any time an action taken by an owner or operator during a startup, shutdown, or malfunction (including actions taken to correct a malfunction) is not consistent with the procedures in the startup, shutdown, and malfunction plan, the owner or operator shall comply with all requirements of 40 CFR 63.10(d)(5)(ii).

c. Pursuant to 35 IAC 219.211(c)(3), for the affected coating operations, the Permittee shall notify the Illinois EPA in the following instances:

i. Any record showing violation of 35 IAC 219.204 shall be reported by sending a copy of such record to the Illinois EPA within 30 days following the occurrence of the violation.

ii. At least 30 calendar days before changing the method of compliance from 35 IAC 219.204 to 35 IAC 219.205 or 219.207, the Permittee shall comply with all requirements of 35 IAC 219.211(d)(1) or (e)(1), respectively. Upon changing the method of compliance from 35 IAC 219.204 to 35 IAC 219.205 or 219.207, the Permittee shall comply with all requirements of 35 IAC 219.204(d) or (e), respectively.

d. i. If the Permittee operates a unit using a fuel other than natural gas, to fire the affected unit during a period of natural gas curtailment or supply interruption, as defined in 40 CFR 63.7575, the Permittee must submit a notification of alternative fuel use within 48 hours of the declaration of each period of natural gas curtailment or supply interruption. The notification must include the information specified in 40 CFR 63.7545(f)(1) through (f)(5) [40 CFR 63.7545(f)].

ii. If the Permittee intends to use fuel other than natural gas and other than during a period of natural gas curtailment or supply interruption as addressed by 40 CFR 63.7545(f), the Permittee must provide 30 days prior notice of the date upon which the fuels will be switched [40 CFR 63.7545(h)].

7.8.12 Operational Flexibility/Anticipated Operating Scenarios

Operational flexibility is not set for the affected finishing operations.

7.8.13 Compliance Procedures

For affected finishing operations, compliance with the applicable standards, limitations and requirements of Conditions 7.8.3, 7.8.5 and 7.8.7 is addressed by the work practices, testing, monitoring, recordkeeping and reporting requirements in Section 7.8 of this permit.

7.8.14 State-Only Conditions

Pursuant to 35 IAC 217.150, 217.152, and 217.160, by the applicable compliance date for 35 IAC Part 217 Subparts D and I, the Permittee shall comply with applicable requirements of these rules for the affected galvanizing furnaces, including:

a. Certifying to the Illinois EPA that each affected galvanizing furnaces will be in compliance with the applicable emission limitation(s) of 35 IAC 217.244(a) by the applicable compliance date.

b. Operation of each affected galvanizing furnaces in a manner consistent with good air pollution control practices to minimize NO_x emissions.

c. Compliance with the applicable NO_x emission limitation(s) in accordance with 35 IAC 217.154 or 217.157.

d. Compliance with the applicable monitoring, recordkeeping and reporting requirements in accordance with 35 IAC 217.157(b) and 217.156.

7.9 Wastewater Treatment Plant

7.9.1 Description

Primary Wastewater Treatment System:

The system is used to treat waste process water generated in both the iron and steelworks manufacturing areas in the facility. Emissions from this system are attributed to the blast furnace (BF) clarifiers, dust ponds, BF ditch, BF lagoon, steelworks ditch, steel works lagoon, and the wastewater treatment plant, itself. The ditches are used to transfer the BF and steelworks wastewater streams to the lagoons. The wastewater treatment plant is a simple system used to remove suspended solids and breakdown organic prior to discharge.

By-Products Wastewater Treatment System:

The system is used to treat waste process water generated in the coke oven by-product plant. Waste process water from the by-products plant is piped to the by-products wastewater treatment plant. The water treated in this system is primarily made up of process wastewater used to cool the processes and equipment used in the by-products plant. The treatment process carried out consists of the use of biological activity to breakdown the organic materials contained in the waste stream.

Note: This narrative description is for informational purposes only and is not enforceable.

7.9.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Date Constructed	Emission Control Equipment
Wastewater Treatment	Equalization Tanks	N/R	None
	BFG Clarifiers		
	Aeration Basin Clarifiers		
	Lagoons		
	Sand Filters		

7.9.3 Applicable Provisions and Regulations

The “affected wastewater treatment system” for the purpose of these unit-specific conditions is the treatment systems described in Conditions 7.9.1 and 7.9.2.

7.9.4 Non-Applicability of Regulations of Concern

a. The affected wastewater treatment systems are not subject to the operating and control requirements of 40 CFR 61 Subpart FF in general and 40 CFR 61.344 or 40 CFR 61.343 in particular, as provided by 40 CFR 61.342(a). This determination is based on the amount of benzene waste

generated on site being less than 10 Mg/yr (11 ton/yr). If conditions at the facility change and the total annual benzene calculation increases to 10 Mg/yr or more, the facility will become subject to operating and control requirements of 40 CFR 61 Subpart FF and the Permittee must apply for a revision to this permit, which could affect applicable requirements for the affected wastewater treatment plant.

b. The affected wastewater treatment system is not subject to 40 CFR Part 63, Subpart QQ, National Emission Standards for Surface Impoundments. This determination is based on the applicability criteria of 40 CFR 63.940, which provides that 40 CFR 63 Subpart QQ applies to impoundments when an applicable Subpart of Parts 40 CFR 60, 61 or 63 references the use of Subpart QQ for air emission control. However, applicable Subpart FF does not reference to 40 CFR 63 Subpart QQ.

c. This permit is issued based on the affected wastewater treatment system not being subject to the applicable requirements of 35 IAC 219.301 because the affected plant does not emit photochemically reactive organic material as defined in 35 IAC 211.4690.

7.9.5 Control Requirements and Work Practices

Control requirements and work practices are not set for the affected wastewater treatment systems.

7.9.6 Production and Emission Limitations

The production and emission limits are not set for the affected wastewater treatment systems.

7.9.7 Testing Requirements

Testing requirements are not set for the affected wastewater treatment systems.

7.9.8 Monitoring Requirements

If operation(s) at the facility change, the Permittee shall evaluate whether the change affects the wastewater treatment systems such that it become subject to the requirements of 35 IAC 219.301 and must apply for a revision of this permit.

7.9.9 Recordkeeping Requirements

No recordkeeping requirements are established at this time.

7.9.10 Reporting Requirements

a. Pursuant to Section 39.5(7)(f)(ii) of the Act, the Permittee shall promptly notify the Illinois EPA, Air Compliance Section, within 30 days if the following occurs:

i. The affected wastewater treatment systems become subject to the control requirements of 40 CFR 61 Subpart FF;

ii. The affected wastewater treatment system become subject to 35 IAC 219.301.

b. The notifications described in Condition 7.9.10 above shall contain the following:

i. Date of applicability;

ii. Emission units(s)/operation involved; and

iii. Method by which compliance would be demonstrated.

7.9.11 Operational Flexibility/Anticipated Operating Scenarios

Operational flexibility is not set for the affected wastewater treatment systems.

7.9.12 Compliance Procedures

Compliance procedures are not set for the affected wastewater treatment systems.

7.9.13 State-Only Conditions

State-only conditions are not established.

7.10 Boilers

7.10.1 Description

Boilers 11 and 12 are located in Boiler House 2 and are rated at 225 mmBtu/hour each. Each of these boilers are physically capable of combusting various combinations of natural gas, coke oven gas (COG) and blast furnace gas (BFG). The Permittee has a construction permit to install Flue Gas Recirculation on these boilers for control of NO_x emissions (Construction Permit 10080022).

The Permittee completed construction of a new boiler pursuant to Construction Permit 06070023. The new boiler (Power Boiler #1) is used for cogeneration, producing both electricity and process steam as it supplies high pressure steam which is sent to a steam turbine that generates electricity for use at the source. Low-pressure steam from this turbine is used for manufacturing operations at the source.

BFG is a primary fuel for this boiler. Natural gas would be used for the pilot flame and also for combustion control.

A cooling tower operates in conjunction with the new boiler and associated steam turbine.

Portable boilers not yet constructed.

Note: This narrative description is for informational purposes only and is not enforceable.

7.10.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Date Constructed	Emission Control Equipment
Boilers	Boiler House 2 Boiler 11 & 12 – 225 mmBtu/Hr each	Pre-1973	Flue Gas Recirculation (planned)
	Power Boiler #1 (nominal capacity 505 mmBtu/hour)	2009	None
Portable Boilers	Portable Boilers #1 through #4 (planned)	Planned	Low NO_x burners and Flue Gas Recirculation (planned)
Cooling Tower	Cooling Tower associated with Power Boiler #1	2009	None

7.10.3 Applicable Provisions and Regulations

a. i. The “affected boilers” for the purpose of these unit-specific conditions, are Boiler #11 and #12 and Power

Boiler #1 as described in Conditions 7.10.1 and 7.10.2.

ii. The “affected cooling tower” for the purpose of these unit-specific conditions is the unit described in Conditions 7.10.1 and 7.10.2.

b. i. Affected Boilers #11 and #12 may be subject to 40 CFR Part 63, Subpart DDDDD, NESHAP for Industrial, Commercial, and Institutional Boilers and Process Heaters. For these boilers, pursuant to 40 CFE 63.7540(a), unless an affected boiler is operating as a blast furnace gas fuel-fired boiler, as defined in 40 CFR 63.7575, or is otherwise not subject to this NESHAP, beginning on the compliance date of this NESHAP for existing sources, the Permittee shall comply with each applicable emission limit, operating limit, and work practice standard in Table 2 of this NESHAP according to the methods specified in Table 8 to this NESHAP and relevant provisions in 40 CFR 63.7540(a)(1) through (11), as applicable.

ii. In particular, if affected Boiler #11 or #12 is in the Gas 2 subcategory (other gaseous fuel) pursuant to 40 CFR 63.7499, the Permittee shall comply with the following emission limits beginning on the applicable compliance date of 40 CFR 63 Subpart DDDDD, pursuant to 40 CFR 63.7500(a)(1) and Table 2 of this NESHAP:

A. Particulate Matter (PM) emissions shall not exceed 0.043 lb per mmBtu of heat input or 0.026 lb per mmBtu of steam output (3-run average).

B. Hydrogen Chloride (HCl) emissions shall not exceed 0.0017 lb per mmBtu of heat input or 0.001 lb per mmBtu of steam output.

C. Mercury (Hg) emissions shall not exceed 1.3E-05 lb per mmBtu of heat input or 7.8E-06 lb per mmBtu of steam output.*

D. CO emissions shall not exceed 9 ppm by volume on a dry basis corrected to 3 % oxygen or 0.005 lb per mmBtu of steam output.

E. Dioxin/Furans (D/F) emissions shall not exceed 0.08 ng/dscm (TEQ) corrected to 7% oxygen or 3.9E-11 (TEQ) lb per mmBtu of steam output.*

* 1.3E-05 = 0.00013
7.8E-06 = 0.0000078
3.9E-11 = 0.000000000039

c. Affected Boilers #11 and #12 shall not exceed the PM_{10} limitation of 35 IAC 212.458(b)(9):

32.25 ng/J (0.075 lbs/mmBtu) of heat input from the burning of COG.

d. The affected Power Boiler #1 is subject to the NSPS for Industrial-Commercial-Institutional Steam Generating Units, 40 CFR 60 Subpart Db. (See relevant recordkeeping requirements in Condition 7.10.9.)

e. For affected boilers #11 and #12, pursuant to 35 IAC 214.421, no person shall cause or allow the emission of sulfur dioxide into the atmosphere in any one hour period from any existing fuel combustion emission source at a steel mill located in the Chicago or St. Louis (Illinois) major metropolitan area burning any solid, liquid or gaseous fuel, or any combination thereof, to exceed the allowable emission rate determined by the following equation:

$$E = S_S H_S + S_d H_d + S_R H_R + S_G H_G$$

i. Symbols in the equation mean the following:

E = allowable sulfur dioxide emission rate;

S_S = solid fuel sulfur dioxide emission standard which is applicable;

S_d = distillate oil sulfur dioxide emission standard determined from the table in 35 IAC 214.421(d) and equal to 0.46 kg/MW-hr (0.03 lb/mmBtu);

S_R = residual oil sulfur dioxide emission standard which is applicable;

S_G = maximum by-product gas sulfur dioxide emissions which would result if the applicable by-product gas which was burned had been burned alone at any time during the 12 months preceding the latest operation, on or before March 28, 1983, of an emission source using any by-product gas;

H_S = actual heat input from solid fuel;

H_d = actual heat input from distillate fuel oil;

H_R = actual heat input from residual fuel oil;

H_G = actual heat input from by-product gases, such as those produced from a blast furnace.

ii. Metric or English units may be used in the equation as follows:

Parameter	Metric	English
E	kg/hr	lbs/hr
S_S, S_R, S_G	kg/MW-hr	lbs/mmBtu
S_d	0.46 kg/MW-hr	0.3 lbs/mmBtu
H_S, H_d, H_R, H_G	MW	mmBtu/hr

f. The affected boilers are subject to 35 IAC 216.121 which provides that no person shall cause or allow the emission of carbon monoxide into the atmosphere from a fuel combustion emission unit to exceed 200 ppm, corrected to 50 percent excess air [35 IAC 216.121].

g. The affected power boiler #1 is subject to 35 IAC 212.122(a), which provides that no person shall cause or allow the emission of smoke or other particulate matter into the atmosphere from any fuel combustion emission unit for which construction or modification commenced on or after April 14, 1972, with actual heat input greater than 73.2 MW (250 mmBtu/hr), having an opacity greater than 20 percent.

h. The affected boilers #11 and #12 are subject to 35 IAC 212.123(a), which provides that no person shall cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere from any emission unit other than those emission units subject to 35 IAC 212.122.

i. Startup Provisions (All affected Boilers)

Pursuant to 35 IAC 201.149 and Part 201, Subpart I, subject to the following terms and conditions for affected Boilers #11, #12 and Power Boiler #1, the Permittee is authorized to violate the applicable opacity and carbon monoxide standards in 35 IAC 212.122(a), 212.123(a) and 216.121 (Conditions 7.10.3(g),(h) and (f)) during startup.

Note: This authorization is provided because the Permittee applied for such authorization in its CAAPP application, generally describing the efforts that will be used “…to minimize startup emissions, duration of individual starts, and frequency of startups.”

i. This authorization does not relieve the Permittee from the continuing obligation to demonstrate that all reasonable efforts are made to minimize startup emissions, duration of individual startups and frequency of startups.

ii. The Permittee shall conduct startup of the affected boilers in accordance with the manufacturer’s written instructions or other written procedures prepared by

the Permittee and maintained at the source (see Condition 7.10.9(d)(i)) for the affected boilers, that are specifically developed to minimize emissions from startups and that include, at a minimum a review of the operational condition of the affected boilers prior to initiating startup of the boiler.

iii. The Permittee shall fulfill applicable recordkeeping requirements of Condition 7.10.9(d).

iv. The Permittee shall fulfill applicable notification and reporting requirements of Condition 5.10.5-1.

v. As provided by 35 IAC 201.265, an authorization in a permit for excess emissions during startup does not shield a Permittee from enforcement for any violation of applicable emission standard(s) that occurs during startup and only constitutes a prima facie defense to such an enforcement action provided that the Permittee has fully complied with all terms and conditions connected with such authorization.

j. Malfunction or Breakdown Provisions (All affected Boilers)

Pursuant to 35 IAC 201.149 and Part 201, Subpart I, subject to the following terms and conditions, the Permittee is authorized to continue to operate affected boilers #11, #12 and Power Boiler #1 in excess of the applicable opacity and carbon monoxide standards in 35 IAC 212.122(a), 212.123(a) and 216.121 (Conditions 7.10.3(g),(h) and (f)) in the event of a malfunction or breakdown.

Note: This authorization is provided because the Permittee has applied for such authorization in its CAAPP application, generally explaining why such continued operation would be required to prevent injury to persons or severe damage to equipment, and describing the measures that will be taken to minimize emissions from any malfunctions and breakdowns.

i. This authorization only allows such continued operation as necessary to prevent injury to persons or severe damage to equipment and does not extend to continued operation solely for the economic benefit of the Permittee.

ii. Upon occurrence of excess emissions due to malfunction or breakdown, the Permittee shall as soon as practicable reduce boiler load, repair the affected boiler, remove the affected boiler from service or undertake other action so that excess emissions cease.

iii. The Permittee shall fulfill the applicable recordkeeping and reporting requirements of Condition

7.10.9(e) and Condition 5.10.5-2. For these purposes, time shall be measured from the start of a particular incident. The absence of excess emissions for a short period shall not be considered to end the incident if excess emissions resume.

iv. Following notification to the Illinois EPA (see Condition 5.10.5-2(a)(i)) of a malfunction or breakdown with excess emissions, the Permittee shall comply with all reasonable directives of the Illinois EPA with respect to such incident.

v. This authorization does not relieve the Permittee from the continuing obligation to minimize excess emissions during malfunction or breakdown. As provided by 35 IAC 201.265, an authorization in a permit for continued operation with excess emissions during malfunction and breakdown does not shield the Permittee from enforcement for any such violation and only constitutes a prima facie defense to such an enforcement action provided that the Permittee has fully complied with all terms and conditions connected with such authorization.

7.10.4 Non-Applicability of Regulations of Concern

a. The emission limitations of 35 IAC 212.324 are not applicable to any emission unit subject to a specific emissions standard or limitation contained in 35 IAC Part 212 Subpart R, pursuant to 35 IAC 212.324 (a)(3).

b. Affected Boilers #11 and #12 are not subject to 35 IAC 217.141 because the heat input capacity of each of these boilers is below the applicability threshold of this rule (250 mmBtu/hr).

c. Power Boiler #1

i. Affected power boiler #1 is not subject to the NSPS for Electric Utility Steam Generating Units (40 CFR 60, Subpart Da) because it is not an electric utility steam generating unit as the term is defined in 40 CFR 60.41Da.

ii. Affected power boiler #1 is not subject to 40 CFR 60, Subpart D because it is subject to the NSPS in 40 CFR 60 Subpart Db as it meets the applicability requirements under 40 CFR 60.40b(a) [40 CFR 60.40b(j)].

iii. Affected Power Boiler #1 is not subject to the SO_2 standards of 40 CFR 60, Subpart Db because it meets the exemption provided at 40 CFR 60.42b(k)(2) [See also Condition 7.10.5(b)].

iv. Affected Power Boiler #1 is not subject to the NO_x standards of 40 CFR 60, Subpart Db pursuant to 40 CFR 60.44b(c), because it has an annual capacity factor for natural gas of 10 percent or less and is subject to a federally enforceable requirement that limits operation to an annual capacity factor of 10 percent or less for natural gas [See Condition 7.10.6(a)(iii)].

v. Affected Power Boiler #1 is not subject to particulate matter standards under 40 CFR 60, Subpart Db because it does not fire solid or liquid fuels.

d. Affected Power Boiler #1 is not subject to 35 IAC 217.121 because it is not “fossil fuel-fired” as defined by 35 IAC 211.2425, i.e., a unit for which fossil fuels provide more than 50 percent of the annual heat input to the unit.

e. Pursuant to 40 CFR 63.7491(k), Power Boiler #1 is not subject to 40 CFR Part 63 Subpart DDDDD because this boiler is a blast furnace gas fuel-fired boiler as defined in 40 CFR 63.7575.

f. Cooling Tower:

i. The affected cooling tower is not subject to 35 IAC 219.986(d), because the cooling tower does not cool process water.

ii. The affected cooling tower is not subject to 40 CFR Part 63 Subpart Q because no chromium-based water treatment chemicals are used.

7.10.5 Control Requirements

a. Requirements for affected Power Boiler #1 from Permit 06070023

i. Emissions of PM and PM_{10} from the affected Power Boiler #1 shall be controlled by the existing BFG pretreatment system, which entails treatment by dust catchers and wet scrubbers [T1].

ii. BFG and natural gas shall be the only fuels fired in the affected Power Boiler #1 [T1].

iii. Affected Power Boiler #1 shall be operated for the primary purpose of supplying steam and electricity to the source with no more than 219,000 MW-hour of excess electricity sent to any utility power distribution system for sale in any calendar year from the electrical generator associated with the unit [T1].

b. Pursuant to 40 CFR 60.42b(k)(2), the sulfur content of the fuel fired in Power Boiler #1 shall not exceed 0.16 lb/mmBtu.

c. Requirements for affected Boilers #11 and #12

Only natural gas, coke oven gas and blast furnace gases are allowed to use as the fuels.

d. Requirements for affected Cooling Tower

Pursuant to 40 CFR 63.402, the Permittee shall not use chromium-based water treatment chemicals in the water cooling tower.

7.10.5-1 Work Practice Requirements

a. Pursuant to Sections 39.5(7)(a) and (d) of the Act, unless the Permittee conducts continuous emission monitoring for CO for an affected boiler, the Permittee shall conduct an annual tune-up for the boiler, as follows, to maintain compliance with 35 IAC 216.121. If annual tune-ups or combustion adjustments are required for an affected boiler pursuant to 40 CFR 63, Subpart DDDDD, these tune-ups shall also be conducted in accordance of applicable provisions of this NESHAP.

i. Each annual tune-up must be no more than 13 months after the previous tune-up. If the boiler is not operating on the required date for a tune-up, the tune-up must be conducted within one week of startup.

ii. Each tune-up shall consist of the following:

A. As applicable, inspect the burner, and clean or replace any components of the burner as necessary (the burner inspection may be delayed until the next scheduled unit shutdown, but each burner must be inspected at least once every 36 months);

B. Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern. The adjustment should be consistent with the manufacturer’s specifications, if available;

C. Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure that it is correctly calibrated and functioning properly; and

D. Optimize total emissions of CO. This optimization should be consistent with the manufacturer's specifications, if available.

iii. Measure the concentrations in the effluent stream of CO in parts per million by volume (ppmv), and oxygen in volume percent, before and after the adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made); and

iv. Submit a report to the Illinois EPA within 30 days of each tune-up that contains the following information:

A. The identity of the boiler, the date of the tune-up and the individual(s) who performed the tune-up and a summary of their experience with combustion tune-ups of boilers.

B. The concentrations of CO in the effluent stream in ppmv and oxygen in volume percent, measured before and after the adjustments of the boiler;

C. A description of any corrective actions taken as a part of the combustion adjustment; and

D. The type and amount of fuel used over the 12 months prior to the annual adjustment.

b. Pursuant to 40 CFR 63.7530(h), for an affected boiler that is subject to emission limits in 40 CFR 63 Subpart DDDDD, the Permittee must minimize the boiler's startup and shutdown periods following the manufacturer's recommended procedures, if available. If manufacturer's recommended procedures are not available, the Permittee must follow recommended procedures for a boiler of similar design for which manufacturer's recommended procedures are available.

7.10.6 Operational, Production and Emission Limitations

a. Limitations for affected Power Boiler #1 from Permit 06070023:

Note: Permit 06070023 includes certain limitations that apply to the combination of affected power boiler #1 and BFG flare #2, which is a new flare that was also constructed with the boiler. BFG flare #2 is generally addressed in Section 7.4 of this CAAPP permit.

i. The maximum design firing rate of affected Power Boiler #1 shall not exceed 505 mmBtu/hour [T1].

ii. The maximum design BFG input of affected Power Boiler #1 shall not exceed 476 mmBtu/hour [T1].

iii. Fuel usage for affected Power Boiler #1 and BFG flare #2 (see Section 7.4) shall not exceed the following limits (rolling 12-month basis) [T1]:

A. Natural gas: 341,666 mmBtu/year.

B. BFG and natural gas fuel usage combined: 4,511,426 mmBtu/year.

iv. Emissions of PM from affective Power Boiler #1, as measured by USEPA Method 5, shall not exceed 0.03 lb/mmBtu of exhaust [T1].

v. A. Emissions from affective Power Boiler #1 shall not exceed the following limits [T1]:

Pollutant	Mode	
	BFG* (Lbs/mmBtu)	Natural Gas (Lbs/mmBtu)
NO_x	0.05	0.12
CO	0.15	0.0824
VOM	---	0.0054
PM/PM_{10}	0.101	0.0075
SO_2	0.20	0.0006
Indiv. Metal HAP	0.00066	0.00066
Total HAPs	0.0053	0.0053

* BFG mode entails firing a mix of BFG with up to 10 percent natural gas.

B. Compliance with these limits shall be determined as a 3-hour average unless continuous emissions monitoring is conducted, in which compliance shall be determined as a daily average (24 operating hours).

C. Combined emissions from affected Power Boiler #1 and BFG flare #2 (see Section 7.4) shall not exceed the following limits [T1]:

Pollutant	Emissions	
	Tons/Month	Tons/Year
NO_x	12.5	124.74
CO	33.9	338.36
VOM	0.1	0.92
PM/PM_{10}	22.9	228.39
SO_2	45.2	451.14
Indiv. Metal HAP	0.2	1.5
Total HAPs	1.2	12.0

D. Compliance with annual limits in Condition 7.10.6(a) shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12

month total), unless otherwise specified in a particular condition.

b. Limits for the affected Cooling Tower from Permit 06070023 [T1]:

i. The total dissolved solids content of water circulating in the affected cooling tower shall not exceed 4,190 ppm on a monthly basis.

ii. Emissions of PM/PM_{10} from the affected cooling tower shall not exceed 0.39 tons/month and 3.86 tons/year. Compliance with the annual limit shall be determined from a running total of 12 months of data.

7.10.7-1 Current Testing Requirements

The Permittee shall conduct emission testing for the affected boilers as provided below pursuant to Sections 39.5(7)(c),(d) and (p) of the Act.

a. Requirements for affected Boilers #11 and #12:

i. PM and CO emissions shall be measured to determine compliance with 35 IAC 212.458(b)(9) (Condition 7.10.3(c)) and 35 IAC 216.121 (Condition 7.10.3(f)) in accordance with procedures in USEPA Methods 1 through 4 and Method 5 (or Method 201A), as provided in 35 IAC 212.108, and Method 10 or 10B.

ii. The testing shall be completed within 30 months of the effective date of this permit condition and may be done on either affected Boiler #11 or #12, as selected by the Illinois EPA.

iii. In addition to other required information, the test report shall include data for the sulfur and PM content of BFG and COG during the period of testing, with supporting data.

b. Requirements for affected Power Boiler #1:

i. Permittee shall conduct emission tests at least every five years on the affected Power Boiler #1.

ii. CO, NO_x, SO_2, PM_{10}, PM and VOM emissions shall be determined in accordance with the test methods identified below.

iii. These tests shall also include measurements of emissions of metals if the Permittee elects to conduct emissions testing to verify compliance with the limits for metal HAPs, as an alternative to applying data for the metal HAP content of material collected during pretreatment of the BFG.

iv. The following USEPA test methods shall be used for testing of emissions, unless another USEPA method is approved by the Illinois EPA.

Location of Sample Points	Method 1
Gas Flow and Velocity	Method 2
Flue Gas Weight	Method 3
Moisture	Method 4
SO_2	Method 6
PM/PM_{10} (filterable	Methods 201 or 201A*
PM (condensable)	Method 202
VOM	Method 18 or 25A
NO_x	Method 7E or 19
CO	Method 10 or 10B
Metals	Method 29

* The Permittee may also use Method 5 as an alternative to Method 201A, provided that the measured results shall be considered PM_{10}.

v. In addition to other required information, the test report shall include data for the sulfur and PM content of BFG and the metals content of the material removed from raw BFG by the pretreatment system during the period of testing, with supporting calculations.

c. For this emission testing, test notifications and reporting shall be done by the Permittee in accordance with Conditions 8.6.2 and 8.6.3 of this permit.

d. Observation of opacity shall be conducted during all emission tests of affected boilers in accordance with Method 9 and the results of these observations included in the reports for emission testing.

7.10.7-2 Additional Performance Testing Requirements (40 CFR Part 63, Subpart DDDDD)

a. Pursuant to 40 CFR 63.7505(c) and 63.7510, if affected Boiler #11 or #12 is subject to emission limits in 40 CFR 63 Subpart DDDDD, the Permittee must demonstrate compliance with all limits that are applicable using performance testing according to 40 CFR 63.7(a)(2) and 63.7520 and fuel analysis according to 40 CFR 63.7521, including a continuous emissions monitoring system (CEMS) where applicable, in a timely manner. The Permittee may demonstrate compliance with the applicable emission limit for hydrogen chloride or mercury using fuel analysis if the emission rate calculated according to 40 CFR 63.7530(c) is less than the applicable emission limit. Otherwise, the Permittee must demonstrate compliance for hydrogen chloride or mercury using performance testing.

i. Pursuant to 40 CFR 63.7545(d),the Permittee must submit a Notification of Intent to conduct a performance test at least 60 days before the performance test is scheduled to begin.

ii. Pursuant to 40 CFR 63.7510(a), performance tests shall be conducted according to 40 CFR 63.7520(a), (c), (d) and (e) and Table 5 to 40 CFR 63, Subpart DDDDD fuel analysis for each type of fuel burned in the boiler shall be conducted according to 40 CFR 63.7521(a),(b) and (e) and Table 6 to 40 CFR 63, Subpart DDDDD, and performance evaluations for the oxygen monitor shall be conducted according to 40 CFR 63.7525.

b. Pursuant to 40 CFR 63.7530(g), if the Permittee elects to demonstrate that the gaseous fuel fired in affected Boiler #11 or #12 meets the specifications of an “other gas 1 fuel” as defined in 40 CFR 63.7575, an initial fuel specification analyses according to 40 CFR 63.7521(f) through (i) must be conducted.

i. If the mercury and hydrogen sulfide constituents in the gaseous fuels will never exceed the specifications included in the definition, the Permittee shall include a signed certification with the Notification of Compliance Status that the initial fuel specification test meets the gas specifications outlined in the definition of other gas 1 fuels.

ii. Pursuant to 40 CFR 63.7540(c), if the Permittee elects to demonstrate that the unit meets the specifications for hydrogen sulfide and mercury for the other gas 1 subcategory and cannot submit a signed certification under 40 CFR 63.7545(g) because the constituents could exceed or vary above the specifications, the Permittee must conduct monthly fuel specification testing of the gaseous fuels, according to the procedures in 40 CFR 63.7521(f) through (i) and 40 CFR 63.7540(c) and maintain records of the results of the testing as outlined in 40 CFR 63.7555(g).

7.10.8-1 Current Monitoring Requirements

Pursuant to 39.5(7)(a) and (d) of the Act, all affected boilers and the cooling tower are subject to the following monitoring requirements:

a. Opacity Observations

The Permittee shall conduct opacity observations for each affected boiler semi-annually in accordance with 40 CFR Part 60, Appendix A, Method 9. The duration of these

observations shall be a minimum of 30 minutes for each boiler.

b. Cooling Tower

i. The Permittee shall sample and analyze the water being circulated in the affected cooling tower on at least a monthly basis for the total dissolved solids content.

ii. Upon written request by the Illinois EPA, the Permittee shall have the water circulating in the affected cooling tower sampled and analyzed for the presence of hexavalent chromium in accordance with the procedures of 40 CFR 63.404(a) and (b).

c. Analysis of BFG

i. The Permittee shall sample and analyze cleaned BFG after the pretreatment system for sulfur content (lb/scf and lb/mmBtu), using appropriate ASTM methods or other comparable methodology. These measurements shall be conducted on at least a quarterly basis. The records for this activity shall also include operating data for the blast furnaces and the BFG pretreatment system at the time of sampling.

ii. The Permittee shall sample and analyze the cleaned BFG after the pretreatment system for PM content (gr/scf and lbs/mmBtu) and the material collected by the BFG pretreatment system for HAP metal content (by weight, dry basis, for individual metals as addressed by Method 29) using appropriate ASTM methods or other comparable methodology. These measurements shall be conducted at least every two years. The records for this activity shall also include operating data for the blast furnaces and the BFG pretreatment system at the time of sampling.

7.10.8-2 Additional Monitoring Requirements (40 CFR Part 63 Subpart DDDDD)

Unless an affected boiler is operating as a blast furnace gas fuel-fired boiler, as defined in 40 CFR 63.7575, or is otherwise exempt, beginning on the compliance date of this NESHAP for existing sources, the Permittee must:

a. Install, operate, and maintain a continuous oxygen monitor according to the procedures in 40 CFR 63.7525 (a)(1) through (6) and 63.7535. The oxygen level shall be monitored at the outlet of the boilers [40 CFR 63.7525(a)].

b. Monitor the operating parameters identified in Items 7, 8 and 9 of Table 8 of 40 CFR 63 Subpart DDDDD [40 CFR 63.7540(a)].

c. Operation above the established maximum or below the established minimum operating limits shall constitute a deviation of established operating limits listed in Table 4 of 40 CFR 63 Subpart DDDDD except during performance tests conducted to determine compliance with the emission limits or to establish new operating limits. Operating limits must be confirmed or reestablished during performance tests [40 CFR 63.7540(a)(1)].

7.10.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items, pursuant to Sections 39.5(7)(a) and (e) of the Act:

a. Affected Power Boiler #1:

i. A file which contains supporting documentation which demonstrates the maximum design firing rate of the affected boiler (mmBtu/hour), the maximum design BFG input, and the manufacturer’s guarantees for the emission rates of the natural gas burners in the affected boiler.

ii. NSPS Data

A. The applicable recordkeeping required by the NSPS for startup, shutdown and malfunction, pursuant to 40 CFR 60.7(b).

B. Daily records of the fuel consumption, pursuant to 40 CFR 60.49b(d)(1).

iii. Fuel usage

A. Records for the amounts of fuel burned by type (mmBtu/month and mmBtu/year) for the affected boiler.

B. Records for the amounts of fuel burned for the affected boiler and the new BFG flare, combined, by type (mmBtu/month and mmBtu/year).

iv. Emissions

The Permittee shall keep the following records related to the emissions of affected Power Boiler #1 to verify compliance with the applicable limits in Condition 7.10.6(a):

A. A file containing the emission factors used by the Permittee to determine emissions of pollutants other than SO2 from the affected boiler and BFG Flare #2, with supporting documentation. These records shall be reviewed

and updated by the Permittee as necessary to assure that the emission factors that it uses to determine emissions of the affected boiler do not understate actual emissions. These records shall be prepared and copies sent to the Illinois EPA in accordance with Condition 5.9.6(c).

B. Records of emissions of NO_x, CO, VOM, PM/PM_{10}, SO_2 and HAPs (tons/month and tons/year) from this boiler, with supporting calculations.

C. Records of summation of emissions of NO_x, CO, VOM, PM/PM_{10}, SO_2 and HAPs from this boiler and BFG Flare #2 (tons/month and tons/year), with supporting calculations.

v. Records of the electricity from the generator associated with Power Boiler #1 sent to the grid for sale per calendar year (MW-hours).

b. Affected Cooling Tower:

i. The Permittee shall keep records of the water circulation capacity of the cooling tower (gallons/minute, hourly average), with supporting calculations.

ii. The Permittee shall keep records of emissions of PM/PM_{10} (tons/month and tons/year), with supporting calculations.

c. Affected Boilers #11 and #12:

i. The following operating information for each boiler:

Usage of each type of fuel (natural gas, COG and BFG gas), in million ft^3 per month and million ft^3 per year.

ii. The Permittee shall keep inspection, maintenance, and repair logs with dates and the nature of such activities for each boiler.

iii. A file containing the emission factors used by the Permittee to determine emissions of NO_x and CO from affected Boilers #11 and #12, with supporting documentation. These records shall be reviewed and updated by the Permittee as necessary to assure that the emission factors that it uses to determine NO_x and CO emissions of these boilers do not understate actual emissions.

d. Records for Startups of Affected Boilers, pursuant to Section 39.5(7)(b) of the Act

i. The Permittee shall maintain startup procedures for each affected boiler, as required by Condition 7.10.3(i)(ii).

ii. The Permittee shall maintain the following records for each startup of an affected boiler:

A. Date, time and duration of the startup.

B. A description of the startup and reason(s) for the startup.

C. Whether a violation of an applicable standard may have occurred during startup accompanied by the information in Condition 7.10.9(d)(iv) if a violation may have or did occur.

D. Whether the established startup procedures, maintained above, were followed accompanied by the information in Condition 7.10.9(d)(iii) if there were departure(s) from those procedures.

iii. If the established startup procedures were not followed during a startup, the Permittee shall maintain the following records:

A. A description of the departure(s) from the established procedures.

B. The reason(s) for the departure(s) from the established procedures.

C. An explanation of the consequences of the departure(s) for emissions, such as whether the departure(s) prolonged the startup or resulted in additional emissions, and if so:

1. The actions taken to minimize emissions and the duration of the startup; and

2. An explanation whether similar incidents might be prevented in the future and if so, the corrective actions taken or to be taken to prevent similar incidents.

iv. If a violation did or may have occurred during a startup, the Permittee shall maintain the following records:

A. Identification of the applicable standard(s) that were or may have been violated.

B. An explanation of the nature of such violation(s), including the magnitude of such excess emissions.

C. A description of the actions taken or to be taken to minimize the magnitude of emissions and duration of the startup.

D. An explanation whether similar incidents could be prevented or ameliorated in the future and if so, a description of the actions taken or to be taken to prevent similar incidents in the future.

e. Records for Malfunctions or Breakdowns

Pursuant to 35 IAC 201.263, the Permittee shall maintain records of continued operation of the affected boilers as addressed by Condition 7.10.3(j), during malfunctions or breakdowns, which at a minimum, shall include the following records. The preparation of these records shall be completed within 45 days of an incident, unless the Permittee conducts a root cause analysis for the incident, in which case the preparation of these records, other than the root cause analysis, shall be completed within 120 days of the incident.

i. Date, time and duration of the incident.

ii. A detailed description of the incident, including:

A. A chronology of significant events during and leading up to the incident.

B. Relevant operating data for the unit, including information such as operator log entries and directives provided by management during the incident.

C. The measures taken to reduce the quantity of emissions and the duration of the incident including the resources utilized to address the incident.

D. The magnitude of emissions during the incident.

iii. An explanation why continued operation of an affected boiler was necessary to prevent personnel injury or prevent equipment damage.

iv. A discussion of the cause(s) or probable cause(s) of the incident including the following:

A. Whether the incident was sudden, unavoidable, or preventable, including:

1. Why the equipment design did not prevent the incident;

2. Why better maintenance could not have avoided the incident;

3. Why better operating practices could not have avoided the incident; and

4. Why there was no advance indication for the incident.

B. Whether the incident stemmed from any activity or event that could have been foreseen, avoided or planned for.

C. Whether the incident was or is part of a recurring pattern indicative of inadequate design, operation or maintenance.

v. A description of any steps taken or to be taken to prevent similar future incidents or reduce their frequency and severity.

vi. As an alternative to keeping the records required by Condition 7.10.9(e)(iv), the Permittee may perform a root cause analysis. For this purpose, a root cause analysis is an analysis whose purpose is to determine, correct and eliminate the primary causes of the incident and the excess emissions resulting there from. If the Permittee performs a root cause analysis method that would define the problem, define all causal relationships, provide a causal path to the root cause, delineate the evidence, and provide solutions to prevent a recurrence. Such an analysis shall be completed within one year of the incident.

f. Records for the emission testing conducted on the affected boilers.

g. If the Permittee operates under manufacturer’s specifications or manufacturer’s instructions, such manufacturer’s documentation shall be kept at the source as part of the required records.

h. Unless an affected boiler is operating as a blast furnace gas fuel-fired boiler, as defined in 40 CFR 63.7575, or is otherwise exempt, beginning on the compliance date of this NESHAP for existing sources, the Permittee must keep records in accordance with 40 CFR 63.7555(a) through (h) as applicable.

7.10.10 Reporting Requirements

a. i. The Permittee shall promptly notify the Illinois EPA, Air Compliance Section, within 30 days of deviations of the affected boilers and affected cooling tower from the following applicable requirements unless a NESHAP standard specifies a different time frame, pursuant to Section 39.5(7)(f)(ii) of the Act:

A. Requirements in Condition 7.10.3(b), (d) and (e) through (h).

B. Requirements in Condition 7.10.5.

C. Requirements in Condition 7.10.6.

ii. All such deviations shall be summarized and reported as part of the semiannual monitoring report required by Condition 8.6.1.

b. The Permittee shall notify the Illinois EPA, Air Compliance Section, of all other deviations as part of the semiannual monitoring reports required by Condition 8.6.1.

c. All deviation reports described in Condition 7.10.10(a) and (b) above shall contain the following:

i. Date, time and duration of the deviation;

ii. Description of the deviation;

iii. Probable cause of the deviation; and

iv. Any corrective actions or preventive measures taken.

d. Reporting on the State malfunction and breakdown authorization shall be performed in accordance with Condition 5.10.5-2.

e. For affected Power Boiler #1, the Permittee shall comply with the applicable reporting requirements of the NSPS, as specified in 40 CFR 60.7 and 60.49b.

f. Unless an affected boiler is operating as a blast furnace gas fuel-fired boiler, as defined in 40 CFR 63.7575, or is otherwise exempt, beginning on the compliance date of this NESHAP for existing sources, the Permittee must report each instance in which it did not meet each emission limit and operating limit in Tables 1 through 4 to 40 CFR 63 Subpart DDDDD that are applicable. These instances are deviations from the established emission limits. These deviations must be reported according to the requirements in 40 CFR 63.7550.

g. Reporting on the State startup authorization shall be performed in accordance with Condition 5.10.5-1.

h. Reporting on the Federal SSM authorization shall be performed in accordance with Condition 5.10.5-3.

7.10.11 Compliance Procedures

For affected boilers, compliance with the applicable standards of Condition 7.10.3, the work practice requirements of Condition 7.10.5-1, and the production/operating and the emission limits of Condition 7.10.6 is addressed by the work practices, testing, monitoring, recordkeeping and reporting requirements in Section 7.10 of this permit.

7.10.12 State-Only Conditions

a. Applicable requirements for affected Boilers #11 and #12 from Permit 10080022:

i. Pursuant to 35 IAC 217.150, 217.152, and 217.160, by the applicable compliance date for 35 IAC Part 217 Subparts D and E, the Permittee shall comply with applicable requirements of these rules for the affected boilers, including:

A. Compliance with the applicable NO_x emissions limitation in lb/mmBtu, calculated in accordance with 35 IAC 217.164(b), on an ozone season (May 1 through September 30) and annual basis [35 IAC 217.164(b)].

B. Operation of each affected boiler in a manner consistent with good air pollution control practices to minimize NO_x emissions [35 IAC 217.150(e)].

C. Certifying to the Illinois EPA that the affected boilers will be in compliance with the applicable emissions limitation of 35 IAC 217.164 by the applicable compliance date [35 IAC 217.152 and 217.155(b)].

D. Installation, operation and maintenance of a Continuous Emissions Monitoring System (CEMS) on each affected boiler to measure emissions of NO_x, with accompanying recordkeeping and reporting for the operation and maintenance of each CEMS [35 IAC 217.157(a)(2) and 217.156(b)(9), (b)(10) and (j)].

ii. Recordkeeping Requirements [39.5(7)(e) of the Act]

Beginning on the compliance date of 35 IAC 217 Subparts D and E, the Permittee shall keep the following records for each Boiler #11 and #12:

A. Usage of each type of fuel (natural gas, coke oven gas and blast furnace gas), in million ft^3 per month and million ft^3 per year.

B. The actual heat input in mmBtu per ozone season and mmBtu per year, for each fuel, with supporting documentation for the heat content of each fuel.

C. The applicable NO_x emission limitation in lb/mmBtu for each ozone season and each calendar year, calculated in accordance with 35 IAC 217.164(b).

D. The average hourly NO_x emission data.

E. The ozone season and annual NO_x emissions (pounds).

F. The ozone season average and annual average NO_x emission rates (lbs/mmBtu heat input) calculated within 30 days of the end of the averaging periods (i.e. calculated by October 30 for ozone season averaging period and by January 30 for annual averaging period).

G. Inspection, maintenance, and repair logs with dates and the nature of such activities for each affected boiler.

iii. Reporting Requirements [39.5(7)(f) of the Act]

If there is any deviation of the requirements of Condition 7.10.12, the Permittee shall promptly report to the Illinois EPA as specified below and report shall include a description of the deviation, the probable cause of the deviation, corrective actions taken, and any preventive measures taken:

A. Deviations from the NO_x emission limitation in 35 IAC 217.164(b) shall be reported within 30 days of such occurrence.

B. Other deviations shall be reported in a semi-annual report.

7.10.13 Construction Permit Conditions for Equipment that is not yet built

Applicable requirements for portable Boilers #1 through #4 from Permit 10100042:

a. Pursuant to the NSPS, 40 CFR 60.11(d), at all times the Permittee shall, to the extent practicable, maintain and operate each portable boiler in a manner consistent with good air pollution control practices for minimizing emissions.

b. Pursuant to 35 IAC 216.121, the emission of carbon monoxide (CO) from each portable boiler shall not exceed 200 ppm, corrected to 50 percent excess air.

c. Pursuant to 35 IAC 212.123(a), the opacity of the exhaust from each portable boiler shall not exceed 30 percent, except as provided in 35 IAC 212.123(b).

d. This permit is issued based on the emissions of HAPs as listed in Section 112(b) of the Clean Air Act from the affected boilers being less than 10 tons per year of a single HAP and 25 tons per year of any combinations of such HAPs, so that these boilers are considered a minor source for HAPs.

e. This permit is issued based on the portable boilers not being subject to the control requirements of 35 IAC 217, Subparts D and E, which establish requirements that reflect Reasonably Available Control Technology (RACT) for boilers related to emission of nitrogen oxide (NO_x). This is because the NO_x emissions from each portable boiler are restricted to less than 15 tons per year and to less than 5 tons per ozone season, pursuant to 35 IAC 217.150(a), as addressed further.

f. Natural gas shall be the only fuel fired in the portable boilers.

g. The maximum design heat input capacity of each portable boiler, as defined by the NSPS, 40 CFR 60.41c, shall not exceed 100 mmBtu/hour.

Note: If a portable boiler were to have a heat input capacity of greater than 100 mmBtu/hr, it would be subject to the NSPS, 40 CFR 60 Subpart Db, rather than Subpart Dc.

h. i. The total consumption of natural gas by the portable boilers shall not exceed 1,738 million scf per year, combined.

ii. Beginning Calendar year 2012 or such later date, the natural gas usage by each portable boiler shall not exceed 812 million scf per year and 267 million scf

during each ozone season (May 1 through September 30).

i. The portable boilers shall only be used to address interruptions in the normal steam supply to the Granite City Works. For this purpose, the portable boilers and existing boilers may operate simultaneously, as may be needed to ensure availability of the portable boilers and facilitate transitions between existing boilers and the portable boilers.

j. i. Short-term emissions from each portable boiler shall not exceed 0.036 lb of NO_x/mmBtu and 3.6 and 3.8 lbs/hour, for NO_x and CO, respectively.

ii. Annual emissions from the portable boilers, combined shall not exceed the following limits. These limits are established based on total fuel usage of 1,738 million scf per year. Compliance with these limitations and the annual fuel consumption limit shall be determined from a running total of 12 months of data.

Pollutant	Emission Limit (ton/year)
NO_x	31.9
CO	33.2
VOM	3.5
$PM/PM_{10}/PM_{2.5}$	1.1
SO_2	1.3
Individual HAP[1]	1.8
Total HAP	3.5

[1] Individual HAP refers to individual pollutants, such as Formaldehyde, Benzene, Toluene, Hexane, etc.

k. Beginning Calendar Year 2012, the NO_X emissions of each portable boiler shall be less than the applicability thresholds of 35 IAC 217, Subparts D and E, i.e., less than 15 tons per year and less than 5 tons during each ozone season.

l. The Permittee shall operate and maintain the portable boilers in accordance with good air pollution control practices to assure proper functioning of equipment and minimize malfunctions, including maintaining the boiler in accordance with written procedures developed for this purpose.

m. Within 90 days after a written request from the Illinois EPA or such later date agreed to by the Illinois EPA, the Permittee shall have NO_X and CO emissions of portable

boiler(s), as specified in the request, measured by an independent testing service approved by the Illinois EPA.

n. The Permittee shall maintain the following records for the portable boilers:

i. A file containing the following information:

A. The maximum design heat input capacity of each portable boiler, mmBtu/hour, with supporting documentation.

B. The maximum fuel flow rate to each portable boiler, in scf/hour and mmBtu/hour, with supporting documentation.

C. The guarantee or other information for the NO_x and CO emission rates of each portable boiler, in lb/hour and in lb/mmBtu (NO_x only), with supporting documentation.

ii. An operating log or other records for the portable boilers that, at a minimum, shall include the following information:

A. Information identifying each period when portable boiler(s) are operated, with the explanation why the boiler(s) need to be operated to maintain the normal steam supply for the source.

B. If the maximum design heat input capacity of the portable boiler is more than 95 mmBtu/hour, operating records to demonstrate that the boiler is not fired at more than 100 mmBtu/hour.

C. Information for each startup and shutdown, including date, time and duration, as required by 40 CFR 60.7(b).

D. Information for any incident in which the operation of each portable boiler continued during malfunction or breakdown, as required by 40 CFR 60.7(b). These records shall include date, time, and duration; a description of the incident; whether emissions exceeded or may have exceeded any applicable standard; a description of the corrective actions taken to reduce emissions and the duration of the incident; and a description of the preventative actions taken.

iii. An inspection, maintenance, and repair log with dates and the nature of such activities for the portable boilers.

iv. The following records for the natural gas usage of the portable boilers:

A. Natural gas usage of each boiler, pursuant to 40 CFR 60.48c(g) (scf/month).

B. Total natural gas usage of the boilers (scf/year).

v. Records of the monthly and annual emissions of NO_x, CO, $PM/PM_{10}/PM_{2.5}$, VOM, SO_2, and HAPs from the boilers (tons/month and tons/year), with supporting data and calculations.

vi. Beginning Calendar year 2012, records of NO_x emissions for each portable boiler for the calendar year (ton/year) and for the ozone season (ton/season).

o. Pursuant to 40 CFR 60.7(a)(3) and 60.48c(a), the Permittee shall furnish the Illinois EPA with written notification of initial startup of each portable boiler. This notification shall be submitted within 15 days after the initial startup of the portable boiler, postmarked by such date, and include the following information. For this purpose, a separate notification shall be provided each time that portable boiler(s) are installed at the Granite City Works.

i. The design heat input capacity of the boiler and identification of the fuels to be combusted in the boiler, pursuant to 40 CFR 60.48c(a)(1).

ii. The annual capacity factor at which the Permittee anticipates operating the boiler based on fuel fired, pursuant to 40 CFR 60.48c(a)(3).

iii. With the notification required from above, the Permittee shall also provide the manufacturer and serial number of portable boiler(s).

p. The Permittee shall notify the Illinois EPA of deviations of the portable boilers with the requirements of Condition 7.10.13 within 30 days of an occurrence. Reports shall describe the deviation, the probable cause of such deviations, the corrective actions taken, and any preventive measures taken.

7.11 Internal Combustion Engine

7.11.1 Description

A diesel fuel fired emergency engine-generator is used for power outages at the facility.

Note: This narrative description is for informational purposes only and is not enforceable.

7.11.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Date Constructed	Emission Control Equipment
Engine	Emergency Engine-Generator (maximum power output 3,500 HP)	2001	None

7.11.3 Applicable Provisions and Regulations

a. The “affected engine” for the purpose of these unit-specific conditions, is the emission unit described in Conditions 7.11.1 and 7.11.2.

b. The affected engine is subject to 35 IAC 212.458(b)(7) and (c), which provides that its PM_{10} emissions shall not exceed 22.9 mg/scm (0.01 gr/scf), provided however that this limit shall not apply if there are no visible emissions, except if a stack test is performed. The absence of visible emissions is not a defense to a finding violation.

c. The affected engine is subject to 35 IAC 212.123(a), which provides that no person shall cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere from any emission unit other than those emission units subject to the requirements of 35 IAC 212.122, except as allowed by 35 IAC 212.123(b) and 212.124.

d. The affected engine is subject to 35 IAC 214.301 and 35 IAC 214.304/214.122, which provides that no person shall cause or allow the emission of sulfur dioxide into the atmosphere from any process emission source to exceed 2000 ppm and from any fuel burning process emission unit burning distillate oil to exceed 0.3 lbs/mmBtu.

7.11.4 Non-Applicability of Regulations of Concern

a. The affected engine is not subject to 40 CFR Part 63 Subpart ZZZZ because it is not a spark ignition engine.

b. The affected engine is not subject to 40 CFR Part 60 Subpart IIII, because the affected engine was manufactured before 2006 and was not modified or reconstructed

thereafter, so does not meet applicable criteria in 40 CFR 60.4200(a).

c. The affected engine is not subject to 35 IAC Part 217, because the affected engine is not a type of process emission unit addressed by Part 217.

d. The affected engine is not subject to the requirements of 35 IAC 212.321 because it does not have a process weight rate as defined in 35 IAC 211.5250.

e. The affected engine is not subject to 35 IAC 216.121, because the affected engine is not by definition a fuel combustion emission unit.

f. 35 IAC 212.324 is not applicable to the affected engine pursuant to 35 IAC 212.324(a)(3), because the affected engine is subject to 35 IAC 212.458(b)(7), an emission limitation in 35 IAC Part 212, Subpart R.

7.11.5 Control Requirements and Work Practices

The operation of the emergency generator is limited to 500 hours per year [00060003, T1].

7.11.6 Production and Emission Limitations from Permit 00060003 [T1]

a. Emissions of the affected engine shall not exceed the following limits:

Pollutant	Emissions (lbs/hr)	Emissions (T/yr)
PM	2.48*	0.62
CO	21.11*	5.3
NO_x	79.49*	19.9
SO_2	12.54	3.1

* Operation at a level of 10 percent higher than the applicable hourly emissions limits above is allowed during startup.

b. Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total) [T1].

7.11.7 Testing Requirements

Upon the written request from the Illinois EPA, the emission tests shall be conducted by the Permittee for the affected engine to verify compliance with emission limits in Condition 7.11.6 as follows [Sections 39.5(7)(c), (d) and (p) of the Act].

a. The following USEPA test methods shall be used, unless another USEPA method is approved by the Illinois EPA.

Location of Sample Points	Method 1
Gas Flow and Velocity	Method 2
Flue Gas Weight	Method 3
Moisture	Method 4
PM	Method 5
NO_x	Method 7E or 19
CO	Method 10 or 10B

b. Observations of opacity shall be conducted during these emission tests in accordance with Method 9 and the results of these observations included in the reports for emission testing.

c. For this emission testing, test notifications and reporting shall be done by the Permittee in accordance with Conditions 8.6.2 and 8.6.3 of this permit.

7.11.8 Monitoring Requirements

a. The Permittee shall perform annual sampling and analysis for sulfur content (lbs/mmBtu) in the fuel for the affected engine or obtain a certification for each fuel supplied delivery for the affected engine [Section 39.5(7)(d) of the Act].

b. The Permittee shall conduct opacity observations for the affected engine in accordance with Method 9 on an annual basis if the affected engine starts for purposes of reliability testing. The duration of Method 9 test shall be equal to 30 minutes or the duration of the reliability test, whichever is less [Section 39.5(7)(p) of the Act].

7.11.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items for the affected engine, pursuant to Sections 39.5(7)(a) and (e) of the Act:

a. A file for the affected engine containing:

i. The manufacturer’s emission guarantees or emission data for the engine, for PM, CO and NO_x, both during normal operation and startup (lbs/hour and lbs/gallon) and manufacturer’s data for fuel consumption and exhaust flow rate from the engine, with supporting documentation.

ii. Engineering calculations to demonstrate that PM emissions comply with 35 IAC 212.458(b)(7) and to determine the greatest sulfur content (lbs/mmBtu) in fuel with which compliance with 35 IAC 214.301 and 35 IAC 214.304/214.122 would be shown.

iii. The emission rate(s) used by the Permittee to determine emissions of the affected engine when these rates are different from the manufacturer's rates, accompanied by supporting documentation. Copies of these records shall be submitted to the Illinois EPA, with initial records submitted within 15 days of the date that the records are prepared or 30 days after the effective date of this permit, whichever is later and subsequent revisions to these records submitted within 15 days of the date that the Permittee completes preparation of revised records.

b. Records of fuel consumption (gal/month and gal/year).

c. Records of hours of operation (hrs/yr).

d. Records for number of startups.

e. Records for the sulfur content (lbs/mmBtu) of fuel as determined by sampling and analyses of fuel or copies of supplier certifications for sulfur content of fuel and identification of any use of oil whose sulfur content exceeded the level for compliance, as determined pursuant to Condition 7.11.9(a)(ii).

f. Records of emissions of PM, CO, NO_x and SO_2 (tons/month and tons/year) from the engine with supporting calculations. For this purpose, PM, CO and NO_x emissions shall be calculated from fuel usage and number of startups and the manufacturer's emission guarantees for emission rates or such higher emission rate(s) that accurately reflect actual operation of the engine. SO_2 emissions shall be calculated from the sulfur content of the fuel and fuel usage, assuming complete conversion of sulfur to SO_2.

g. Records for stack tests and opacity observations.

7.11.10 Reporting Requirements

a. i. Pursuant to Section 39.5(7)(f)(ii) of the Act, the Permittee shall promptly notify the Illinois EPA, Air Compliance Section, within 30 days of deviations by the affected engine as follows:

A. Requirements in Condition 7.11.3(b), (c) and (d).

B. Requirements in Condition 7.11.5.

C. Requirements in Condition 7.11.6.

ii. All such deviations shall be summarized and reported as part of the semiannual monitoring report required by Condition 8.6.1.

b. The Permittee shall notify the Illinois EPA, Air Compliance Section, of all other deviations as part of the semiannual monitoring reports required by Condition 8.6.1.

c. All deviation reports described in Condition 7.11.10 above shall contain the following:

i. Date, time and duration of the deviation;

ii. Description of the deviation;

iii. Probable cause of the deviation; and

iv. Any corrective action or preventive measures taken.

7.11.11 Operational Flexibility/Anticipated Operating Scenarios

Operational flexibility is not set for the affected engine.

7.11.12 Compliance Procedures

For the affected engine, compliance with the applicable standards of Condition 7.11.3, the control/work practice requirements of Condition 7.11.5, and the production/emission limits of Condition 7.11.6 is addressed by testing, monitoring, recordkeeping and reporting requirements in Section 7.11 of this permit.

7.11.13 State-Only Conditions

State-only conditions are not being established.

7.12 Gasoline Storage and Dispensing

7.12.1 Description

Gasoline storage and dispensing is conducted for the Permittee's fleet of gasoline fueled vehicles. There are several such stations at the facility, so that fleet vehicles do not have to travel on public roads to reach the fueling stations.

Note: This narrative description is for informational purposes only and is not enforceable.

7.12.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Date Constructed	Emission Control Equipment
Gasoline Storage	Four storage tanks located at: Storeroom (1,000 gallons capacity); Machine Shop (1,000 gallons capacity); Wastewater Facility (250 gallons capacity); Blast Furnace Facility(1,000 gallons capacity)	N/A	Control Practices: Submerged loading pipe (all tanks) and Stage I system (tanks with 1,000 gallons capacity)

7.12.3 Applicable Provisions and Regulations

a. The "affected gasoline storage tanks", for the purpose of these unit-specific conditions are the tanks described in Conditions 7.12.1 and 7.12.2 above.

b. The affected gasoline storage tank at the wastewater facility is subject to the following:

No person shall cause or allow the loading of any organic material into any stationary tank having a storage capacity of greater than 946 l (250 gal), unless such tank is equipped with a permanent submerged loading pipe [35 IAC 219.122(b)].

c. Pursuant to 35 IAC 219.583(c)(1), the affected gasoline storage tanks at the storeroom, machine shop and blast furnace facility are subject to the following requirements of 35 IAC 219.583(a): No person shall cause or allow the transfer of gasoline from any delivery vessel into any stationary storage tank at a gasoline dispensing facility unless:

i. The tank is equipped with a submerged loading pipe [35 IAC 219.583(a)(1)].

ii. The vapors displaced from the storage tank during filling are processed by a vapor control system [35 IAC 219.583(a)(2)].

iii. All tank vent pipes are equipped with pressure/vacuum relief valves that are designed and shall be set to resist a pressure of at least 3.5 inches water column and to resist a vacuum of no less than 6.0 inches water column [35 IAC 219.583(a)(3)].

d. Pursuant to 35 IAC 219.585(a), all the affected gasoline storage tanks are subject to the following: No person shall sell, offer for sale, dispense, supply, offer for supply, or transport for use in Illinois gasoline whose Reid vapor pressure exceeds the applicable limitations set forth below during the regulatory control periods, which shall be June 1 to September 15.

i. The Reid vapor pressure of gasoline, a measure of its volatility, shall not exceed 7.2 psi (9.68 kPa) during the regulatory control period [35 IAC 219.585(b)].

ii. The Reid vapor pressure of ethanol blend gasolines having at least nine percent (9%) but not more than ten percent (10%) ethyl alcohol by volume of the blended mixture, shall not exceed the limitations for gasoline set forth in Condition 7.12.2(d)(i) above by more than 1.0 psi (6.9 kPa) [35 IAC 219.585(c)].

7.12.4 Non-Applicability of Regulations of Concern

a. This permit is issued based on the affected gasoline storage tank not being subject to the NSPS for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels), 40 CFR Part 60, Subpart Kb, because each tank is less than 40 cubic meters (10,566 gallons).

b. This permit is issued based on the affected gasoline storage tanks not being subject to 35 IAC 219.121, because each affected tank is less than 40,000 gallons [35 IAC 219.121].

c. This permit is issued based on the affected gasoline storage tanks not being subject to 35 IAC 219.122(a), because each affected tank is less than 40,000 gallons [35 IAC 219.122].

d. The affected gasoline storage tanks are not subject to 35 IAC 219.301 because the affected gasoline storage tanks do not use organic material. In addition, the storage tanks are regulated by 35 IAC 219.122(b) and 35 IAC 219.583(c)(1).

e. The affected gasoline storage and dispensing operations are not part of a bulk gasoline plant (35 IAC 219.581) or bulk gasoline terminals (35 IAC 219.582) pursuant to relevant definitions in 35 IAC Part 211.

f. This permit is issued based on the gasoline storage and dispensing operations performed at wastewater facility not being subject to 35 IAC 219.583(a)(2) and (a)(3) pursuant to 35 IAC 219.583(b)(3), because the tank capacity is less than 575 gallons.

g. The affected gasoline storage tanks are not eligible for the exemption from the permitting in 35 IAC 219.583(e) because they are not located at retail dispensing operations, as defined at 35 IAC 211.5630.

7.12.5 Control Requirements and Work Practices

The affected gasoline storage tanks (other than the affected gasoline storage tank at the wastewater facility) are subject to the following control requirements and work practices:

a. Pursuant to 35 IAC 219.583(c), each owner of a gasoline dispensing operation shall:

i. Install all control systems and make all process modifications required by Condition 7.12.3(c) (see also 35 IAC 219.583(a)) [35 IAC 219.583(c)(1)];

ii. Provide instructions to the operator of the gasoline dispensing operation describing necessary maintenance operations and procedures for prompt notification of the owner in case of any malfunction of a vapor control system [35 IAC 219.583(c)(2)]; and

iii. Repair, replace or modify any worn out or malfunctioning component or element of design [35 IAC 219.583(c)(3)].

b. Pursuant to 35 IAC 219.583(d), each operator of a gasoline dispensing operation shall:

i. Maintain and operate each vapor control system in accordance with the owner’s instructions [35 IAC 219.583(d)(1)];

ii. Promptly notify the owner of any scheduled maintenance or malfunction requiring replacement or repair of a major component of a vapor control system [35 IAC 219.583(d)(2)];

iii. Maintain gauges, meters or other specified testing devices in proper working order [35 IAC 219.583(d)(3)]; and

iv. Pursuant to 35 IAC 219.583(d)(4), operate the vapor collection system and delivery vessel unloading points in a manner that prevents:

A. A reading equal to or greater than 100 percent of the lower explosive limit (LEL measured as propane) when tested in accordance with the procedure described in EPA 450/2-78-051 Appendix B [35 IAC 219.583(d)(4)(A)]; and

B. Avoidable leaks of liquid during the filling of storage tanks [35 IAC 214.583(d)(4)(B)].

v. Within 15 business days after discovery of the leak by the owner, operator, or the Agency, repair and retest a vapor collection system which exceeds the limits of Condition 7.12.5(iv) above [35 IAC 219.583(d)(5)].

c. Pursuant to 35 IAC 219.584(a), the Permittee shall ensure that each gasoline delivery vessel that comes on to the property to fill the affected gasoline storage tanks at the storeroom, machine shop, or blast furnace facility are complying with the following:

i. Shall have a vapor space connection that is equipped with fittings which are vapor tight;

ii. Shall have its hatches closed at all times during unloading operations, unless a top loading vapor recovery system is used;

iii. Shall not internally exceed a gauge pressure of 18 inches of water or a vacuum of 6 inches of water;

iv. Shall be designed and maintained to be vapor tight at all times during normal operations;

v. Shall not be refilled in Illinois at other than a bulk gasoline terminal that complies with the requirements of 35 IAC 219.582 or a bulk gasoline plant that complies with the requirements of 35 IAC 219.581(b).

vi. Shall have a sticker affixed to the tank adjacent to the tank manufacturer's data plate which contains the tester’s name, the tank identification number and the date of the test. The sticker shall be in a form prescribed by the Illinois EPA.

7.12.6 Production and Emission Limitations

Production and emission limitations are not set for the affected gasoline storage tanks.

7.12.7 Testing Requirements

a. Pursuant to 35 219.583(a)(4), the Permittee shall demonstrate compliance with the pressure/vacuum relief valves specifications of Condition 7.12.3(c)(iii) at a gasoline dispensing operation by measuring and recording the pressure indicated by a pressure/vacuum gauge at each tank vent pipe 30 days after installation of each pressure/vacuum relief valve, and at least annually thereafter. The test shall be performed on each tank vent pipe within two hours after product delivery into the respective storage tank. For manifold tank vent systems, observations at any point within the system shall be adequate.

b. The Permittee shall test the relief valves whenever there is a modification of an existing vapor control system [39.5(7)(d) and (p) of the Act].

7.12.8 Monitoring Requirements

The Permittee shall perform the following monitoring pursuant to Sections 39.5(7)(a) and (d) of the Act.

a. The Permittee shall perform semi-annual inspections of the gasoline storage and dispensing operations at the storeroom, machine shop and blast furnace while the tank is being filled.

   i. Retractors, hoses, breakaways, swivels

   ii. Adapters, vapor caps, rubber gaskets, and spill containment buckets

b. The Permittee shall perform an annual inspection of the gasoline storage tank at wastewater facility and dispensing operation to ensure that a submerged loading pipe is physically present and the condition of the pipe for integrity.

7.12.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items for the affected gasoline storage tanks, pursuant to Sections 39.5(7)(a) and (e) of the Act:

a. Records of the testing and repair of the vapor collection system and pressure/vacuum relief valves, pursuant to Condition 7.12.7.

b. Records of gasoline throughput (gallons per month and gallons per year).

c. For the affected gasoline storage tanks during the regulatory control period, the Permittee shall keep the following records:

i. Retain a copy of an invoice, bill of lading, or other documentation used in normal business practice stating that the Reid vapor pressure of the gasoline complies with the Reid vapor pressure standard as provided in 35 IAC 219.585(h)(1)(A);

ii. Maintain records on the Reid vapor pressure, quantity received and date of delivery of any gasoline or ethanol blends arriving at the gasoline operation [35 IAC 219.585(h)(2)].

d. Copies of the annual certification(s) from the supplier of gasoline that all the delivery vessels have been tested and are in compliance with the requirements of Condition 7.12.5(c).

e. A copy of operating and maintenance procedures and instructions for the tanks and vapor control systems.

f. Records for all inspections.

7.12.10 Reporting Requirements

a. i. Pursuant to Section 39.5(7)(f)(ii) of the Act, the Permittee shall promptly notify the Illinois EPA, Air Compliance Section, within 30 days of deviations by the affected gasoline storage tanks from applicable requirements, as follows:

A. Requirements in Condition 7.12.3(b) through (d).

B. Requirements in Condition 7.12.5(a) and (b).

ii. All such deviations shall be summarized and reported as part of the semiannual monitoring report required by Condition 8.6.1.

b. The Permittee shall notify the Illinois EPA, Air Compliance Section, of all other deviations as part of the semiannual monitoring reports required by Condition 8.6.1.

c. All deviation reports described in Condition 7.12.10 above shall contain the following:

i. Date, time and duration of the deviation;

ii. Description of the deviation;

iii. Probable cause of the deviation; and

iv. Any corrective action or preventive measures taken.

7.12.11 Operational Flexibility/Anticipated Operating Scenarios

Operational flexibility is not set for the affected gasoline storage tanks.

7.12.12 Compliance Procedures

For the affected gasoline storage tanks, compliance with the applicable standards of Condition 7.12.3 is addressed by the work practices, testing, monitoring, recordkeeping and reporting requirements described in Section 7.12 of this permit.

7.12.13 State-Only Conditions

State-only conditions are not being established.

7.13 Fugitive Dust

7.13.1 Description

Fugitive dust is emitted from vehicle traffic, unloading operations, wind erosion of piles, roadways, parking lots and other open areas at the facility. The source also emits fugitive dust from an on-site landfill for furnace dusts and other industrial wastes.

Note: This narrative description is for informational purposes only and is not enforceable.

7.13.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Date Constructed	Emission Control Equipment
Fugitive Emissions	Landfill Vehicular Traffic on Roadways, Parking Lots and Other Open Areas Unloading Operations Storage Piles and associated activities Beaching Areas	N/A	N/A

7.13.3 Applicable Provisions and Regulations

a. The “affected activities” for the purpose of these unit-specific conditions, are the activities described in Conditions 7.13.1 and 7.13.2 above.

b. The affected activities are subject to 35 IAC 212.306 which provides that all normal traffic pattern roads and parking facilities which are located on mining or manufacturing property shall be paved or treated with water, oils or chemical dust suppressants. All paved areas shall be cleaned on a regular basis. All areas treated with water, oils or chemical dust suppressants shall have the treatment applied on a regular basis, as needed, in accordance with the operating program required by 35 IAC 212.309, 212.310 and 212.312.

c. All storage piles of materials with uncontrolled emissions of fugitive particulate matter in excess of 45.4 Mg per year (50 T/yr) which are located within a source whose potential particulate emissions from all emission units exceed 90.8 Mg/yr (100 T/yr) shall be protected by a cover or sprayed with a surfactant solution or water on a regular basis, as needed, or treated by an equivalent method, in

accordance with the operating program required by 35 IAC 212.309, 212.310 and 212.312 of 35 IAC Part 212 Subpart K [35 IAC 212.304(a)].

d. Applicable emission limitations established by 35 IAC 212.316:

i. Emission Limitations for Storage Piles. No person shall cause or allow fugitive particulate matter emissions from any storage pile to exceed an opacity of 10 percent, to be measured four ft from the pile surface.

ii. Additional Emissions Limitations for the Granite City Vicinity as defined in 35 IAC 212.316(e)(1):

Emissions Limitations for Roadways or Parking Areas Located at Integrated Iron and Steel Manufacturing Plants. No person shall cause or allow fugitive particulate matter emissions from any roadway or parking area located at a slag processing facility or integrated iron and steel manufacturing plant to exceed an opacity of 5 percent.

iii. Pursuant to 35 IAC 212.316(f), emission limitation for all other activities (see the definition for emission unit in 35 IAC 211.1950). Unless an activity has been assigned a particulate matter, PM_{10}, or fugitive particulate matter emissions limitation elsewhere in 35 IAC 212.316 or in Subparts R or S of 35 IAC Part 212, no person shall cause or allow fugitive particulate matter emissions from any such activity to exceed an opacity of 20 percent.

e. All conveyor loading operations to storage piles specified in 35 IAC 212.304 shall utilize spray systems, telescopic chutes, stone ladders or other equivalent methods in accordance with the operating program required by 35 IAC 212.309, 212.310 and 212.312 [35 IAC 212.305].

7.13.4 Non-Applicability of Regulations of Concern

The landfill operated on the site is not subject to 35 IAC Part 220 for municipal waste landfills. The landfill serves only the needs for Permittee’s operations in accepting industrial waste generated on-site and no municipal or any off-site waste is accepted by this landfill.

7.13.5 Control Requirements and Work Practices

a. Pursuant to permit #95010001 [T1], the Permittee shall comply with the following on-site and off-site fugitive dust control requirements:

i. On-site fugitive dust control

A. The Permittee shall sweep or flush at least every day the paved access area below the BOF ESP where ESP dust collection bags (i.e., super-sacks, storage bags or other containers for ESP dust) are used, stored and transported.

B. The Permittee shall implement a housekeeping program for the non-roadway areas below and around the BOF ESP. This program shall, at a minimum, contain the following:

1. The ground and other accessible areas where dust may gather shall be swept or cleaned at least every day;

2. Cleaning shall be performed in such a manner as to minimize the escape of dust into the atmosphere;

3. Dust collection bags shall be inspected at least daily for rips, tears, or insecure connection to the discharge of the ESP hoppers;

4. Dust collection bags shall be inspected after removal from, and connection to, the discharge of the ESP hoppers;

5. Ripped or torn bags shall be taken out of service and transported in a covered truck.

C. Unpaved Roads. For unpaved roads that are part of normal traffic patterns (including roads B, C, E, N, F-F, and CS(2)) the Permittee shall apply a chemical dust suppressant at least three times a month, with the following exceptions:

1. Road segment G-G, which shall be sprayed at least quarterly;

2. Road segment L, which shall be sprayed at least 4 times per month.

3. All other unpaved roads shall be treated as necessary.

4. Applications of suppressant may be less frequent than specified above if weather conditions, i.e., precipitation or temperature, interfere with the schedule for spraying, provided each such instance shall be recorded in accordance with the

daily records for on-site fugitive dust control required by Condition 7.13.9(b).

D. Paved roadways and areas. Paved roadways and areas shall be maintained in good condition by the Permittee.

On paved roadways and other areas, the Permittee shall sweep or flush as follows:

1. Road segments D, K, M, F, G, J, R, and O shall be swept or flushed at least daily;

2. Road segments P, V, W, X, Z, D-D, E-E, and CS(1) shall be swept or flushed at least five days per week;

3. Road segments S and T shall be swept or flushed at least every other day;

4. Road segments A and H shall be swept or flushed at least once per month;

5. All gate areas leading from the steelworks area shall be swept or flushed at least daily;

6. All gate areas leading from the iron making area shall be swept or flushed at least five times per week.

7. The above on-site dust control measures shall be conducted to maximize their effectiveness by performing said measures when the roads or areas are not obstructed by parked vehicles and by preferentially using filter sweeping (e.g., Enviro-Whirl sweeper) for the gate areas, the roads and areas surrounding the BOPF shop and BOF ESP.

b. The fugitive dust control measures outlined above do not relieve the Permittee from complying with additional control measures identified in the PM_{10} contingency plan as required by Condition 5.3.3 of this permit [95010001, T1R].

c. The landfill operated by the Permittee shall not accept any off-site wastes, including municipal, hospital/medical or hazardous wastes [Section 39.5(7)(l) of the Act].

d. Pursuant to the Road Cleaning Program required by Permit #06070088, the Permittee shall comply with the following control requirements (for purposes of this condition

affected road segments are those identified in Condition 7.13.5(d)(iii):

i. Good air pollution control practices shall be implemented to minimize and reduce nuisance dust from the affected road segments.

ii. Cleaning of affected road segments shall be performed using vacuum cleaning equipment (such as Enviro-Whirl). Any dust laden air shall be vented through a filtering system on the vacuum cleaning equipment before discharge to atmosphere.

The handling of material collected by vacuum cleaning equipment during road cleaning shall be enclosed or shall utilize spraying, pelletizing, screw conveying or other equivalent methods to control PM emissions from transfer of material for disposal.

iii. Affected road segments shall be cleaned on the following frequency except during extended periods of inclement weather that act to prevent emissions of fugitive dust from the affected road segments:

A. Cleaning on a twice weekly basis:

Road Segment	Segment Boundaries
Madison Ave	16th & 20th Streets
Central 20th Street	Madison St. & USS Gate
East 20th Street	USS Gate & Rte 203
21st Street	Rte 203 and Monroe St.
North Edwardsville Rd	20th & Nameoki (Rte 203)

B. Cleaning on a twice monthly basis:

Road Segment	Segment Boundaries
Rock Road	Rte 3 & W. 20th St. (Overpass Approach)
West 20th St.	Rte 3 & Rock Road
Rock Road	W. 20th & Benton St. (Railroad Overpass)
Niedringhaus	Benton St. and 16th St.
16th Street	Niedringhaus & Madison St.
South Edwardsville Rd	20th & McCambridge Ave (Rte 203)
McCambridge Ave	Edwardsville Rd (Rte 203) & 2nd St.
Route 162	Nameoki Rd (Rte 203) & Railroad Tracks
Benton Street	Rock Rd. and Niedringhaus

7.13.6 Production and Emission Limitations

Total fugitive emission of PM/PM_{10} from the roadways at the source shall not exceed 27 tons/year. Compliance with the

annual limits shall be determined based on a calendar year pursuant to Permit 95010001 [T1].

7.13.7 Testing Requirements

a. Opacity observations shall be conducted by a qualified observer in accordance with procedures published in 40 CFR Part 60, Appendix A, Method 9, except as specified below.

i. Opacity readings on each roadway or parking area shall be conducted at least annually. On unpaved roadways or parking areas, the reading shall not be conducted within three days of the application of any dust suppressants.

ii. The Permittee shall observe, one day per calendar month, the opacity of emissions from each active coal storage pile and areas travelled by equipment hauling coal from these coal storage piles to coal processing operations unless prolonged weather conditions preclude scheduled observations. In addition, the observer shall remain in the area for at least 3 hours to perform opacity readings on other coal piles which become active during this 3 hour period.

iii. All opacity readings conducted on visible emissions generated by vehicular traffic on roadways, parking areas and heavy equipment traffic associated with storage piles, shall be in accordance with the procedures specified in 35 IAC 212.109.

iv. All opacity readings on storage piles shall be measured four feet above the pile surface. The duration of opacity observations for each test shall be at least 30 minutes (five 6-minute averages) or 12 minutes without visible emissions.

b. Upon written request by the Illinois EPA, such testing shall be conducted for specific affected operations(s) within 45 calendar days of the request or on the date agreed upon by the Illinois EPA, whichever is later. As least 30 days prior to the scheduled test date, the Permittee shall submit a detailed test plan to the Illinois EPA, describing the manner of operations of the affected activity and all control measures that will be implemented during the testing. The results of the testing will be submitted within thirty calendar days of the completion of the tests.

c. The testing conditions from above are established in accordance with requirements of 39.5(7)(p) of the Act.

d. Pursuant to Permit 06070088, the Permittee shall conduct silt loading measurements as follows [T1] (for purposes of

this condition affected road segments are those identified in Condition 7.13.5(d)(iii)):

i. The Permittee shall conduct measurements of the silt loading on the affected road segments, with sampling and analysis conducted using the “Procedures for Sampling Surface/Bulk Dust Loading,” Appendix C.1 in Compilation of Air Pollutant Emission Factors, USEPA, AP-42. A series of samples shall be taken to determine the average silt loading on each affected road segment and address the change in silt loadings as related to the amount and nature of vehicle traffic.

ii. Measurements for “controlled” silt loading shall be repeated at least every three years pursuant to the Road Cleaning Program of Condition 7.13.5(d).

iii. Measurements for “controlled” silt loadings shall be conducted upon written request by the Illinois EPA, as specified in the request, which shall be completed within 75 days of the Illinois EPA’s request.

7.13.8 Monitoring Requirements

a. Except as provided in Condition 7.13.8(b), the Permittee shall perform inspections of the affected activities on at least a quarterly basis, including associated control measures, while the affected activities are in use, to confirm compliance with the requirements of Condition 7.13.3. Control measures may include material characteristics. These quarterly inspections may be scheduled so that only a number of affected activities are reviewed during each inspection, provided however, that all affected activities shall be inspected at least once during each calendar year. For the purpose of this condition, all affected activities means each type of material handled. (Sections 39.5(7)(a) and (d) of the Act).

b. The Permittee shall perform inspections, on a once per calendar month basis, during receipt of the truck unloading each contracted supply of coal.

c. As part of the inspections required by 7.13.8(a), the Permittee shall perform observations for visible emissions by Method 22. These observations shall be conducted during the operation of each activity for a minimum of 18 minutes, or for activities that operate on a batch basis, for a minimum of six consecutive batches. If visible emissions are observed, the Permittee shall take corrective action within 2 hours to return the status of the operation to no visible emissions or observations of opacity by Method 9 shall be conducted. For the purpose of this condition, returning the status of operations to no visible emissions

does not include, for any activity, temporary idling of lack of operation between batches.

d. The requirements from above are established pursuant to Sections 39.5(7)(a) and (d) of the Act.

7.13.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items for the affected areas of fugitive emissions, pursuant to Sections 39.5(7)(a) and (e) of the Act:

a. Records required by 35 IAC 212.316(g):

i. The owner or operator of any fugitive particulate matter emission unit subject to 35 IAC 212.316 shall keep written records of the application of control measures for compliance with the opacity limitations of 212.316 and shall submit to the Illinois EPA an annual report containing a summary of such information.

ii. The records shall include at least the following:

A. The name and address of the source;

B. The name and address of the owner and/or operator of the source;

C. A map or diagram showing the location of all emission units controlled, including the location, identification, length, and width of roadways;

D. For each application of water or chemical solution to roadways by truck: the name and location of the roadway controlled, application rate of each truck, frequency of each application, width of each application, identification of each truck used, total quantity of water or chemical used for each application and, for each application of chemical solution, the concentration and identity of the chemical;

E. For application of physical or chemical control agents: the name of the agent, application rate and frequency, and total quantity of agent, and, if diluted, percent of concentration, used each day; and

F. A log recording incidents when control measures were not used and a statement of explanation.

iii. Copies of all records required by 35 IAC 212.316 shall be submitted to the Illinois EPA within ten (10) working days after a written request by the Illinois EPA and shall be transmitted to the Illinois EPA by a company-designated person with authority to release such records.

iv. The records required under 35 IAC 212.316 shall be kept and maintained for at least five (5) years at the source and be available for inspection and copying by Illinois EPA representatives during working hours.

b. i. The Permittee shall maintain daily records relative to the on-site fugitive dust control program which includes the following information at a minimum, pursuant to the Permit 95010001:

A. The date (and time for the gate areas) each road or area was treated;

B. The manner in which the road or area was treated (i.e., filter sweep, conventional sweep, suppressant spray or flush);

C. Detailed information for use of dust suppressant, including but not limited to the application rate, dilution ratio, type of suppressant used, and the number of gallons of suppressant applied;

D. Observations, if any, concerning the condition of the roadway, e.g., presence of parked vehicles, detection of potholes;

E. The amount of precipitation and temperature recorded for each day, and if determination was made to suspend application of suppressant, include name and title of person who made determination to suspend application and explanation; and

F. Any and all suspensions or deviations from the work practices and control procedures of Condition 7.13.5, with a date, description, and explanation for suspension of application.

ii. The Permittee shall keep a record containing calculations and analysis for the emissions from roadways at the source with emissions calculation performed in accordance with the methodology set forth in Section 13.2.1 of AP-42, to verify compliance with Condition 7.13.6. A copy of this record shall be submitted to the Illinois EPA each time it is prepared, with submittal made within 15

days of the date that the Permittee completes the preparation of new or revised calculations and analysis.

c. The Permittee shall maintain the most current versions of the PM_{10} contingency plan and the fugitive particulate matter control program.

d. The Permittee shall keep records of the silt measurements conducted pursuant to Condition 7.13.7(d), including records for the sampling and analysis activities and results.

e. Recordkeeping requirements for the Road Cleaning Program (for purposes of this condition affected road segments are those identified in Condition 7.13.5(d)(iii):

i. A. The Permittee shall keep a record describing the Road Cleaning Program that at a minimum: identify any contractors implementing the program for the Permittee and their duties for implementing the Program under the contract; the equipment used by the Permittee or its contractor for cleaning roads, including for each item of equipment, a description of and the manufacturer’s specifications for collection of silt from roadways and control of dust emissions from the cleaning process; and the standards practices that are used to clean roads under the Program, such as type of equipment, and speed of travel.

B. The Permittee shall keep records for implementation of the Road Cleaning Program that at a minimum: Identify each time that an affected road segment was cleaned, with a description of any circumstances that may have affected the extent or nature of cleaning; and identify each time that scheduled cleaning was not performed, with detailed explanation.

C. The Permittee shall keep records documenting maintenance and repair of road cleaning equipment.

ii. The Permittee shall keep a record containing calculations and analysis for the annual reduction in emissions that is achieved by the Road Cleaning Program, with emissions calculation performed in accordance with the methodology set forth in Section 13.2.1 of AP-42, to verify that the Road Cleaning Program is achieving 236.03 tons/yr reduction, total, of particulate matter determined as PM_{10} from baseline emission levels of 656.87 tons/year from the affected road segments. This record shall be prepared in

conjunction with the measurements of “controlled” silt loadings required by Condition 7.13.7(d). A copy of this record shall be submitted to the Illinois EPA each time it is prepared, with submittal made to the Illinois EPA within 15 days of the date that the Permittee completes the preparation of new or revised calculations and analysis.

7.13.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Air Compliance Section, of deviations of the affected area of fugitive emissions with the permit requirements, pursuant to Section 39.5(7)(f)(ii) of the Act. Reports submitted by the Permittee shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken.

a. i. Pursuant 35 IAC 212.316(g)(5), the Permittee shall submit a quarterly report to the Illinois EPA stating the following: the dates any necessary control measures were not implemented, a listing of those control measures, the reasons that the control measures were not implemented, and any corrective actions taken. This information includes, but is not limited to, those dates when controls were not applied based on a belief that application of such control measures would have been unreasonable given prevailing atmospheric conditions, which shall constitute a defense to the requirements of 35 IAC 212.316. This report shall be submitted to the Agency thirty (30) calendar days from the end of a quarter. Quarters end March 31, June 30, September 30, and December 31.

ii. Pursuant to permit 06070088, the Permittee shall submit a quarterly report to the Illinois EPA describing the implementation of the Road Cleaning Program during the previous quarter. This report shall at a minimum provide: the number of times each road segment was cleaned; the number of times that cleaning was not performed, with explanation; a description of any significant changes in road cleaning equipment or cleaning practices, with explanation; and a description of other changes to the Road Cleaning Program, including changes in contractors.

b. i. Pursuant to Section 39.5(7)(f)(ii) of the Act, the Permittee shall promptly notify the Illinois EPA, Air Compliance Section, within 30 days of deviations in the affected areas of fugitive emissions, as follows:

A. Requirements in Condition 7.13.3(b) through (e).

B. Requirements in Condition 7.13.5.

C. Requirements in Condition 7.13.6.

ii. All such deviations shall be summarized and reported as part of the semiannual monitoring report required by Condition 8.6.1.

c. The Permittee shall notify the Illinois EPA, Air Compliance Section, of all other deviations as part of the semiannual monitoring reports required by Condition 8.6.1.

d. Deviation reports described in Condition 7.13.10(b) and (c) above shall contain the following:

i. Date, time and duration of the deviation;

ii. Description of the deviation;

iii. Probable cause of the deviation; and

iv. Any corrective action or preventive measures taken.

7.13.11 Operational Flexibility/Anticipated Operating Scenarios

a. Beaching

The following requirements established by Permits 72080034 and 72080036 shall be implemented:

i. Under the following circumstances beaching of iron may occur:

A. In the event that Blast Furnace A or Blast Furnace B must be shut down in order to cast the furnace dry.

B. In the event that an interruption in the BOF steelmaking and/or casting operations will result in a temporary surplus of iron, beyond the capacity of the system to hold, necessitating beaching in order to cast the furnace dry and provide the ability to safely shut down.

C. In the event that the blast furnace produces unusable iron such as high silica or low temperature iron. High silica iron shall be blended and used to the extent possible at the BOF in order to reduce beaching. Low temperature iron shall be used at the BOF to the extent possible until solidification in the car becomes imminent. In other cases of

unusable iron, such iron shall be used when possible to minimize the quantity beached.

ii. In the event that the beaching of iron occurs the Permittee shall beach the iron as follows:

A. Beaching shall be allowed only in the event that alternate receptacles are not available;

B. Beaching shall be allowed only if all reasonable measures are taken to minimize the quantity of liquid metal beached, the frequency of a malfunction or breakdown that necessitates beaching, the duration beaching occurs, and the emissions resulting from beaching; and

C. Beaching shall be allowed at a controlled pour rate not to exceed 20 tons per minute.

b. Prior to material in the beaching pit being dug and transferred to vehicles for recycling to the blast furnaces, it shall be watered or treated with other equivalent techniques to minimize particulate matter emissions during such material handling, unless such measures would cause a hazard or safety issue to employees.

7.13.12 Compliance Procedures

a. Compliance with Condition 7.13.3(b) is addressed by the monitoring requirements in Condition 7.13.8(b) and the records in Condition 7.13.9.

b. Compliance with Condition 7.13.3(c), (d), 7.13.5(a), (d), and 7.13.6 is addressed by the testing in Condition 7.13.7, monitoring requirements in Condition 7.13.8(a) and the records in Condition 7.13.9.

c. Compliance with Condition 7.13.3(e) is addressed by the testing requirements Condition 7.13.7, monitoring in Condition 7.13.8(c) and the records in Condition 7.13.9.

d. Compliance with Condition 7.13.5(c) is addressed by the records in Condition 7.13.9.

7.13.13 State-Only Conditions

State-only conditions are not being established.

8.0 GENERAL PERMIT CONDITIONS

8.1 Permit Shield

Pursuant to Section 39.5(7)(j) of the Act, the Permittee has requested and has been granted a permit shield. This permit shield provides that compliance with the conditions of this permit shall be deemed compliance with applicable requirements which were applicable as of the date the proposed permit for this source was issued, provided that either the applicable requirements are specifically identified within this permit, or the Illinois EPA, in acting on this permit application, has determined that other requirements specifically identified are not applicable to this source and this determination (or a concise summary thereof) is included in this permit.

This permit shield does not extend to applicable requirements which are promulgated after May 2, 2011, unless this permit has been modified to reflect such new requirements.

8.2 Applicability of Title IV Requirements (Acid Deposition Control)

This source is not an affected source under Title IV of the CAA and is not subject to requirements pursuant to Title IV of the CAA.

8.3 Emissions Trading Programs

No permit revision shall be required for increases in emissions allowed under any USEPA approved economic incentives, marketable permits, emissions trading, and other similar programs or processes for changes that are provided for elsewhere in this permit and that are authorized by the applicable requirement [Section 39.5(7)(o)(vii) of the Act].

8.4 Operational Flexibility/Anticipated Operating Scenarios

8.4.1 Changes Specifically Addressed by Permit

Physical or operational changes specifically addressed by the conditions of this permit that have been identified as not requiring Illinois EPA notification may be implemented without prior notice to the Illinois EPA.

8.4.2 Changes Requiring Prior Notification

The Permittee is authorized to make physical or operational changes that contravene express permit terms without applying for or obtaining an amendment to this permit, provided that [Section 39.5(12)(a)(i) of the Act]:

a. The changes do not violate applicable requirements;

b. The changes do not contravene federally enforceable permit terms or conditions that are monitoring (including test methods), recordkeeping, reporting, or compliance certification requirements;

c. The changes do not constitute a modification under Title I of the CAA;

d. Emissions will not exceed the emissions allowed under this permit following implementation of the physical or operational change; and

e. The Permittee provides written notice to the Illinois EPA, Division of Air Pollution Control, Permit Section, at least 7 days before commencement of the change. This notice shall:

i. Describe the physical or operational change;

ii. Identify the schedule for implementing the physical or operational change;

iii. Provide a statement of whether or not any New Source Performance Standard (NSPS) is applicable to the physical or operational change and the reason why the NSPS does or does not apply;

iv. Provide emission calculations which demonstrate that the physical or operational change will not result in a modification; and

v. Provide a certification that the physical or operational change will not result in emissions greater than authorized under the conditions of this permit.

8.5 Testing Procedures

Tests conducted to measure composition of materials, efficiency of pollution control devices, emissions from process or control equipment, or other parameters shall be conducted using standard test methods if applicable test methods are not specified by the applicable regulations or otherwise identified in the conditions of this permit. Documentation of the test date, conditions, methodologies, calculations, and test results shall be retained pursuant to the recordkeeping procedures of this permit. Reports of any tests conducted as required by this permit or as the result of a request by the Illinois EPA shall be submitted as specified in Conditions 8.6.3 and 8.6.4.

8.6 Reporting Requirements

8.6.1 Monitoring Reports

Semiannual reports, including monitoring reports summarizing required monitoring as specified in the conditions of this permit shall be submitted to the Illinois EPA, unless more frequent submittal of such reports is required in Sections 5 or 7 of this permit [Section 39.5(7)(f) of the Act]:

Monitoring Period	Report Due Date
January - June	July 31
July - December	January 31

All instances of deviations from permit requirements must be clearly identified in such reports. All such reports shall be certified in accordance with Condition 9.9.

8.6.2 Test Notifications

Unless otherwise specified elsewhere in this permit, a written test plan for any test required by this permit shall be submitted to the Illinois EPA for review at least 60 days prior to the testing pursuant to Section 39.5(7)(a) of the Act. The notification shall include at a minimum:

a. The name and identification of the affected unit(s);

b. The person(s) who will be performing sampling and analysis and their experience with similar tests;

c. The specific conditions under which testing will be performed, including a discussion of why these conditions will be representative of maximum emissions and the means by which the specified operating parameters, as defined in Section 7 for each emission unit and any control equipment, will be determined;

d. The specific determinations of emissions and operation that are intended to be made, including sampling and monitoring locations;

e. The test method(s) that will be used, with the specific analysis method, if the method can be used with different analysis methods;

f. Any minor changes in standard methodology proposed to accommodate the specific circumstances of testing, with justification; and

g. Any proposed use of an alternative test method, with detailed justification.

8.6.3 Test Reports

Unless otherwise specified elsewhere in this permit, the results of any test required by this permit shall be submitted to the Illinois EPA within 60 days of completion of the testing. The test report shall include at a minimum [Section 39.5(7)(e)(i) of the Act]:

a. The name and identification of the affected unit(s);

b. The date and time of the sampling or measurements;

c. The date any analyses were performed;

d. The name of the company that performed the tests and/or analyses;

e. The test and analytical methodologies used;

f. The results of the tests including raw data, and/or analyses including sample calculations;

g. The operating conditions at the time of the sampling or measurements; and

h. The name of any relevant observers present including the testing company’s representatives, any Illinois EPA or USEPA representatives, and the representatives of the source.

8.6.4 Reporting Addresses

a. Unless otherwise specified in the particular provision of this permit or in the written instructions distributed by the Illinois EPA for particular reports, reports and notifications shall be sent to the Illinois EPA - Air Compliance Unit with a copy sent to the Illinois EPA - Air Regional Field Office.

b. All test protocols, test notifications and test reports shall be sent to the Illinois EPA - Air Compliance Unit with a copy sent to the Illinois EPA - Air Regional Field Office and to the Illinois EPA – Stack Test Specialist.

c. As of the date of issuance of this permit, the addresses of the offices that should generally be utilized for the submittal of reports and notifications are as follows:

i. Illinois EPA - Air Compliance Unit

Illinois Environmental Protection Agency
Bureau of Air
Compliance & Enforcement Section (MC 40)
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276

ii. Illinois EPA – Stack Test Specialist

Illinois Environmental Protection Agency
Division of Air Pollution Control
9511 West Harrison
Des Plaines, Illinois 60016

iii. Illinois EPA - Air Quality Planning Section

Illinois Environmental Protection Agency
Bureau of Air

Air Quality Planning Section (MC 39)
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276

iv. Illinois EPA - Air Regional Field Office

Illinois Environmental Protection Agency
Division of Air Pollution Control
2009 Mall Street
Collinsville, Illinois 62234

v. USEPA Region 5 - Air Branch

USEPA (AR - 17J)
Air & Radiation Division
77 West Jackson Boulevard
Chicago, Illinois 60604

d. Permit applications should be addressed to the Air Permit Section. As of the date of issuance of this permit, the address of the Air Permit Section is as follows:

Illinois Environmental Protection Agency
Division of Air Pollution Control
Permit Section (MC 11)
1021 North Grand Avenue East
P.O. Box 19506
Springfield, Illinois 62794-9506

8.7 Title I Conditions

Notwithstanding the expiration date on the first page of this CAAPP permit, Title I conditions in this permit, which are identified by a T1, T1N, or T1R designation, remain in effect until such time as the Illinois EPA takes action to revise or terminate them in accordance with applicable procedures for action on Title I conditions. This is because these conditions either: (a) incorporate conditions of earlier permits that were issued by the Illinois EPA pursuant to authority that includes authority found in Title I of the CAA (T1 conditions), (b) were newly established in this CAAPP permit pursuant to authority that includes such Title I authority (T1N conditions), or (c) reflect a revision or combination of conditions established in this CAAPP permit (T1R conditions). (See also Condition 1.5.)

9.0 STANDARD PERMIT CONDITIONS

9.1 Effect of Permit

9.1.1 The issuance of this permit does not release the Permittee from compliance with State and Federal regulations which are part of the Illinois State Implementation Plan, as well as with other applicable statutes and regulations of the United States or the State of Illinois or applicable ordinances, except as specifically stated in this permit and as allowed by law and rule.

9.1.2 In particular, this permit does not alter or affect the following [Section 39.5(7)(j)(iv) of the Act]:

a. The provisions of Section 303 (emergency powers) of the CAA, including USEPA's authority under that Section;

b. The liability of an owner or operator of a source for any violation of applicable requirements prior to or at the time of permit issuance;

c. The applicable requirements of the acid rain program consistent with Section 408(a) of the CAA; and

d. The ability of USEPA to obtain information from a source pursuant to Section 114 (inspections, monitoring, and entry) of the CAA.

9.1.3 This permit and the terms and conditions herein do not affect the Permittee's past and/or continuing obligation with respect to statutory or regulatory requirements governing major source construction or modification under Title I of the CAA. Further, neither the issuance of this permit nor any of the terms or conditions of the permit shall alter or affect the liability of the Permittee for any violation of applicable requirements prior to or at the time of permit issuance.

9.1.4 Except as provided by applicable law, the issuance of this permit by the Illinois EPA does not and shall not be construed as barring, diminishing, adjudicating or in any way affecting any currently pending or future legal, administrative or equitable rights or claims, actions, suits, causes of action or demands whatsoever that the Illinois EPA or the USEPA may have against the applicant including, but not limited to, any enforcement action authorized pursuant to the provision of applicable federal and state law.

9.1.5 Notwithstanding the conditions of this permit specifying compliance practices for applicable requirements, pursuant to Section 39.5(7)(j) and (p) of the Act, any person (including the Permittee) may also use other credible evidence to establish compliance or noncompliance with applicable requirements.

9.1.6 In the event of an action to enforce the terms or conditions of this permit, this permit does not prohibit a Permittee from invoking any affirmative defense that is provided by the applicable law or rule.

9.2 General Obligations of Permittee

9.2.1 Duty to Comply

The Permittee must comply with all terms and conditions of this permit. Any permit noncompliance constitutes a violation of the CAA and the Act, and is grounds for any or all of the following: enforcement action; permit termination, revocation and reissuance, or modification; or denial of a permit renewal application [Section 39.5(7)(o)(i) of the Act].

The Permittee shall meet applicable requirements that become effective during the permit term in a timely manner unless an alternate schedule for compliance with the applicable requirement is established.

9.2.2 Duty to Maintain Equipment

The Permittee shall maintain all equipment covered under this permit in such a manner that the performance or operation of such equipment shall not cause a violation of applicable requirements.

9.2.3 Duty to Cease Operation

No person shall cause, threaten or allow the continued operation of any emission unit during malfunction or breakdown of the emission unit or related air pollution control equipment if such operation would cause a violation of an applicable emission standard, regulatory requirement, ambient air quality standard or permit limitation unless this permit provides for such continued operation consistent with the Act and applicable Illinois Pollution Control Board regulations [Section 39.5(6)(c) of the Act].

9.2.4 Disposal Operations

The source shall be operated in such a manner that the disposal of air contaminants collected by the equipment operations, or activities shall not cause a violation of the Act or regulations promulgated there under.

9.2.5 Duty to Pay Fees

The Permittee must pay fees to the Illinois EPA consistent with the fee schedule approved pursuant to Section 39.5(18) of the Act, and submit any information relevant thereto [Section 39.5(7)(o)(vi) of the Act]. The check should be payable to “Treasurer, State of Illinois” and sent to: Fiscal Services

Section, Illinois Environmental Protection Agency, P.O. Box 19276, Springfield, Illinois, 62794-9276.

9.3 Obligation to Allow Illinois EPA Surveillance

Upon presentation of proper credentials and other documents as may be required by law and in accordance with constitutional limitations, the Permittee shall allow the Illinois EPA, or an authorized representative to perform the following [Sections 4 and 39.5(7)(a) and (p)(ii) of the Act]:

a. Enter upon the Permittee's premises where an actual or potential emission unit is located; where any regulated equipment, operation, or activity is located or where records must be kept under the conditions of this permit;

b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

c. Inspect during hours of operation any sources, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit;

d. Sample or monitor any substances or parameters at any location:

i. At reasonable times, for the purposes of assuring permit compliance or applicable requirements; or

ii. As otherwise authorized by the CAA, or the Act.

e. Obtain and remove samples of any discharge or emission of pollutants authorized by this permit; and

f. Enter and utilize any photographic, recording, testing, monitoring, or other equipment for the purposes of preserving, testing, monitoring, or recording any activity, discharge or emission at the source authorized by this permit.

9.4 Obligation to Comply with Other Requirements

The issuance of this permit does not release the Permittee from applicable State and Federal laws and regulations, and applicable local ordinances addressing subjects other than air pollution control.

9.5 Liability

9.5.1 Title

This permit shall not be considered as in any manner affecting the title of the premises upon which the permitted source is located.

9.5.2 Liability of Permittee

This permit does not release the Permittee from any liability for damage to person or property caused by or resulting from the construction, maintenance, or operation of the sources.

9.5.3 Structural Stability

This permit does not take into consideration or attest to the structural stability of any unit or part of the source.

9.5.4 Illinois EPA Liability

This permit in no manner implies or suggests that the Illinois EPA (or its officers, agents or employees) assumes any liability, directly or indirectly, for any loss due to damage, installation, maintenance, or operation of the source.

9.5.5 Property Rights

This permit does not convey any property rights of any sort, or any exclusive privilege [Section 39.5(7)(o)(iv) of the Act].

9.6 Recordkeeping

9.6.1 Control Equipment Maintenance Records

A maintenance record shall be kept on the premises for each item of air pollution control equipment. At a minimum, this record shall show the dates of performance and nature of preventative maintenance activities.

9.6.2 Records of Changes in Operation

A record shall be kept describing changes made at the source that result in emissions of a regulated air pollutant subject to an applicable Clean Air Act requirement, but not otherwise regulated under this permit, and the emissions resulting from those changes [Section 39.5(12)(b)(iv) of the Act].

9.6.3 Retention of Records

a. Records of all monitoring data and support information shall be retained for a period of at least 5 years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records, original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit [Section 39.5(7)(e)(ii) of the Act].

b. Other records required by this permit including any logs, plans, procedures, or instructions required to be kept by this permit shall be retained for a period of at least 5

years from the date of entry unless a longer period is specified by a particular permit provision.

9.7 Annual Emissions Report

The Permittee shall submit an annual emissions report to the Illinois EPA, Air Quality Planning Section no later than May 1 of the following year, as required by 35 IAC Part 254.

9.8 Requirements for Compliance Certification

Pursuant to Section 39.5(7)(p)(v) of the Act, the Permittee shall submit annual compliance certifications. The compliance certifications shall be submitted no later than May 1 or more frequently as specified in the applicable requirements or by permit condition. The compliance certifications shall be submitted to the Air Compliance Unit, Air Regional Field Office, and USEPA Region 5 – Air Branch. The addresses for the submittal of the compliance certifications are provided in Condition 8.6.4 of this permit.

a. The certification shall include the identification of each term or condition of this permit that is the basis of the certification; the compliance status; whether compliance was continuous or intermittent; the method(s) used for determining the compliance status of the source, both currently and over the reporting period consistent with the conditions of this permit.

b. All compliance certifications shall be submitted to USEPA Region 5 in Chicago as well as to the Illinois EPA.

c. All compliance reports required to be submitted shall include a certification in accordance with Condition 9.9.

9.9 Certification

Any document (including reports) required to be submitted by this permit shall contain a certification by a responsible official of the Permittee that meets the requirements of Section 39.5(5) of the Act and applicable regulations [Section 39.5(7)(p)(i) of the Act]. An example Certification by a Responsible Official is included as Attachment 1 to this permit.

9.10 Defense to Enforcement Actions

9.10.1 Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit [Section 39.5(7)(o)(ii) of the Act].

9.10.2 Emergency Provision

a. An emergency shall be an affirmative defense to an action brought for noncompliance with the technology-based emission limitations under this permit if the following conditions are met through properly signed, contemporaneous operating logs, or other relevant evidence [Section 39.5(7)(k) of the Act]:

i. An emergency occurred as provided in Section 39.5(7)(k) of the Act and the Permittee can identify the cause(s) of the emergency.

Note: For this purpose, emergency means a situation arising from sudden and reasonably unforeseeable events beyond the control of the source, as further defined by Section 39.5(7)(k)(iv) of the Act.

ii. The permitted source was at the time being properly operated;

iii. The Permittee submitted notice of the emergency to the Illinois EPA within two working days of the time when emission limitations were exceeded due to the emergency. This notice must contain a detailed description of the emergency, any steps taken to mitigate emissions, and corrective actions taken; and

iv. During the period of the emergency the Permittee took all reasonable steps to minimize levels of emissions that exceeded the emission limitations, standards, or regulations in this permit.

b. This provision is in addition to any emergency or upset provision contained in any applicable requirement. This provision does not relieve a Permittee of any reporting obligations under existing federal or state laws or regulations [Section 39.5(7)(k)(iv) of the Act].

9.11 Permanent Shutdown

This permit only covers emission units and control equipment while physically present at the indicated source location(s). Unless this permit specifically provides for equipment relocation, this permit is void for the operation or activity of any item of equipment on the date it is removed from the permitted location(s) or permanently shut down. This permit expires if all equipment is removed from the permitted location(s), notwithstanding the expiration date specified on this permit.

9.12 Reopening and Reissuing Permit for Cause

9.12.1 Permit Actions

This permit may be modified, revoked, reopened and reissued, or terminated for cause in accordance with applicable provisions of Section 39.5 of the Act. The filing of a request by the Permittee for a permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition [Section 39.5(7)(o)(iii) of the Act].

9.12.2 Reopening and Revision

This permit must be reopened and revised if any of the following occur [Section 39.5(15)(a) of the Act]:

a. Additional requirements become applicable to the equipment covered by this permit and three or more years remain before expiration of this permit.

b. Additional requirements become applicable to an affected source for acid deposition under the acid rain program.

c. The Illinois EPA or USEPA determines that this permit contains a material mistake or that inaccurate statement were made in establishing the emission standards or limitations, or other terms or conditions of this permit.

d. The Illinois EPA or USEPA determines that this permit must be revised or revoked to ensure compliance with the applicable requirements.

9.12.3 Inaccurate Application

The Illinois EPA has issued this permit based upon the information submitted by the Permittee in the permit application. Any misinformation, false statement or misrepresentation in the application shall be grounds for revocation and reissuance under Section 39.5(15) of the Act, pursuant to Sections 39.5(5)(e) and (i) of the Act.

9.12.4 Duty to Provide Information

The Permittee shall furnish to the Illinois EPA, within a reasonable time specified by the Illinois EPA any information that the Illinois EPA may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. Upon request, the Permittee shall also furnish to the Illinois EPA copies of records required to be kept by this permit, or for information claimed to be confidential, the Permittee may furnish such records directly to USEPA along with a claim of confidentiality [Section 39.5(7)(o)(v) of the Act].

9.13 Severability Clause

The provisions of this permit are severable. In the event of a challenge to any portion of the permit, other portions of the permit may continue to be in effect. Should any portion of this permit be determined to be illegal or unenforceable, the validity of the other provisions shall not be affected and the rights and obligations of the Permittee shall be construed and enforced as if this permit did not contain the particular provisions held to be invalid and the applicable requirements underlying these provisions shall remain in force [Section 39.5(7)(i) of the Act].

9.14 Permit Expiration and Renewal

Upon the expiration of this permit, if the source is operated, it shall be deemed to be operating without a permit unless a timely and complete CAAPP application has been submitted for renewal of this permit. However, if a timely and complete application to renew this CAAPP permit has been submitted, the terms and all conditions of this CAAPP permit will remain in effect until the issuance of a renewal permit [Section 39.5(5)(l) and (o) of the Act].

Note: Pursuant to Sections 39.5(5)(h) and (n) of the Act, upon submittal of a timely and complete renewal application, the permitted source may continue to operate until final action is taken by the Illinois EPA on the renewal application, provided, however, that this protection shall cease if the applicant fails to submit any additional information necessary to evaluate or take final action on the renewal application as requested by the Illinois EPA in writing. For a renewal application to be timely, it must be submitted no later than 9 months prior to the date of permit expiration.

9.15 General Authority for the Terms and Conditions of this Permit

The authority for terms and conditions of this permit that do not include a citation for their authority is Section 39.5(7)(a) of the Act, which provides that the Illinois EPA shall include such provisions in a CAAPP permit as are necessary to accomplish the purposes of the Act and to assure compliance with all applicable requirements. Section 39.5(7)(a) of the Act is also another basis of authority for terms and conditions of this permit that do include a specific citation for their authority.

Note: This condition is included in this permit pursuant to Section 39.5(7)(n) of the Act.

10.0 ATTACHMENTS

Attachment 1 Example Certification by a Responsible Official

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: _____

Name: _____

Official Title: _____

Telephone No.: _____

Date Signed: _____

Attachment 2 Emissions of Particulate Matter from Process Emission Units

10.2.1. Process Emission Units for Which Construction or Modification Commenced On or After April 14, 1972

a. New Process Emission Units for Which Construction or Modification Commenced On or After April 14, 1972 [35 IAC 212.321].

b. No person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any new process emission unit, either alone or in combination with the emission of particulate matter from all other similar process emission units for which construction or modification commenced on or after April 14, 1972, at a source or premises, exceeds the allowable emission rates specified in subsection (c) of 35 IAC 212.321 [35 IAC 212.321(a)].

i. The emissions of particulate matter into the atmosphere in any one hour period from the affected coating lines shall not exceed the allowable emission rates specified in the following equation:

$$E = A\ (P)^B$$

Where:

P = Process weight rate

E = Allowable emission rate

ii. For process weight rates of 408 Mg/hr (450 T/hr):

	Metric	English
P	Mg/hr	T/hr
E	kg/hr	lbs/hr
A	1.214	2.54
B	0.534	0.534

iii. For process weight rates in excess of 408 Mg/hr (450 T/hr):

	Metric	English
P	Mg/hr	T/hr
E	kg/hr	lbs/hr
A	11.42	24.8
B	0.16	0.16

c. Limits for Process Emission Units for which Construction or Modification Commenced On or After April 14, 1972 [35 IAC 212.321(c)]:

Metric		English	
P	E	P	E
Mg/hr	kg/hr	T/hr	lb/hr
0.05	0.25	0.05	0.55
0.1	0.29	0.10	0.77
0.2	0.42	0.2	1.10
0.3	0.64	0.30	1.35
0.4	0.74	0.40	1.58
0.5	0.84	0.50	1.75
0.7	1.00	0.75	2.40
0.9	1.15	1.00	2.60
1.8	1.66	2.00	3.70
2.7	2.1	3.00	4.60
3.6	2.4	4.00	5.35
4.5	2.7	5.00	6.00
9.0	3.9	10.00	8.70
13.0	4.8	15.00	10.80
18.0	5.7	20.00	12.50
23.0	6.5	25.00	14.00
27.0	7.1	30.00	15.60
32.0	7.7	35.00	17.00
36.0	8.2	40.00	18.20
41.0	8.8	45.00	19.20
45.0	9.3	50.00	20.50
90.0	13.4	100.00	29.50
140.0	17.0	150.00	37.00
180.0	19.4	200.00	43.00
230.0	22.0	250.00	48.50
270.0	24.0	300.00	53.00
320.0	26.0	350.00	58.00
360.0	28.0	400.00	62.00
408.0	30.1	450.00	66.00
454.0	30.4	500.00	67.00

10.2.2 Process Emission Units for Which Construction or Modification Commenced Prior to April 14, 1972

a. No person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any new process emission unit, either alone or in combination with the emission of particulate matter from all other similar process emission units for which construction or modification commenced prior to April 14, 1972, at a source or premises, exceeds the allowable emission rates specified in subsection (c) of 35 IAC 212.322 [35 IAC 212.322(a)].

b. The emissions of particulate matter into the atmosphere in any one hour period from the affected unit shall not exceed the allowable emission rates specified in the following equation:

$$E = C + A\ (P)^B$$

Where:

P = Process weight rate

E = Allowable emission rate

i. For process weight rates up to 27.2 Mg/hr (30 T/hr):

	Metric	English
P	Mg/hr	T/hr
E	kg/hr	lbs/hr
A	1.985	4.10
B	0.67	0.67
C	0	0

ii. For process weight rates in excess of 27.2 Mg/hr (30 T/hr):

	Metric	English
P	Mg/hr	T/hr
E	kg/hr	lbs/hr
A	25.21	55.0
B	0.11	0.11
C	-18.4	-40.0

c. Limits for Process Emission Units for which Construction or Modification Commenced Prior to April 14, 1972 [35 IAC 212.322(c)]:

Metric		English	
P	E	P	E
Mg/hr	kg/hr	T/hr	lb/hr
0.05	0.27	0.05	0.55
0.1	0.42	0.10	0.87
0.2	0.68	0.20	1.40
0.3	0.89	0.30	1.83
0.4	1.07	0.40	2.22
0.5	1.25	0.50	2.58
0.7	1.56	0.75	3.38
0.9	1.85	1.00	4.10
1.8	2.9	2.00	6.52
2.7	3.9	3.00	8.56
3.6	4.7	4.00	10.40
4.5	5.4	5.00	12.00
9.0	8.7	10.00	19.20
13.0	11.1	15.00	25.20
18.0	13.8	20.00	30.50
23.0	16.2	25.00	35.40
27.2	18.15	30.00	40.00
32.0	18.8	35.00	41.30
36.0	19.3	40.00	42.50
41.0	19.8	45.00	43.60
45.0	20.2	50.00	44.60
90.0	23.2	100.00	51.20
140.0	25.3	150.00	55.40
180.0	26.5	200.00	58.60
230.0	27.7	250.00	61.00
270.0	28.5	300.00	63.10
320.0	29.4	350.00	64.90
360.0	30.0	400.00	66.20
400.0	30.6	450.00	67.70
454.0	31.3	500.00	69.00

Attachment 3 Current Emission Factors for Certain Emission Limits

This attachment provides information, based on information provided by the Permittee as of the date of issuance of this revised permit, on the emission factors used by the Permittee to demonstrate compliance with certain emission limits for Material Handling Operations (Section 7.1), Blast Furnace Operations (Section 7.4), Basic Oxygen Process Operations (Section 7.5) and Continuous Casting Activities (Section 7.6), which limits have been carried over from Construction Permit/PSD Approval 95010001. (See also Condition 5.13.)

Operation (Permit Condition)	Pollutant	Emission Factor	Basis
Material Handling Operations (Section 7.1)			
Ladle Metallurgy Material Handling (7.1.6(b)(i))	PM	0.00355 lb/ton	steel
	PM10	0.00355 lb/ton	steel
BOF Additive System (7.1.6(b)(ii))	PM	0.00032 lb/ton	steel
	PM10	0.00032 lb/ton	steel
Flux conveyor Operations (7.1.6(b)(iii))	PM	0.0016 lb/ton	steel
	PM10	0.0016 lb/ton	steel
Iron Pellet Screening (7.1.6(b)(iv))	PM	0.00279 lb/ton	iron pellets
	PM10	0.00279 lb/ton	iron pellets
Blast Furnace Operations (Section 7.4)			
Casthouse (7.4.6(b))	PM	0.0703 lb/ton	iron
	PM_{10}	0.0703 lb/ton	iron
	SO_2	0.2006 lb/ton	iron
	NO_x	0.0144 lb/ton	iron
	VOM	0.0946 lb/ton	iron
Blast Furnace Uncaptured Emissions (7.4.6(c))	PM	0.031 lb/ton	iron
	PM_{10}	0.0155 lb/ton	iron
	SO_2	0.0104 lb/ton	iron
	NO_x	0.0007 lb/ton	iron
	VOM	0.0047 lb/ton	iron
Blast Furnace Charging (7.4.6(d))	PM	0.0024 lb/ton	iron pellets
	PM_{10}	0.0024 lb/ton	iron pellets
Slag Pits (7.4.6(e))	PM	0.00417 lb/ton	iron
	PM_{10}	0.00417 lb/ton	iron
	SO_2	0.01 lb/ton	iron
Iron Spout (7.4.6(f))	PM	0.02548 lb/ton	iron
	PM_{10}	0.02548 lb/ton	iron
	SO_2	0.0073 lb/ton	iron

Operation (Permit Condition)	Pollutant	Emission Factor	Basis
Basic Oxygen Process Operations (Section 7.5)			
BOF Electrostatic Precipitator (7.5.6(c))	PM	0.16 lb/ton	steel
	PM_{10}	0.16 lb/ton	steel
	NO_x	0.0389 lb/ton*	steel
	VOM	0.006 lb/ton**	steel
	CO	8.993 lb/ton	steel
	Lead	0.1934 lb/hr	-
BOF Roof Monitor (7.5.6(d))	PM	0.0987 lb/ton	steel
	PM_{10}	0.066145 lb/ton	steel
	Lead	0.0129 lb/hour	-
Desulfurization and Hot Metal Transfer (7.5.6(e))	PM	0.03721 lb/ton	iron
	PM_{10}	0.03721 lb/ton	iron
	VOM	0.001 lb/ton	iron
	Lead	0.0133 lb/hr	-
Slag Skimming (7.5.6(f))	PM	0.005 lb/ton	iron
	PM_{10}	0.005 lb/ton	iron
Argon Stirring and Material Handling (7.5.6(g))	PM	0.00715 lb/ton	steel
	PM_{10}	0.00715 lb/ton	steel
Continuous Casting Activities (Section 7.6)			
Baghouse #1 (7.6.6(a))	PM	0.00355 lb/ton	steel
	PM_{10}	0.00355 lb/ton	steel
Continuous Caster Molds (7.6.6(b))	PM	0.006 lb/ton	steel
	PM_{10}	0.006 lb/ton	steel
	NO_x	0.05 lb/ton	steel
Cont. Caster Spray Chambers (7.6.6(c))	PM	0.00852 lb/ton	steel
	PM_{10}	0.00852 lb/ton	steel
Slab Cutoff (7.6.6(d))	PM	0.0071 lb/ton	steel
	PM_{10}	0.0071 lb/ton	steel
Slab Ripping (7.6.6(e))	PM	0.00722 lb/ton	steel
	PM_{10}	0.00722 lb/ton	steel

* As of the date of issuance of this permit, the Permittee had not notified the Illinois EPA of the updated NOx emission factor that it will be using for the BOF ESP as a consequence of the results of recent testing that indicated that a factor of 0.0389 pounds/ton would understate actual emissions. The NOx emission rates measured during such testing, in April 2012 and July 2012, were, respectively, 0.1273 and 0.1535 pounds per ton of steel.

** As of the date of issuance of this permit, the Permittee had not notified the Illinois EPA of the updated VOM emission factor that it will be using for the BOF ESP as a consequence of the results of recent testing that indicated that a factor of 0.006 pounds/ton would understate actual emissions. The VOM emission rates measured during such testing in April 2012 and July 2012, respectively, were 0.023 and 0.0153 pounds per ton of steel.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

National Steel

Granite City Division
National Steel Corporation
20th & State Streets
Granite City, Illinois 62040
(618) 451-3456

December 30, 1994

CERTIFIED MAIL NO. Z 096 615 613
RETURN RECEIPT REQUESTED

RECEIVED
JAN 03 1995
IEPA - DAPC - SPFLD

Mr. Donald Sutton
Manager, Permit Section
Division of Air Pollution Control
Illinois Environmental Protection Agency
1340 North 9th Street
Springfield, Illinois 62702

Subject: Application for a Construction Permit to increase production at the following operations. A & B Blast Furnaces, BOF and Continuous Casters 1 & 2, Application Nos. BF 089460 0, BOF 089457 0, and CC 089421 0, respectively; I.D. No. 119813 AAI

Dear Mr. Sutton:

Granite City Division (GCD) of National Steel Corporation is requesting a Construction Permit to increase production at the subject operation.

Over the last three years National Steel Corporation has reported net income (losses) excluding unusual and extraordinary items of ($247) million dollars. GCD must increase production capacity to improve profitability during the current strong steel market and reduce production cost in order to improve competitiveness and assure its long-term survival. GCD currently employs more than 3,000 workers and contributes in excess of 1 billion dollars annually to the local economy. The Granite City, City Counsel recently passed a resolution recognizing GCD's future viability as absolutely essential to the success of government services in the area and requesting favorable consideration of the proposal production increases.

The attached permit application addresses the environmental impact of the proposed production increase. GCD recognizes the need and has committed the resources necessary to meet all applicable environmental requirements.

RECEIVED
IEPA
JAN - 5 1995
COLLINSVILLE OFFICE

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

GCD is requesting an expedited review of its application and issuance of the permit modification. GCD requests a public hearing be held by the IEPA as soon as practicable within the time of the permit review process.

Should you have any questions regarding this application please contact Larry Siebenberger, telephone (618) 451-3391.

Fred Steinkuehler
Fred Steinkuehler (F.S.)
Director-Engineering Technology

Attachment
CONSTPMT.LS

Electronic Filing: Received, Clerk's Office: 06/12/2024 **PCB 2024-077

STATE OF ILLINOIS
ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF AIR POLLUTION CONTROL
2200 CHURCHILL ROAD
SPRINGFIELD, ILLINOIS 62794-9276

APPLICATION FOR PERMIT(A)

[X] CONSTRUCT [ ] OPERATE

NAME OF EQUIPMENT TO BE CONSTRUCTED OR OPERATED: Blast Furnaces, Basic Oxygen Furnaces, Continuous Casters (B)

FOR AGENCY USE ONLY

I.D. NO. 119-813.AAI

PERMIT NO. 95 01 0001

DATE 1-3-95

1a. NAME OF OWNER: Granite City Division of National Steel Corp.		2a. NAME OF OPERATOR: Same	
1b. STREET ADDRESS OF OWNER: 20th & State Streets		2b. STREET ADDRESS OF OPERATOR:	
1c. CITY OF OWNER: Granite City		2c. CITY OF OPERATOR:	
1d. STATE OF OWNER: IL	1e. ZIP CODE: 62040	2d. STATE OF OPERATOR:	2e. ZIP CODE:

3a. NAME OF CORPORATE DIVISION OR PLANT: Granite City Steel		3b. STREET ADDRESS OF EMISSION SOURCE: 20th & Madison Streets		
3c. CITY OF EMISSION SOURCE: Granite City	3d. LOCATED WITHIN CITY LIMITS: [X] YES [ ] NO	3e. TOWNSHIP: Granite City	3f. COUNTY: Madison	3g. ZIP CODE: 62040

4. ALL CORRESPONDENCE TO: (TITLE AND/OR NAME OF INDIVIDUAL) Larry Siebenberger	5. TELEPHONE NUMBER FOR AGENCY TO CALL: 618/451-3391
6. ADDRESS FOR CORRESPONDENCE: (CHECK ONLY ONE) [X] OWNER [ ] OPERATOR [ ] EMISSION SOURCE	7. YOUR DESIGNATION FOR THIS APPLICATION:(C) ----------

8. THE UNDERSIGNED HEREBY MAKES APPLICATION FOR A PERMIT AND CERTIFIES THAT THE STATEMENTS CONTAINED HEREIN ARE TRUE AND CORRECT, AND FURTHER CERTIFIES THAT ALL PREVIOUSLY SUBMITTED INFORMATION REFERENCED IN THIS APPLICATION REMAINS TRUE, CORRECT AND CURRENT. BY AFFIXING HIS SIGNATURE HERETO HE FURTHER CERTIFIES THAT HE IS AUTHORIZED TO EXECUTE THIS APPLICATION.

AUTHORIZED SIGNATURE(S):(D)

BY Fred Steinkuehler (FS) — SIGNATURE — 12/30/94 — DATE

Fred Steinkuehler, — TYPED OR PRINTED NAME OF SIGNER

Director-Engineering Technology — TITLE OF SIGNER

RECEIVED
JAN 03 1995

BY _____ SIGNATURE — _____ DATE

_____ TYPED OR PRINTED NAME OF SIGNER

IEPA - DAPC - SPFLD — TITLE OF SIGNER

(A) THIS FORM IS TO PROVIDE THE AGENCY WITH GENERAL INFORMATION ABOUT THE EQUIPMENT TO BE CONSTRUCTED OR OPERATED. THIS FORM MAY BE USED TO REQUEST A CONSTRUCTION PERMIT, AN OPERATING PERMIT, A CONSTRUCTION OR OPERATING PERMIT.

(B) ENTER THE GENERIC NAME OF THE EQUIPMENT TO BE CONSTRUCTED OR OPERATED. THIS NAME WILL APPEAR ON THE PERMIT WHICH MAY BE ISSUED PURSUANT TO THIS APPLICATION. THIS FORM MUST BE ACCOMPANIED BY OTHER APPLICABLE FORMS AND INFORMATION.

C) PROVIDE A DESIGNATION IN ITEM 7 ABOVE WHICH YOU WOULD LIKE THE AGENCY TO USE FOR IDENTIFICATION OF YOUR EQUIPMENT. YOUR DESIGNATION WILL BE REFERENCED IN CORRESPONDENCE FROM THIS AGENCY RELATIVE TO THIS APPLICATION. YOUR DESIGNATION MUST NOT EXCEED TEN (10) CHARACTERS.

(D) THIS APPLICATION MUST BE SIGNED IN ACCORDANCE WITH 35 ILL. ADM. CODE 201.154 OR 201.159 WHICH STATES: "ALL APPLICATIONS AND SUPPLEMENTS THERETO SHALL BE SIGNED BY THE OWNER AND OPERATOR OF THE EMISSION SOURCE OR AIR POLLUTION CONTROL EQUIPMENT, OR THEIR AUTHORIZED AGENT, AND SHALL BE ACCOMPANIED BY EVIDENCE OF AUTHORITY TO SIGN THE APPLICATION."

IF THE OWNER OR OPERATOR IS A CORPORATION, SUCH CORPORATION MUST HAVE ON FILE WITH THE AGENCY A CERTIFIED COPY OF A RESOLUTION OF THE CORPORATION'S BOARD OF DIRECTORS AUTHORIZING THE PERSONS SIGNING THIS APPLICATION TO CAUSE OR ALLOW THE CONSTRUCTION OR OPERATION OF THE EQUIPMENT TO BE COVERED BY THE PERMIT.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

9. DOES THIS APPLICATION CONTAIN A PLOT PLAN/MAP:

[X] YES [ ] NO

IF A PLOT PLAN/MAP HAS PREVIOUSLY BEEN SUBMITTED, SPECIFY:

AGENCY I.D. NUMBER _____ APPLICATION NUMBER _____

IS THE APPROXIMATE SIZE OF APPLICANT'S PREMISES LESS THAN 1 ACRE?

[ ] YES [X] NO: SPECIFY apprx 1100 ACRES

10. DOES THIS APPLICATION CONTAIN A PROCESS FLOW DIAGRAM(S) THAT ACCURATELY AND CLEARLY REPRESENTS CURRENT PRACTICE.

[ ] YES [X] NO

11a. WAS ANY EQUIPMENT, COVERED THIS APPLICATION, OWNED OR CONTRACTED FOR, BY THE APPLICANT PRIOR TO APRIL 14, 1972:

[X] YES [ ] NO

IF "YES" ATTACH AN ADDITIONAL SHEET, EXHIBIT A, THAT:
(a) LISTS OR DESCRIBES THE EQUIPMENT
(b) STATES WHETHER THE EQUIPMENT WAS IN COMPLIANCE WITH THE RULES AND REGULATIONS GOVERNING THE CONTROL OF AIR POLLUTION PRIOR TO APRIL 4, 1972

11b. HAS ANY EQUIPMENT, COVERED BY THIS APPLICATION, NOTPREVIOUSLY RECEIVED AN OPERATING PERMIT:

[ ] YES [X] NO

IF "YES", ATTACH AN ADDITIONAL SHEET, EXHIBIT B, THAT:
(a) LISTS OR DESCRIBES THE EQUIPMENT
(b) STATES WHETHER THE EQUIPMENT
(i) IS ORIGINAL OR ADDITIONAL EQUIPMENT
(ii) REPLACES EXISTING EQUIPMENT, OR
(iii) MODIFIES EXISTING EQUIPMENT
(c) PROVIDES THE ANTICIPATED OR ACTUAL DATES OF THE COMMENCEMENT OF CONSTRUCTION AND THE START-UP OF THE EQUIPMENT

12. IF THIS APPLICATION INCORPORATES BY REFERENCE A PREVIOUSLY GRANTED PERMIT(S), HAS FORM APC-210, "DATA AND INFORMATION—INCORPORATION BY REFERENCE" BEEN COMPLETED.

APPLICATION FOR OPERATING PERMIT ONLY

13. DOES THE STARTUP OF AN EMISSION SOURCE COVERED BY THIS APPLICATION PRODUCE AIR CONTAMINANT EMISSION IN EXCESS OF APPLICABLE STANDARDS:

[ ] YES [ ] NO

IF "YES," HAS FORM APC-203, "OPERATION DURING STARTUP" BEEN COMPLETED FOR THIS SOURCE.

[ ] YES [ ] NO

14. DOES THIS APPLICATION REQUEST PERMISSION TO OPREATE AN EMISSION SOURCE DURING MALFUNCTIONS OR BREAKDOWNS:

[ ] YES [ ] NO

IF "YES," HAS FORM APC-204, "OPERATION DURING MALFUNCTION AND BREAKDOWN" BEEN COMPLETED FOR THIS SOURCE

[ ] YES [ ] NO

15. IS AN EMISSION SOURCE COVERED BY THIS APPLICATION SUBJECT TO A FUTURE COMPLIANCE DATE:

[ ] YES [ ] NO

IF "YES," HAS FORM APC-202, "COMPLIANCE PROGRAM & PROJECT COMPLETION SCHEDULE," BEEN COMPLETED FOR THIS SOURCE:

[ ] YES [ ] NO

16. DOES THE FACILITY COVERED BY THIS APPLICATION REQUIRE AN EPISODE ACTION PLAN (REFER TO GUIDELINES FOR EPISODE ACTION PLANS):

[ ] YES [ ] NO

17. LIST AND IDENTIFY ALL FORMS, EXHIBITS, AND OTHER INFORMATION SUBMITTED AS PART OF THIS APPLICATION. INCLUDE THE PAGE NUMBERS OF EACH ITEM (ATTACH ADDITIONAL SHEETS IF NECESSARY):

Permit Application - Proposed Production Increase, Granite City Division of National Steel Corporation, Granite City, Illinois

TOTAL NUMBER OF PAGES _____

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

PERMIT APPLICATION

PROPOSED PRODUCTION INCREASE
GRANITE CITY DIVISION of
NATIONAL STEEL CORPORATION
GRANITE CITY, ILLINOIS

Prepared for
Granite City Division of
National Steel Corporation

For Submittal to
Illinois Environmental Protection Agency

Prepared by
Woodward-Clyde Consultants
2318 Millpark Drive
St. Louis, Missouri

Woodward-Clyde

December, 1994
4E08109

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

TABLE OF CONTENTS

SR 1947

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

TABLE OF CONTENTS (Continued)

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

TABLE OF CONTENTS (Continued)

SR 1949

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

TABLE OF CONTENTS (Continued)

LIST OF TABLES

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

TABLE OF CONTENTS (Continued)

LIST OF FIGURES

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

TABLE OF CONTENTS (Continued)

LIST OF APPENDICES

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

1.0 INTRODUCTION

1.1 PROJECT OVERVIEW

The Granite City Division of National Steel Corporation is proposing to increase production at it's steel mill in Granite City, Illinois. This application is proposed to permit an increase the production rate of the existing Blast Furnaces, Basic Oxygen Furnaces, and Continuous Casters. Operation of the furnaces is for 24 hours per day, 365 days per year.

The Granite City Steel mill is located in Madison County, Illinois. The largest city near the facility is St. Louis, which is located approximately 15 kilometers southwest of the Granite City steel mill. The latitude and longitude of the mill are approximately 38:41:55 and 90:08:42. The facility occupies approximately 1,100 acres of land in an area primarily used for industrial and agricultural purposes. A site location map is provided in **Figure 1-1**. A site map is provided in **Figure 1-2**. There are no listed federal Prevention of Significant Deterioration (PSD) Class I areas located within 100 km of the project site.

1.2 RECENT PERMITTING HISTORY

Granite City Steel obtained a permit from Illinois EPA in January 1994 to increase the production rate of Blast Furnaces to 6,500 net tons per day and Basic Oxygen Furnaces to 7,600 net tons per day. The permitted production rate for the continuous caster remained at 6,900 net tons per day (permit #119813AAI dated January 4, 1994).

1.3 APPLICATION INFORMATION

The applicant for this project is as follows:

Granite City Division of
National Steel Corporation
20th and State Streets
Granite City, Illinois 62040

SR 1953

The applicant contact is Mr. Larry Siebenberger. Mr. Siebenberger may be contacted at (618) 451-3391.

The Granite City Division of National Steel Corporation proposes to increase production from their two blast furnaces, two basic oxygen furnaces, and two continuous casters. The production increases proposed in this application are as follows:

- Increase the blast furnaces' production from 6,500 net tons per day (NTPD) to 9,100 NTPD
- Increase the Basic Oxygen Furnaces' production from 7,600 NTPD to 10,300 NTPD
- Increase the continuous casters' production from 6,900 NTPD to 10,300 NTPD

Based on an analysis to determine the net emissions changes resulting from the proposed project, the production increase would result in a net increase of sulfur dioxide (SO_2), carbon monoxide (CO), nitrogen oxides (NO_x), total suspended particulate matter (TSP), volatile organic material (VOM), and lead (Pb) emissions. Emissions of particulate matter less than 10 microns in diameter (PM_{10}) would decrease as a result of the production increase.

The Granite City facility is located in an area that is designated as attainment for SO_2, CO, and Pb and nonattainment for ozone (including NO_x and VOM) and particulate matter (including TSP and PM_{10}). The net emission increases for SO_2 and CO are in excess of the applicable Prevention of Significant Deterioration (PSD) significance levels of 40 and 100 tons per year, respectively. Therefore, the proposed increase in production is considered a major modification requiring a Best Available Control Technology (BACT) analysis. The net emission increases for Pb and the nonattainment pollutants are all below the PSD and new source review (NSR) significance levels. Therefore no additional control technology analyses for these pollutants are necessary.

Related to the production increase, the amount of fuel used by the boilers at the mill may also increase. However, the increase in fuel use by the boilers will not bring total fuel use

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

to an amount greater than allowed by Granite City Steel's existing permits. Also, the fuels types used by the boilers will not change. Therefore, the boilers are not considered part of the major modification and are exempt from BACT review as specified in the federal regulations at 40 CFR 52.21(b)(2)(iii). Increases in emissions due to increased fuel use will, however, be included in the air quality modeling analysis for this application.

It should also be noted that the actual increase in the use of blast furnace gas can only be estimated at this time. This is because actual operation of the blast furnaces at the proposed production level is needed to determine the actual increase in the blast furnace gas generated. Granite City Steel has estimated the increase in blast furnace gas for this application and is confident that the total emissions associated with this fuel for the production increase will be no greater than that represented in this application. Depending on the actual fuel mix and steam demand that accompanies the production increase, Granite City Steel may consider replacement of some existing boilers or modifications to existing boilers to more efficiently use blast furnace gas which would otherwise be flared. Again, these boiler changes would not adversely affect the total emissions associated with the fuel mix. Such changes, if they appear prudent, will be discussed with IEPA prior to implementation.

SR 1955

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

2.0
PROCESS DESCRIPTION

2.1 GENERAL DESCRIPTION OF THE MILL

The Granite City Division of National Steel Corporation owns and operates an integrated steel mill in Granite City, Illinois. Integrated steel manufacturing involves raw material preparation, iron production, iron preparation, and steel production.

2.2 GENERAL PROCESS DESCRIPTION

In this mill, iron is produced in blast furnaces by reducing iron bearing material with a hot gas. The charge, consisting of iron ore, coke, limestone, and other materials, is heated to a temperature above 900°C in the blast furnace. Air heated from 870°C to 1100°C is blown through tuyeres into bottom of the furnace. Oxygen in the air reacts with coke, forming carbon monoxide, which in turn reduces the iron oxides in the ore to iron. Limestone and other fluxs in the charge combine with the sulfur in the charge to form sulfates, which float to the top of the mix and are removed in the slag. A trace amount of sulfur is present in the blast furnace gas as it exits due to the reactions and oxidation taking place in the furnace. Molten iron and slag, accumulated in the hearth of the furnace, are drained into a trough equipped with a skimmer and a dam, resulting in the separation of molten iron from the slag.

The molten iron is further desulfurized by injecting a desulfurization reagent through a lance into the hot metal in the torpedo car using a carrier gas. This process is conducted in a desulfurization station located inside the BOF shop. The constituents of this reagent are typically CaC_2 which desulfurizes the molten metal, and $CaCO_3$ which provides the CO_2 gas required to mix the metal with the desulfurization agent. This treatment can reduce the sulfur content of the metal to less than 0.005%. Sulfur in the molten metal reacts to form calcium sulfate compounds, which are skimmed off the molten metal as slag. A collection hood collects emissions from the desulfurization process.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

The basic oxygen furnace receives a charge composed of approximately 30% metal scrap and 70% molten iron. High purity oxygen is injected below the surface of the molten metal converting it into molten steel. Limestone is added to the charge to form a slag to capture the oxidation products.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

3.0
EMISSION INFORMATION AND NETTING ANALYSIS

3.1 EXISTING AND PROPOSED EMISSION RATES

Emission rates used for calculation of pollutant emissions from the Blast Furnace, BOF and Continuous Casters are based on published emission factors, laboratory analysis, and emission test results.

Fuel related emissions increases related to the proposed production increase were based on use of the following emission factors listed on the following pages. Emission factors for process related emissions are based on published emission factors or, where appropriate, stack test results.

Stack test results used in the analysis include:

- August, 1993 test at BOF Electrostatic Precipitator Stack (PM, NO_x, CO)
- July, 1993 test at Blast Furnace Iron Spout Baghouse (SO_2)
- July, 1993 test at Blast Furnace Casthouse Baghouse (PM, SO_2, NO_x, VOC)

FUEL RELATED EMISSION FACTORS

FUEL and FACTOR UNITS	POLLUTANT	EMSSION FACTOR	REFERENCE
Natural Gas	CO	40	AP-42, Page 1.4-2
(lb/MMcf)	NOx	306	November 4, 1992 Stack Test
	SO_2	0.6	AP-42, Page 1.4-2
	PM10	5.1	AP-42, Page 1.4-2
	TSP	5.1	AP-42, Page 1.4-2
	VOM	1.4	AP-42, Page 1.4-2

FUEL and FACTOR UNITS	POLLUTANT	EMSSION FACTOR	REFERENCE
	Pb	-	-
Blast Furnace Gas	CO	13.7	AIRS 1990
(lb/MMcf)	NOx	5.28	February 1, 1993 Stack Test
	SO_2	6.65	Stack Test
	PM10	2.9	AIRS, 1990
	TSP	2.9	AIRS, 1990
	VOM	-	-
	Pb	-	-
Fuel Oil	CO	5	AP-42, Page 1.3-2
(lb/Mgal)	NOx	55	AP-42, Page 1.3-2
	SO_2	141.3	AP-42, Page 1.3-2 (based on 0.9%S oil)
	PM10	9.72	AP-42, Page 1.11-2 (based on 0.18% ash)
	TSP	10.8	AP-42, Page 1.11-2 (based on 0.18% ash)
	VOM	0.28	AP-42, Page 1.3-2
	Pb	0.016	Based on laboratory anaylsis of ash

3.2 REGULATORY ANALYSIS

The proposed modification at the Granite City mill will be subject to both state and federal requirements. Illinois has promulgated air pollution control requirements which apply to both existing and new facilities. The source is subject to the requirements of the Prevention

of Significant Deterioration (PSD) regulations. Madison County, where the facility is located is designated moderate nonattainment for ozone and attainment for all other criteria pollutants.

On June 19, 1978, the EPA promulgated regulations governing Prevention of Significant Deterioration of air quality to implement provisions of the Clean Air Act Amendments of 1977. These regulations were changed as a result of the December 14, 1979 decision of the U.S. Court of Appeals for the District of Columbia (Alabama Power Company, et al. vs. Costle). Final rules pursuant to this decision were promulgated on August 7, 1980.

The PSD regulations apply to major sources - i.e., any of the 28 source categories listed in the regulations which emit, or have the potential to emit, more than 100 tons per year of any pollutant subject to regulation under the Clean Air Act, or any other source category which has the potential to emit more than 250 tons per year of any pollutant subject to regulation under the Act. The PSD regulation also applies to the proposed modification of an existing major source, if the emission increase exceeds the significant emission rates defined in the regulations. The proposed production increase will result in an emission increase greater than the PSD significant level of 100 and 40 tons per year for CO and SO_2 respectively. Thus, the proposed modification will be subject to the PSD regulations for CO and SO_2.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

3.3 NETTING ANALYSIS

The Granite City Division of National Steel Corporation intends to increase production at their Blast Furnaces, Basic Oxygen Furnaces, and Continuous Casters. The proposed production level is set out in the following table.

PRODUCTION AREA	PROPOSED PRODUCTION (NTPD)
BLAST FURNACE	9,100
BOF SHOP	10,300
CASTERS	10,300 (liquid steel to the casters)

There will be changes in regulated air pollutants accompanying this increase in production. Production related emission increases and contemporaneous emission changes were calculated in accordance with Illinois Environmental Protection Agency (IEPA) regulations for Construction and Modification of Major Stationary Sources (Part 203).

A baseline period for this analysis was chosen to be the period August 1992 through July 1994. Emission changes (related to the production increase and contemporaneous changes) were calculated for:

- Carbon Monoxide (CO)
- Nitrogen Oxides (NO_X)
- Sulfur Dioxide (SO_2)
- Particulate Matter less than 10 Microns (PM_{10})
- Particulate Matter (TSP)
- Volatile Organic Material (VOM)
- Lead (Pb)

The following conclusions were reached regarding the magnitude of the net emission changes related to the production increase and contemporaneous emissions changes:

POLLUTANT	NET EMISSION CHANGE
Carbon Monoxide	Significant
Nitrogen Oxides	Not Significant
Sulfur Dioxide	Significant
Total Suspended Particulate Matter	Not Significant
Particulate Matter less than 10 Microns	Not Significant
Volatile Organic Material	Not Significant
Lead	Not Significant

On the basis of these results, only carbon monoxide (CO) and sulfur dioxide (SO_2) will be considered further in the New Source Review process. Information contained in this section concerning the net emission changes for the significant pollutants are presented for information only since these pollutants will be considered in the review process.

3.3.1 BASE PERIOD SELECTION AND NETTING PROCEDURE

The first step in the air quality permitting process is a "netting" evaluation. This evaluation is used to determine whether an air quality permit and subsequent New Source Review is needed. The analysis considers the increase in emissions that will accompany the proposed project. The increase is measured against a base period which is typically taken as the actual annual emissions averaged over the 24 most recent months. Other base periods can be established if they can be shown to be more representative of normal source operations.

The base period used for this analysis is August 1, 1992 through July 31, 1994. This period was selected because it represents the most recent available 24 month period consistent with IEPA Regulation 203.104. While this period has been used for this analysis, it should be noted that there was significant downtime related to furnace repairs in 1992 which has the effect of depressing base period production.

Changes in emissions expected as a result of the proposed increase in production were in most cases scaled from the base period average actual annual emission rate based on fuel usage and production rates consistent with the proposed production increase. A factor was developed by dividing the proposed production levels by the base period production levels as shown in the following table. Appendix B contains additional information on the base period production. **Figure 3-1** shows production trends for the mill.

PRODUCTION AREA	AUGUST 1992 - JULY 1994 PRODUCTION (NTPD)	PROPOSED PRODUCTION (NTPD)	RATIO
BLAST FURNACE	5,643	9,100	1.613
BOF SHOP	6,612	10,300	1.558
CASTERS	6,612	10,300 (liquid steel to casters)	1.558

In certain instances where there is an allowable emission limitation, that limitation was used as the basis of calculating the potential emissions levels associated with the proposed production limit increases.

The netting analysis also considers contemporaneous emission changes, both increases and decreases. Contemporaneous changes are defined as changes that have occurred over the past five years.

Particulate Matter (TSP and PM_{10}), Nitrogen Oxides (NO_X), Volatile Organic Material (VOM), Lead (Pb), and Carbon Monoxide (CO) were evaluated.

For each pollutant for which the source is major, the net emission change is compared against significance levels specified in new source review guidelines. If the net changes in emissions that result from the planned project plus contemporaneous changes for any single pollutant exceed the applicable significance level, the project is treated as a major modification of the source. The significance levels applicable for this project are:

Pollutant	Significance Level (tons per year)
Carbon Monoxide	100
Nitrogen Oxides	40
Sulfur Dioxide	40
Total Suspended Particulate	25
Particulate Matter < 10 microns	15
Volatile Organic Material	40
Lead	0.6

The procedures, assumptions, and results are discussed for each pollutant considered.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

3.3.2 POLLUTANT ANALYSES

3.3.2.1 CARBON MONOXIDE

CO emissions that would be affected by the proposed production increase include the following:

- Blast Furnace Stoves
- Continuous Casters
- Boilers 1-12
- By-Products Flare
- BOF Vessels
- Ladle Dryer & Preheater

Table 3-1 presents the estimated increases in CO emissions associated with the production increase. The total increase in CO emissions is 6,514 tons per year.

Based on information provided by Granite City Steel, there have been two projects within the five year contemporaneous time frame which resulted in changes to CO emissions. Appendix C presents information on the emission changing projects.

Projects considered in calculating the net emission change are listed in the table below.

PROJECT	DATE	EMISSION CHANGE (tpy)
Shutdown of Blooming Mill	April 1, 1991	-22.1
Shutdown of Batch Annealing	December, 1991	-1.2
Net Decrease		**-23.3**
Proposed Production Increase	To Be Determined	+6,513.7
Net Emission Change		**+6,490.4**

On the basis of these calculations, the proposed production increase would result in a net CO emission increase in excess of the significance level (100 tpy). Thus the production increase would be classified as a major modification and Prevention of Significant Deterioration review requirements would apply for this pollutant.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

3.3.2.2 NITROGEN OXIDES

Nitrogen Oxides emission sources that would be affected by the proposed production increase include the following:

- Blast Furnace Stoves
- Continuous Casters
- Boilers 1-12
- By-Products Flare
- BOF Vessels
- Ladle Dryer & Preheater
- Caster Molds
- Blast Furnace Casthouse

Table 3-2 presents the estimated increases in NO_X emissions associated with the production increase. The total increase in NO_X emissions is estimated to be 256 tons per year.

Based on information provided by Granite City Steel, there have been two projects within the five year contemporaneous time frame which resulted in changes to NO_X emissions. Appendix C presents information on the emission changing projects.

Projects considered in calculating the net emission change are listed in the table below.

PROJECT	DATE	EMISSION CHANGE (tpy)
Shutdown of Blooming Mill	April 1, 1991	-217.8
Shutdown of Batch Annealing	December, 1991	-8.7
Net Decrease		**-226.5**
Proposed Production Increase	To Be Determined	+256.3
Net Emission Change		**+29.8**

On the basis of these calculations, the proposed production increase would result in a net NO_X emission change below the significance level (40 tpy). Thus the production increase would not require Prevention of Significant Deterioration (for NO_2) or Nonattainment New Source Review (for O_3).

3.3.2.3 SULFUR DIOXIDE

SO_2 emissions that would be affected by the proposed production increase include the following:

- Blast Furnace Stoves
- Continuous Casters
- Boilers 1-12
- By-Products Flare
- BOF Vessels
- Ladle Dryer & Preheater
- Blast Furnace Casthouse

Table 3-3 presents the estimated increases in SO_2 emissions associated with the production increase. The expected increase in SO_2 emissions is 481 tons per year.

Based on information provided by Granite City Steel, there have been two projects within the five year contemporaneous time frame which resulted in changes to SO_2 emissions. Appendix C presents information on the emission changing projects.

Projects considered in calculating the net emission change are listed in the table below.

PROJECT	DATE	EMISSION CHANGE (tpy)
Shutdown of Blooming Mill	April 1, 1991	-0.34
Shutdown of Batch Annealing	December, 1991	-0.04
Net Decrease		**-0.4**
Proposed Production Increase	To Be Determined	+481.04
Net Emissions Change		**+480.6**

On the basis of these calculations, the proposed production increase would result in a net SO_2 emission increase in excess of the significance level. Thus the production increase would

be classified as a major modification and Prevention of Significant Deterioration requirements would apply for this pollutant.

3.3.2.4 PARTICULATE MATTER

Particulate Matter (PM_{10} and TSP) emissions that would be affected by the proposed production increase include the following:

- Blast Furnace Stoves
- Boilers 1-12
- By-Products Flare
- BOF Vessels
- Continuous Casters
- Ladle Dryer & Preheater
- Blast Furnace Process Emission Points
- BOF Shop Process Emission Points
- Continuous Caster Process Emission Points
- Fugitive Emissions from Roads and Materials Handling

Particulate matter emission increases are affected by the types and amounts of fuel used in each process unit that will be affected by the production increase.

Appendix C presents information regarding fugitive emissions changes from roads and materials handling areas. **Figures 3-2, 3-3,** and **3-4** show the road network used in this analysis.

The baseline set of information used is from a 1988 fugitive emission inventory. Based on that information, emissions were scaled to a base period (August, 1992 to July 1994) estimate using the increase in production (16.9%) and then reductions were calculated to reflect road paved or to be paved for credit, and additional proposed controls to paved and unpaved roads.

The specific fugitive dust control program that is proposed in addition to paving includes:

- three times a month spraying of unpaved roads (except when not required because of naturally wet or frozen conditions); and

- daily sweeping of paved roads shown on **Figures 3-2, 3-3, and 3-4.**

Table 3-4 and **Table 3-5** present the estimated changes in PM_{10} and TSP emissions associated with the production increases and fugitive dust controls to roads. The total increase in PM_{10} and TSP emissions is 9 and 27 tons per year, respectively. In both cases, the decrease in emissions are due to reductions in unpaved road fugitive dust emissions, paving of some previously unpaved roads, and sweeping of paved roads.

Based on information provided by Granite City Steel, there have been five projects (in addition to control of fugitive emissions from roads) within the five year contemporaneous time frame which resulted in changes to PM_{10} emissions. Appendix C presents information on the emission changing projects.

Projects considered in calculating the net PM_{10} emission change are listed in the table below.

PROJECT	DATE	PM_{10} EMISSION CHANGE (tpy)
Remove Blast Furnace Slag Spout Hood	January, 1990	+4.9
# 2 Caster Production	December 1, 1990	+11.7
Ingot Teeming Shutdown	April 1, 1991	-22.4
Shutdown of Blooming Mill	April 1, 1991	-3.4
Shutdown of Batch Annealing	December, 1991	-0.2
Net Decrease		**-9.4**
Proposed Production Increase	To Be Determined	+9.4
Net Emissions Change		**0.0**

Projects considered in calculating the net TSP emission change are listed in the table below.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

PROJECT	DATE	TSP EMISSION CHANGE (tpy)
Remove Blast Furnace Slag Spout Hood	January, 1990	+4.9
# 2 Caster Production	December 1, 1990	+11.7
Ingot Teeming Shutdown	April 1, 1991	-22.4
Shutdown of Blooming Mill	April 1, 1991	-3.4
Shutdown of Batch Annealing	December, 1991	-0.2
Net Decrease		**-9.4**
Proposed Production Increase	To Be Determined	+9.5
Net Emissions Change		**+0.1**

On the basis of these calculations, the proposed production increases and additional dust controls will result in a net decrease in PM_{10} and net increase in TSP particulate matter emissions. Because the TSP increase is less than the 25 tons per year significance threshold, the production increase will not trigger Nonattainment New Source Review for PM_{10} or TSP.

3.3.2.5 VOLATILE ORGANIC MATERIAL

The Blast Furnace Casthouse is the primary source of Volatile Organic Material (VOM) emissions increase that would result from the proposed production increase.

Table 3-6 presents the estimated increases in VOM emissions associated with the production increase. The total increase in VOM emissions is estimated at 67.7 tons per year. The increased emissions due to production increases were estimated by increasing 1993 emissions proportionally.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Based on information provided by Granite City Steel, there have been three projects within the five year contemporaneous time frame which resulted in changes to VOM emissions. Appendix C presents information on the emission changing projects.

Projects considered in calculating the net VOM emission change are listed in the table below.

PROJECT	DATE	EMISSION REDUCTION (tpy)
Installation NESHAP Controls Coke By-Product	July, 1991	-31.6
Shutdown of Blooming Mill	April 1, 1991	-0.9
Shutdown of Batch Annealing	December, 1991	-0.3
Net Decrease		**-32.9**
Proposed Production Increase	To Be Determined	+67.7
Net Emissions Change		**+34.8**

On the basis of these calculations, the proposed production increase would result in a net increase in VOM emissions below the applicable significance level of 40 tons per year. Thus the production increase would not require a Nonattainment New Source Review for this pollutant.

3.3.2.6 LEAD

Table 3-7 presents the estimated increases in lead emissions associated with the production increase. The total increase in lead emissions is estimated at 0.48 tons per year. The increased emissions due to production increases were estimated by increasing 1993 emissions proportionally.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

On the basis of these calculations, the production increase results in increased lead emissions less than the 0.6 tons per year significance threshold. Therefore, a PSD Review for this pollutant is not required.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

4.0
BEST AVAILABLE CONTROL TECHNOLOGY REVIEW

4.1 REQUIREMENTS AND APPLICABILITY

BACT is defined as an emission limitation based on the maximum degree of reduction of each pollutant subject to regulation which would be emitted from any proposed major stationary source or major modification which the Administrator (on a case-by-case basis, taking into account energy, environmental and economic impacts, and other costs) determines is achievable for such pollutant. BACT limitations must not cause the exceedance of any applicable New Source Performance Standards (NSPS) and/or National Emission Standards for Hazardous Pollutants (NESHAP).

The requirement to conduct a BACT analysis and determination is set forth in Section 165(a)(4) of the Clean Air Act and in federal regulations at 40 CFR 52.21(j). BACT must also comply with all the applicable limits established by the State of Illinois.

BACT is required for each regulated major source pollutant emitted in excess of the significant emission rates. Individual BACT determinations are to be performed for each pollutant subjected to a PSD review emitted from the same emission unit. The BACT determination must also separately address, for each regulated pollutant with a significant emission increase at the source, air pollution controls for each emissions unit or pollutant emitting activity subject to review.

Based on emission estimates for the proposed project, a BACT review is required for both SO_2 and CO control for the proposed project and is presented in the following format:

- BACT procedures
- Control Technology Review
- Previous BACT Determinations
- BACT Conclusion

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Preparation of the BACT analysis included in this document incorporates the most recent "top-down" BACT guidance (EPA, 1990) by United States Environmental Protection Agency (EPA) for PSD permit determinations. That is, for each pollutant, the most stringent emission limit potentially applicable for a given pollutant was considered and then compared to the proposed project to determine its technical and economic feasibility.

When the most stringent technically feasible emission limitation is not selected as BACT, justification must be provided in terms of adverse economic, environmental, or energy impacts. Several other factors may be considered in justification of rejecting more stringent controls, including:

a. A showing that utilizing the control would adversely impact the project's financial viability.

b. A showing that the costs associated with the control are significantly higher for this specific project than for other similar projects that have installed this control system or in general for controlling the pollutant.

c. A showing that those economic considerations outweigh the energy and environmental benefits.

4.2 SO_2 CONTROL TECHNOLOGY REQUIREMENTS AND APPLICABILITY

The sources of SO_2 emissions impacted by the proposed production increases and considered as a part of the BACT review include the blast furnace stoves, the blast furnace casthouse, the ladle dryer preheater and the continuous casters. The increase in iron-making by the blast furnaces may correspondingly increase the production of process blast furnace gas.

4.2.1 INHERENTLY LOWER-EMITTING PROCESSES/PRACTICES

4.2.1.1 Blast Furnace Stoves

The blast furnace stoves will burn increased amounts of blast furnace gas and comparable amounts of natural gas to accommodate the production increase. Due to the low

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

concentrations of SO_2 and other pollutants in blast furnace gas and natural gas, these products are typically thought of as clean burning fuels[1].

Emissions of SO_2 will be impacted by the quantity of fuel required and the sulfur content of the fuel. For example, blast furnace gas has trace amounts of sulfur but is lower in heating value than natural gas or fuel oil. Therefore, it takes a much greater volume of blast furnace gas to provide the same heat energy as these other fuels. The greater volume and respective sulfur concentration must be compared to the lower volumes and respective sulfur concentration for natural gas or fuel oil to determine a lower emitting practice.

Based on fuel data for each type of fuel used, the lowest emitting fuel for SO_2 is natural gas (approximately 6.0×10^{-4} lbs/mmBtu). The next lowest emitting fuel for SO_2 is blast furnace gas (approximately 8.3×10^{-2} lbs/mmBtu). There may be a small increase in fuel oil use associated with the production increase. Fuel oil combustion results in SO_2 emissions of approximately 1.0 lb/mmBtu.

Increased quantities of blast furnace gas will be produced by the blast furnaces with the proposed production increase. If this fuel is not used in the blast furnace stoves or in other combustion sources, it must be flared. Although blast furnace gas is a higher emitting fuel than natural gas, substituting natural gas at the blast furnace stoves would still result in the combustion of the blast furnace gas at the flare. Therefore, combustion of blast furnace gas in the blast furnace stoves is the inherently lowest emitting practice on a plant-wide basis.

4.2.1.2 Casthouse Emissions

As discussed in Section 2.2, SO_2 emissions from iron-making operations are limited by process practices employing limestone and other fluxing agents in the burden. Due to the reducing atmosphere and the fluxes used in the furnace burden to remove impurities, wide ranges of sulfur in the burden are efficiently removed (98+ %), predominately into the slag. Some trace amounts of sulfur are also in the iron. This necessary burden practice of adding limestone and fluxes effectively and effectively reduces SO_2 emissions to trace amounts[4]. No other lower emitting practices are in use in the steel industry[3,4,5].

SR 1975

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

4.2.1.3 Ladle Dryer Preheater and Continuous Caster Emissions

The ladle dryer preheater and continuous casters may require an increase in fuel usage as a result of the production increase. However, because natural gas is the only fuel used at these units, the lowest emitting practice is in place and will continue to be employed.

4.2.2 SO_2 CONTROL TECHNOLOGY OPTIONS

There are no add-on SO_2 control technologies currently in use in the steel industry for SO_2 control at blast furnace stoves using process blast furnace gas, or to control SO_2 at the blast furnace casthouse, ladle dryer preheater and continuous casters.

4.2.3 INFEASIBLE OPTIONS - SO_2

The proposed production increases to the blast furnaces will result in increased blast furnace gas generation and require additional fuel combustion in the blast furnace stoves. Blast furnace gas and natural gas are considered clean fuels and are the preferred supplemental fuels for the increased combustion needs based on inherently lower emitting practices.

Blast furnace gas is a low Btu fuel (approximately 80 Btu/cubic feet). Because of its low Btu value, large volumes of blast furnace gas are necessary to produce the required heat energy for the proposed production increases. Because the use of blast furnace gas in some processes is limited by other factors, such as physical limitations of the gas lines and burners, natural gas may also be used as a supplemental fuel. However, the overall quantity of natural gas usage throughout the plant will remain constant.

Blast furnace gas and natural gas typically contains approximately 0.01 and 0.001 percent sulfur (by weight). Based on these low sulfur concentrations, SO_2 reduction using add-on controls is technically infeasible.

4.2.4 SELECTED BACT - SO_2

Based on a review of the BACT/LAER clearinghouse, information obtained from the U.S. EPA Control Technology Group, and literature from the U.S. EPA Office of Air Quality

Planning and Standards, no add-on BACT determination has been made for SO_2 emissions at these sources. Based on the extremely low concentrations of SO_2 in blast furnace gas, control of SO_2 emissions at blast furnace stoves is not practiced in the steel industry[3,4,5].

The combustion of blast furnace gas in the blast furnace stoves to supplement existing fuel combustion is the only feasible option to support the proposed production increases. Therefore, this option is determined as BACT for SO_2.

Sulfur dioxide emissions from the blast furnace casthouse are effectively controlled by the solubility of sulfur containing gases in the liquid iron and the efficiency of fluxing to remove impurities, including SO_2. Based on the low SO_2 concentrations in casthouse emissions, reduction using add-on controls is technically infeasible. SO_2 emissions from the blast furnace casthouse are effectively reduced by using current industry work practices. This option is selected as BACT for casthouse SO_2 emissions.

The use of natural gas in the ladle dryer preheater and continuous casters is the only feasible control option to support the proposed production increases based on inherently lower emitting practices.

4.3 CO CONTROL TECHNOLOGY REQUIREMENTS AND APPLICABILITY

The major sources of CO emissions impacted by the proposed production increases include the blast furnace stoves, the basic oxygen furnaces (BOF), the ladle dryer preheater and the continuous casters. CO emissions may increase as a result of additional process blast furnace firing in the stoves, additional steel production at the BOF and additional fuel requirements at the ladle dryer preheater and continuous casters. A BACT review requires an evaluation of inherently lower-emitting processes/practices and technically feasible add-on controls.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

4.3.1 INHERENTLY LOWER-EMITTING PROCESSES/PRACTICES

4.3.1.1 Blast Furnace Stoves

CO formation results from the incomplete combustion of fossil fuels and oxidation of carbon containing materials. The better the combustion practices, the lower the CO formation.

Good combustion practices requires the following elements:

- Proper fuel/air mixture
- Proper mixing
- High temperature

Good combustion practice is the inherently lowest emitting method of controlling CO emissions from combustion sources[2,6].

4.3.1.2 Basic Oxygen Furnaces (BOF)

CO is formed in the BOFs by oxidizing carbon in the molten iron. Because high-purity oxygen is the industry standard for making steel, there is no lower-emitting practice for this source.

4.3.1.3 Ladle Dryer Preheater and Continuous Casters

The ladle dryer preheater and continuous casters may require an increase in fuel usage as a result of the production increase. However, because natural gas is the only fuel used at these units, the lowest emitting practice is in place and will continue to be employed.

4.3.2 CO CONTROL TECHNOLOGY OPTIONS

The following control technologies are currently available to control CO emissions from affected sources.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

4.3.2.1 Blast Furnace Stoves

The following add-on control technology options are currently available to control CO emissions from the blast furnace stoves:

- Direct Combustion (flaring)
- Thermal Oxidization
- Catalytic Oxidation

Direct Combustion

Flaring is a combustion control process in which combustible gases are burned in an open flame in the open air using a specially designed burner tip. Completeness of combustion in a flare is governed by flame temperature, residence time in the combustion zone, turbulent mixing, and available oxygen. The major factors affecting flare combustion efficiency are gas flammability, auto-ignition temperature, heating value (Btu/scf), density, and flame zone mixing.

The heating value affects flame stability, emissions, and flame structure. A lower heating value produces a cooler flame that does not favor combustion and is more easily extinguished.

Thermal Oxidizers

Thermal oxidizers refer to any device that uses a flame combined within an enclosed chamber to convert combustible gases to carbon dioxide and water. Thermal oxidizers operate most effectively at temperatures between 1,300 to 1,500°F with a residence time of 0.1 to 0.5 seconds. By raising the temperature, the residence time for complete combustion can be reduced and vice versa. However, temperature is the more important process variable. The removal efficiency for CO is in the range of 90 to 95 percent.

Besides temperature and residence time, the concentration of the pollutant in the gas stream also affects operation of the system. The concentration of the pollutant dictates the amount

of supplemental fuel required. Low concentrations of the combustible gas require increased supplemental fuel usage.

Catalytic Oxidation

Catalytic incinerators employ a bed of active material (catalyst) that facilitates the overall combustion reaction. The catalyst is a substance that speeds up the rate of a chemical reaction at a given temperature without being permanently altered. The use of a catalyst in an enclosed combustor enables oxidation at temperatures in the range of 500 to 600°F. Common catalysts used in catalytic oxidation units are platinum or other metals. The catalysts are placed on an alumina pellet support or honeycomb support. The typical removal efficiency with this type of control is 90 percent.

Certain contaminants contained in the exhaust gas streams will chemically react or alloy with the catalyst and cause deactivation, including most heavy metal compounds. Sulfur is also considered a catalyst poison, but its effect is reversible.

4.3.2.2 Basic Oxygen Furnaces (BOF)

The BOF receives a charge composed of approximately 30 percent scrap and 70 percent molten iron and converts it to molten steel by utilizing a jet of high purity oxygen. The oxygen oxidizes the carbon and silicon in the molten iron, removes them, and provides heat for melting scrap.

Two primary systems for hooding and combustion of the BOF gases are currently used. The following control technologies are currently available and in use to control CO emissions from BOF vessels.

- Closed-hood combustion with exhaust stack flare
- Open-hood combustion with no additional controls

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Closed-Hood Combustion w/Flare

A closed hood system suppresses combustion at the hood and collects the gases for combustion of CO at an exhaust stack flare. In a closed-hood system movable skirts seal the top of the furnace to limit air induction. Suppressed combustion hoods discourage air infiltration, with as low as 5 percent theoretical air. By suppressing combustion, the CO concentration is increased and the gases are more easily flared.

Open-Hood Combustion

Open combustion hoods allow excess air to be introduced in quantities up to 300 percent. With open hoods there is a gap between the hood and the furnace top into which air can be induced. In an open-hood system CO gases are combusted in the primary hood system with the addition of the excess air.

4.3.2.3 Ladle Dryer Preheater and Continuous Casters

There are no add-on CO control technologies currently in use in the steel industry for CO control at the ladle dryer preheater or continuous casters.

4.3.3 INFEASIBLE OPTIONS - CO

Low concentrations of CO are not effectively and efficiently controlled by emissions control devices[8]. Due to the low concentrations of CO gas in the exhaust stream of the blast furnace stoves, which are below the lower explosive limit (LEL) of 12.5 percent for CO, sustained combustion (flaring) cannot occur[7] without the use of a supplemental fuel. Because the use of supplemental fuel at the flare would result in higher emissions of other pollutants and the formation of additional CO, this is an infeasible option.

The Granite City facility is already equipped with an open hood system on the BOFs where CO is combusted in the hood. Switching to a closed-hood system would require a large capital expense and would be economically infeasible. The residual CO from open-hood combustion is at a concentration level that is not technically feasible to treat further.

SR 1981

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

4.3.4 SELECTED BACT - CO

A review of BACT/LAER Clearinghouse, U.S. EPA Control Technology Group, and U.S. EPA Office of Air Quality and Planning literature was conducted to determine the current BACT status for sources within the steel industry. Based on this review and the previous evaluation of BACT options, the following BACT determinations for CO were made for sources impacted by the proposed production increases.

4.3.4.1 BACT - Blast Furnace Stoves

BACT literature indicates that blast furnace stoves at steel mills are not using add-on control equipment for CO emissions control. CO emissions can be adequately controlled by the use of good combustion practices. Therefore the BACT recommendation for control of CO emissions from the blast furnace stoves is the maintenance of good combustion practices.

4.3.4.2 BACT - Basic Oxygen Furnaces (BOF)

The open hood system used by Granite City Steel is a process control with the CO being combusted in the hood system. This type of process does not use add-on controls. After combustion in the open hood system, the CO average concentration is approximately 2500 ppm. This concentration is too low for additional CO control to be technically feasible[8]. Therefore, the existing open hood system, operated in the manner necessary to produce a quality product, is determined to be BACT for the BOFs.

4.4 REFERENCES

1."Pollution Effects of Abnormal Operations in Iron and Steelmaking. Vol. I. U.S. Environmental Protection Agency. EPA- 600/2-78-118.

2. A.J. Buonicore and W.T. Davis. "Air Pollution Engineering Manual. "Van Nostrand Reinhold, New York, 1992.

3. A. Vervaert, U.S. EPA Office of Air Quality Planning and Standards, Control Technology Group, personal communication.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

4. D. Schuerer, American Institute of Steel Industries, Technical Representative, Pittsburgh, Pa., personal communication.

5. E. Wojcheckowski, U.S. EPA Region V, Air and Radiation Section, personal communication.

6. Air Pollution Technology Institute, Course 427 "Combustion Evaluation", manual. EPA 450/2-80-063.

7. Office of Air Quality Planning and Standards, Control Cost Manual. EPA 450/3-90-006.

8. A. Marshall, John Zink Company, personal communication.

"Basic Oxygen Process Furnaces". U.S. Environmental Protection Agency. EPA 340/1-77-02.

Air Pollution Technology Institute, Course 415, "Control Of Gaseous Emissions, " manual. EPA 450/2-81-005.

Iron and Steel Plant Inspection Workshop. Volumes I and II. Pedco Environmental, Inc., 1983.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

5.0
AIR QUALITY IMPACT ASSESSMENT

5.1 BACKGROUND

The proposed production increases at National Steel Corporation's Granite City Steel mill will result in a facility-wide net emission increase of carbon monoxide (CO) and sulfur dioxide (SO_2) of greater than 100 and 40 tons per year, respectively. Therefore, the proposed production increases constitute a major modification to an existing major stationary source, and subject the mill (for the respective pollutants) to the Federal Clean Air Act's (CAA) New Source Review (NSR) process.

The NSR process requires a major stationary source undergoing a major modification to demonstrate that the modification will not cause or contribute to an exceedance of the National Ambient Air Quality Standards (NAAQS). NSR also requires the source to demonstrate that emissions of specific attainment air pollutants will not deteriorate the existing air quality above incremental amounts established by the CAA. Federal and state regulations have been developed to meet the requirements set forth in the CAA.

The Prevention of Significant Deterioration (PSD) program is a part of the NSR process that states have implemented for major new and modified sources of air pollution, in regions currently in attainment the NAAQS. An air quality impact assessment is one of the requirements which must be conducted in order to receive a PSD permit to construct or modify a source. This section will address the air quality impact assessment requirements which are necessary to receive a PSD permit. The air quality analyses presented in this section satisfy the regulatory requirements given in the Code of Federal Register 40 CFR 52.21(k) and 40 CFR 52.21(m).

Once source and pollutant applicability have been determined, dispersion modeling is typically used to estimate potential ambient pollutant impacts from a major modification. Initially, only the incremental emission increases resulting from the major modification are modeled. If the impacts from these emissions exceed the CAA's ambient significance levels, a more refined modeling analysis must be conducted to demonstrate overall compliance with

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

NAAQS and PSD increments. **Table 5-1** provides the ambient significance levels for CO and SO_2 impacts. **Table 5-2** presents the CO and SO_2 NAAQS (The Illinois Ambient Air Quality Criteria Pollutant Standards are identical to the NAAQS). **Table 5-3** lists the applicable Class II PSD SO_2 increments.

Another set of ambient impact limits which are applicable to PSD reviews are the de minimis ambient monitoring concentrations given in **Table 5-4**. These concentrations are used to determine whether site specific ambient air monitoring may be required prior to construction or modification. Concentrations greater than the values presented in **Table 5-4** could require preconstruction monitoring for up to a year, however, nearby existing representative monitoring data can often be substituted if available, approved by IEPA, and QA/QC certified according to federal guidelines.

The Illinois Environmental Protection Agency (IEPA) has recently conducted extensive dispersion modeling analyses in and around the Granite City Steel mill. The purpose of this modeling was to demonstrate NAAQS attainment for SO_2 and particulate matter. The IEPA modeling successfully demonstrated NAAQS compliance based on federally enforceable state operating permit (FESOP) SO_2 and PM_{10} emission rates for the Granite City Steel mill. SO_2 emission rates proposed for the production increases are no greater than the proposed FESOP limits. Therefore, NAAQS modeling will not be performed.

IEPA also provided a major portion of the data used in the modeling analyses. Included in the data provided are:

- meteorology (five years surface and upper air);
- receptors (three grid files of varying resolution and coverage);
- stack parameters; and
- downwash and wake effect parameters.

5.2 AREA DESCRIPTION

The Granite City Steel mill is located in Madison County, Illinois. Madison County is located in east-central Illinois. The largest city near the mill is St. Louis, Missouri which is located approximately 15 kilometers southwest of the site. The Granite City Steel mill is situated at a surface elevation of approximately 420 feet above mean sea level. The

SR 1985

elevations within a five kilometers radius of the site range from 400 to 430 feet, which are below the stack height elevations of all existing sources at the mill. Therefore, the site is located in an area consisting of simple terrain, and terrain elevations were not included as part of the modeling analyses.

Based on classification systems recognized by the EPA, the project area can be classified as rural. EPA guidance presents two alternative procedures to determine whether the character of an area is predominately urban or rural: 1) land use or 2) population density. The area classification system developed by Auer (1978) was used to classify the area as rural, based on color codes on the USGS maps and population density.

5.3 MODEL SELECTION

A dispersion modeling analysis for the Granite City Steel mill was performed using EPA computer models which evaluate the ambient impact of air pollution sources by simulating the processes of transport and diffusion of effluents in the atmosphere. The procedures recommended by EPA Region V, the Illinois Environmental Protection Agency (IEPA), and the *Guideline on Air Quality Models* (Revised), (EPA-450/12-78-027R) were followed for the modeling analysis.

The revised Industrial Source Complex Short Term (ISCST2) model, version 92062 was selected to predict ambient concentration increases. The ISCST2 model is frequently used in PSD modeling analyses and has gained wide acceptance by the modeling community since options are available to depict emission rate scalars, particle size data, building wake effects and downwash, cavity effects, and various types of emission sources.

The ISCST2 model is a steady-state Gaussian plume model designed to estimate ground-level pollutant concentrations from a wide variety of sources associated with an industrial complex in an area having simple terrain. The ISCST2 model utilized the regulatory default options including the following:

- final plume rise;
- stack-tip downwash;
- buoyancy-induced dispersion; and
- no calms processed

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

5.4 METEOROLOGICAL DATA

The dispersion modeling analysis was performed using five years (1982-86) of hourly surface meteorological data from the St. Louis International Airport (No. 13994) and twice-daily upper air meteorological data from the Salem Regional Airport (No. 03879). The meteorological data was recommended and supplied to Granite City Steel by the IEPA, and was previously used to conduct dispersion modeling analyses for SIP NAAQS attainment demonstrations. These data were received from IEPA in a preprocessed binary format compatible with the requirements of the ISCST2 model. The meteorological data consisted of hourly observations for the following parameters:

- Wind speed
- Wind direction
- Ambient temperature
- Atmospheric stability
- Mixing heights

These data were used to calculate hourly plume rise and pollutant concentrations at downwind receptor locations for averaging periods of up to a year. Each year was processed individually and maximum predicted concentrations for the worst-case year are reported in the modeling results.

The St. Louis Airport is located approximately 25 kilometers west of the mill and the Salem Regional Airport is located approximately 100 kilometers east of the mill. Both data sets are considered representative of the meteorological conditions in Madison County, Illinois.

5.5 RECEPTORS

The five-year dispersion modeling analysis utilized three IEPA generated UTM cartesian receptor grids with varying spacings (1 to 1,000 meter) and coverage. Potential near-source impacts due to downwash and wake effects were assessed utilizing fenceline receptors generated by IEPA and incorporated into three grids provided. Since terrain elevations are fairly constant, the modeling analysis was performed using only simple terrain (no terrain elevations). A copy of the receptor grid files are provided in Appendix E.

SR 1987

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

5.6 PRECONSTRUCTION AMBIENT AIR QUALITY MONITORING

Preconstruction monitoring of the air quality in the area near a proposed major modification is required by the PSD regulations to determine existing background pollutant concentrations prior to evaluating the impacts of the proposed major modification. The PSD regulations stipulate preconstruction monitoring is required if the maximum predicted (modelled) ambient impact concentration exceeds the de minimis PSD monitoring threshold. However, in lieu of a preconstruction monitoring requirement, the IEPA can designate existing representative monitoring data from a nearby site, if available, and if QA/QC certified according to federal guidelines.

The IEPA monitors CO in Madison County at 2001 Edison Street. This location is approximately 3 blocks (<0.5 kilometers) northwest of the Granite City Steel mill. This location should be considered nearby and representative of background conditions at the site. Therefore, preconstruction monitoring should not be necessary.

The IEPA monitors SO_2 in Madison County at four locations. The nearest monitoring station to the Granite City Steel mill is located in South Roxanna. This monitoring station is approximately 16 kilometers northeast of the Granite City Steel mill. However, because IEPA has already conducted extensive NAAQS SO_2 modeling and determined compliance for the area based on this modeling (at least in-so-far as it relates to the Granite City Steel mill), preconstruction monitoring should not be necessary.

The 1993 Illinois Annual Air Quality Report states that the maximum 1-hour CO average was 8.0 parts per million (9,200 $\mu g/m^3$) and the maximum 8-hour CO average was 3.7 parts per million (4,255 $\mu g/m^3$). These levels are below the 40,000 and 10,000 $\mu g/m^3$ 1-hour and 8-hour NAAQS, respectively.

The 1993 Illinois Annual Air Quality Report states that the maximum 3-hour SO_2 average was 0.171 parts per million (447 $\mu g/m^3$), the maximum 24-hour SO_2 average was 0.063 parts per million (164 $\mu g/m^3$), and the annual SO_2 average was 0.011 parts per million (28.6 $\mu g/m^3$). These levels are below the 1,300, 365, and 80 $\mu g/m^3$ 3-hour, 24-hour and annual NAAQS, respectively.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

5.7 SOURCE DATA

The proposed production increases at the Granite City Steel mill will be achieved utilizing existing production equipment. Therefore, only the total emissions from the existing source points will change. The source parameters (stack height, temperature, etc.) are expected to remain the same.

The source data for the SO_2 and CO sources impacted by the proposed production increases are presented in **Table 5-5**. The primary source points at the mill are the blast furnace stoves, boilers, baghouse, the ladle preheater/dryer stacks, the blast furnace casthouse and roof vents, the iron spout baghouse vent and the continuous caster stacks. The ladle preheater/dryers were assumed to exhaust through a single stack for this modeling analysis.

5.8 MODELING PROTOCOL

The dispersion modeling analysis was conducted in three steps. Initially, worst-case individual impacts were determined by modeling each source individually for the five year period. From this modeling, a worst-case combined impact was determined by adding together all individual worst-case impacts regardless of time period (within an averaging period) or receptor location. If this process demonstrated that the combined impacts were below the CAA ambient significance levels, NAAQS levels or applicable PSD Class II increments, no further analyses were conducted. If, however, the combined impacts were calculated to be above the NAAQS levels (with background levels included) or PSD Class II increments, a refined modeling analysis (taking into account the same time period and receptor locations) was performed to evaluate the specific combined impact cases which appeared to exceed the NAAQS or PSD increments.

5.8.1 INDIVIDUAL IMPACT MODELING

To determine the individual worst-case impacts, a Chi/Q modeling analysis was conducted utilizing a nominal emission rate of one gram per second for each source. Once the modeling was completed, the applicable emission rates "Q" (in grams per second) for each individual source were multiplied to the Chi/Q impacts and the worst-case individual source impacts were determined.

For example, the maximum eight-hour Chi/Q impact from the basic oxygen furnace (BOF) for the five year modeling period was 4.3226 $\mu g/m^3$ (1983). Multiplying this impact to the 174.12 gram per second increase in CO emissions from the proposed production increases to the BOF results in a maximum eight-hour CO impact of 752.65 $\mu g/m^3$.

5.8.2 COMBINED IMPACT MODELING

Once the individual worst-case impacts were determined, the next step was to evaluate the worst-case combined impacts. To achieve this, it was first necessary to separate the combustion sources from the process sources.

Combustion sources (in this assessment) are defined as sources that burn fuels for the sole purpose of generating steam or thermal energy. These sources can be used interchangably, that is, fuel burned in one source can be switched immediately to a different source. Therefore, to determine the worst case impacts from the combustion sources (and to maximize operating flexibility), the total emissions from all additional fuel combustion were applied to each combustion source, and the combustion source that was determined to have the highest impact (Boiler 12) was used in the combined impact analysis.

The worst-case combustion source impacts (Boiler 12) were then added to the worst-case individual process source impacts to arrive at a combined worst-case impact. These impacts were then compared to the CAA's ambient significant impact levels. If the significant impact levels were exceeded, the combined impacts were compared to the applicable NAAQS or PSD Class II increment. If the NAAQS or PSD Class II increments were exceeded, additional modeling was required.

5.8.3 REFINED MODELING

If the worst-case combined impacts were greater than the NAAQS (CO) or the PSD Class II increments (SO_2), refined modeling was necessary. Since IEPA has already conducted extensive modeling to demonstrate SO_2 NAAQS compliance, this modeling was not repeated.

Refined modeling combines sources into a single modeling run and evaluates the combined impacts of these sources on particular receptor locations and at particular time periods. This

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

modeling typically results in much lower combined impacts because it is likely that two or more sources are not impacting on the same receptor point at the same time.

5.9 MODELING RESULTS

The results of the dispersion modeling indicate that the proposed production increases will not cause or contribute to a violation of a NAAQS, or cause an exceedance of an applicable PSD Class II increment.

5.9.1 SIGNIFICANT IMPACT DETERMINATION

As described in Section 5.9.1, individual Chi/Q modeling was conducted for all CO and SO_2 sources impacted by the proposed production increases. **Table 5-6** gives the CO modeling results, and **Table 5-7** gives the SO_2 modeling results.

The worst-case combined 1-hour impact levels for CO are 1,730.2 $\mu g/m^3$. This impact is less than the applicable significant impact level of 2,000 $\mu g/m^3$. However, the worst-case combined 8-hour impact level for CO was 798.0 $\mu g/m^3$, which is greater than the 500.0 $\mu g/m^3$ applicable significant impact level. Therefore, the CO impacts are considered significant and require further evaluation for NAAQS compliance.

The worst-case combined 3-hour, 24-hour and annual impacts for SO_2 are modeled to be 233.3, 120.5 and 13.8 $\mu g/m^3$, respectively. These impacts are greater than their respective 25, 5 and 1 $\mu g/m^3$ applicable significant impact levels. Therefore, the SO_2 impacts are also significant and require further evaluation for PSD Class II increment consumption.

5.9.2 NAAQS DETERMINATION - CO

Table 5-8 presents the worst-case individual and combined modeling results for all CO sources at the Granite City Steel mill. Based on these modeling results, the worst-case combined 1-hour impacts from the Granite City Steel sources is 5,095.3 $\mu g/m^3$. If a representative background concentration of 9,200 $\mu g/m^3$ is added to this impact, the total worst-case 1-hour impact is 14,295.3 $\mu g/m^3$. This impact is below the NAAQS of 40,000

$\mu g/m^3$, therefore, the production increase does not cause or contribute to a 1-hour CO NAAQS exceedance.

Based on the modeling results, the worst-case combined 8-hour impacts from the Granite City Steel sources is 2,291.3 $\mu g/m^3$. If a representative background concentration of 4,255 $\mu g/m^3$ is added to this impact, the total worst-case 8-hour impact is 6,546.3 $\mu g/m^3$. This impact is below the NAAQS of 10,000 $\mu g/m^3$, therefore, the production increase does not cause or contribute to a 1-hour CO NAAQS exceedance.

5.9.3 PSD CLASS II INCREMENT CONSUMPTION - SO_2

SO_2 increment is consumed by sources in a specific area that increase their emission of SO_2 after the SO_2 baseline date has been established for that area. The increment can be expanded in a similar fashion if sources in a specific area decrease their SO_2 emissions after the baseline date. Based on data provided by IEPA, the SO_2 baseline date was established for the Kilngas - Wood River Gas Turbine project in December 1982. This project was eventually cancelled. Since this time, two additional PSD projects that would have been potential SO_2 increment consumers were proposed and ultimately cancelled.

IEPA and Granite City Steel were unable to identify the number and magnitude of minor source increment changes that have occurred since 1983. However, SO_2 monitoring data for Madison County indicate that SO_2 concentrations are remaining constant or trending downward. Therefore, we can conclude that at least the full Class II PSD increments for SO_2 should be available.

Table 5-9 presents the worst-case individual and combined modeling results for all SO_2 sources affected by the proposed production increases at the Granite City Steel mill. Based on these results, the worst-case combined impacts are below the 3-hour and annual Class II increments of 512 and 20 $\mu g/m^3$, respectively but exceed the 24-hour Class II increment of 91 $\mu g/m^3$.

To further evaluate the 24-hour average combined SO_2 impacts from the Granite City Steel sources, refined modeling was performed. The refined modeling evaluated the impacts of each individual combustion source combined with the three process sources (A&B Blast

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Furnace Casthouse, A&B Blast Furnace Uncaptured Roof Fugitives, and the Iron Spout Baghouse). A total of seven modeling runs were made to evaluate these combinations:

- Blast Furnace Stove A + 3 process sources;
- Blast Furnace Stove B + 3 process sources;
- Boiler House 1 (Boilers 1-7) + 3 process sources;
- Boiler House 1 (Boilers 8-10) + 3 process sources;
- Boiler 11 + 3 process sources;
- Boiler 12 + 3 process sources; and
- By-products flare + 3 process sources

Table 5-10 presents the summary results of the refined modeling analyses. The results show that the maximum combined 24-hour SO_2 impact of 86.1 $\mu g/m^3$ is less than the Class II increment of 91 $\mu g/m^3$.

5.10 REFERENCES

Auer, Jr., A.H. 1978. *Correlation of Land Use and Cover with Meteorological Anomalies*, Journal of Applied Meteorology, 17:636-643.

U.S. Environmental Protection Agency. 1986. Guideline on Air Quality Models (Revised). EPA-450/2-78-027R, Research Triangle Park, North Carolina.

Illinois Environmental Protection Agency. 1994. 1993 Illinois Annual Air Quality Report. IEPA\APC\94-150, Bureau of Air, Springfield, Illinois.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

6.0
ADDITIONAL IMPACT ANALYSIS

The additional impact analysis required under 40 CFR 52.21(o) are the following:

1. Impacts on soils and vegetation that would result from the modification

2. Air quality and visibility impact on Class I areas within 100 km

3. Impacts on endangered species

4. Socioeconomic analysis

The air quality modeling projections performed in Section 5.0 have demonstrated that the proposed modification will not cause or contribute to an exceedance of the applicable National Ambient Air Quality Standard (NAAQS) or cause an exceedence of a PSD Class II increment. The same can be said for any other anticipated effects that the proposed modification might have upon the surrounding areas of Madison county. Although the source impact analysis is a quantitative, mathematical determination evaluated in relative numerical terms, other impact analyses are generally more qualitative and descriptive in nature. The following sections summarize those additional considerations and demonstrate in each case that the proposed modification will produce no adverse effects.

CLASS I AREA IMPACTS

The nearest Federal Class I area to the Granite City Steel mill is the Mingo National Wilderness Area which is approximately 210 km southwest of the mill. The next closest Class I area (Hercules-Glades) is about 330 km southwest of the mill. The distance from the Class I area to the mill is greater than 100 km; therefore no air quality impact analyses were performed to evaluate impacts within the wilderness area.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

VISIBILITY IMPACT ANALYSIS IN CLASS I AREAS

The Clean Air Act Amendments require evaluation of new emission sources to determine potential impact on visibility in Class I areas. Mandatory Class I areas include international parks, national wilderness areas, national memorial parks and other areas redesignated to Class I areas by the state. The nearest Class I area is the Mingo National Wilderness Area in Popular Bluff, Missouri, located approximately 210 km south-west of Granite City mill.

The current regulation governing PSD review addresses the prevention of visibility impairment in federal Class I areas. No visibility impact analysis for the Class I area was performed, as the nearest Class I area is more than 200 km from the Granite City mill and no impact is expected.

SOILS AND VEGETATION ANALYSIS

Soils and vegetation analysis applies only to those areas in which there is vegetation of significant commercial or recreational value. There are no vegetation or soil types in Granite City area which would be harmed by concentrations of criteria pollutants below the national ambient air quality standard. Therefore, no soils or vegetation analyses are required for the proposed modification.

IMPACTS ON ENDANGERED SPECIES

No impacts will occur to any listed endangered or threatened species, since none are known or likely to occur in the project area.

SOCIOECONOMIC ANALYSIS

The proposed modification at the Granite City mill will have a positive ecomonic impact for the company and therefore for the community surrounding the mill. The infrastructure surrounding the mill is already established due to the existing industrial nature of the area. Therefore, it is not anticipated that there will be secondary air quality impacts due to the increase in production.


TABLES

TABLE 3-1
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - CO

Projected Emissions Based On: Blast Furnace @ 9,100 NTPD
BOF @ 10,300 NTPD

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	13.7	lb/MMcf	22,774	MMcf	156.00	included in line 17	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	13.7	lb/MMcf	22,203	MMcf	152.09	included in line 17	-	-	-
3	0008	01	By-Products Flare - BFG	13.7	lb/MMcf	26,132	MMcf	179.00	included in line 17	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	13.7	lb/MMcf	37,501	MMcf	256.88	included in line 17	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	40	lb/MMcf	361	MMcf	7.22	included in line 16	-	-	-
6	0044	01	Boiler #11 - BFG	13.7	lb/MMcf	5,323	MMcf	36.46	included in line 17	-	-	-
7	0044	91	Boiler #11 - NG	40	lb/MMcf	226	MMcf	4.52	included in line 16	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	5.0	lb/Mgal	15.00	Mgal	0.04	included in line 18	-	-	-
9	0048	01	Boiler #12 - BFG	13.7	lb/MMcf	7,106	MMcf	48.68	included in line 17	-	-	-
10	0048	91	Boiler #12 - NG	40	lb/MMcf	218	MMcf	4.36	included in line 16	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	5.0	lb/Mgal	1.00	Mgal	0.00	included in line 18	-	-	-
12	0033	01	BOF 2 Vessels	8.993	lb/ton proc.	2,413,406	ton proc.	10,851.88	3,759,500	ton proc.	16,904.59	
13	0038	01	BOF Preheaters/Dryers - NG	40	lb/MMcf	283	MMcf	5.66	included in line 16	-	-	-
14	0071 & 0119	01	Continuous Casters #1 & #2 - NG	40	lb/MMcf	57	MMcf	1.14	included in line 16	-	-	-
15			Natural Gas	40	lb/MMcf	-	-	-	1,145	MMcf	22.90	-
16			Blast Furnace Gas	13.7	lb/MMcf	-	-	-	188,212	MMcf	1,289.25	-
17			Fuel Oil	5.0	lb/Mgal	-	-	-	365	Mgal	0.91	-
	TOTALS:							**11,703.94**			**18,217.66**	**6,513.72**
			Contemperaneous Changes									(23.30)
			Net Change									***6,490.42***

TABLE 3-2
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - NOx

Projected Emissions Based On: Blast Furnace @ 9,100 NTPD
BOF @ 10,300 NTPD

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSION INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	5.28	lb/MMcf	22,774	MMcf	60.12	Included in Line 20	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	5.28	lb/MMcf	22,203	MMcf	58.62	Included in Line 20	-	-	-
3	0008	01	By-Products Flare - BFG	5.28	lb/MMcf	26,132	MMcf	68.99	Included in Line 20	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	5.28	lb/MMcf	37,501	MMcf	99.00	Included in Line 20	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	306	lb/MMcf	361	MMcf	55.23	Included in Line 19	-	-	-
6	0044	01	Boiler #11 - BFG	5.28	lb/MMcf	5,323	MMcf	14.05	Included in Line 20	-	-	-
7	0044	91	Boiler #11 - NG	306	lb/MMcf	226	MMcf	34.58	Included in Line 19	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	55	lb/Mgal	15.00	Mgal	0.41	Included in Line 21	-	-	-
9	0048	01	Boiler #12 - BFG	5.28	lb/MMcf	7,106	MMcf	18.76	Included in Line 20	-	-	-
10	0048	91	Boiler #12 - NG	306	lb/MMcf	218	MMcf	33.35	Included in Line 19	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	55	lb/Mgal	1.00	Mgal	0.03	Included in Line 21	-	-	-
12	0033	01	BOF 2 Vessels	0.0389	lb/ton proc.	2,413,406	tons proc.	46.94	3,759,500	ton proc.	73.12	-
13	0038	01	BOF Preheaters/Dryers - NG	306	lb/MMcf	283	MMcf	43.30	Included in Line 19	-	-	-
14	0007 & 0012	01	"A" & "B" Blast Furnace - Casthouse	0.01440	lb/ton proc.	2,059,557	tons proc.	14.83	3,321,500	tons proc.	23.91	-
15	0005 & 0010	01	"A" & "B" Blast Furnace - Uncaptured Roof Emiss.	0.00072	lb/ton proc.	2,059,557	tons proc.	0.74	3,321,500	tons proc.	1.20	-
16	0070 &0120	01	Caster Mold - Casters #1 & #2	0.05	lb/ton prod.	2,413,406	tons prod.	60.34	3,759,500	ton prod.	93.99	-
17	0071 & 0119	01	Continuous Casters #1 & #2 - NG	306	lb/MMcf	57	MMcf	8.72	Included in Line 19	-	-	-
18			Natural Gas	306	lb/MMcf	-	-	-	1,145	MMcf	175.19	-
19			Blast Furnace Gas	5.28	lb/MMcf	-	-	-	188,212	MMcf	496.88	-
20			Fuel Oil	55	lb/Mgal	-	-	-	365	Mgal	10.04	-
	TOTALS:							**618.01**			**874.32**	**256.31**
			Contemperaneous Changes									(226.54)
			Net Change									***29.77***

TABLE 3-3
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - SO2

Projected Emissions Based On: Blast Furnace @ 9,100 NTPD
BOF @ 10,300 NTPD

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy	COMMENTS
1	0004	01	"A" Blast Furnace Stoves - BFG	6.65	lb/MMcf	22,774	MMcf	75.72	included in line 19	-	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	6.65	lb/MMcf	22,203	MMcf	73.82	included in line 19	-	-	-	-
3	0008	01	By-Products Flare - BFG	6.65	lb/MMcf	26,132	MMcf	86.89	included in line 19	-	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	6.65	lb/MMcf	37,501	MMcf	124.69	included in line 19	-	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	0.6	lb/MMcf	361	MMcf	0.11	included in line 18	-	-	-	-
6	0044	01	Boiler #11 - BFG	6.65	lb/MMcf	5,323	MMcf	17.70	included in line 19	-	-	-	-
7	0044	91	Boiler #11 - NG	0.6	lb/MMcf	226	MMcf	0.07	included in line 18	-	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	141.3	lb/Mgal	15.00	Mgal	1.06	included in line 20	-	-	-	-
9	0048	01	Boiler #12 - BFG	6.65	lb/MMcf	7,106	MMcf	23.63	included in line 19	-	-	-	-
10	0048	91	Boiler #12 - NG	0.6	lb/MMcf	218	MMcf	0.07	included in line 18	-	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	141.3	lb/Mgal	1.00	Mgal	0.07	included in line 20	-	-	-	-
12	0038	01	BOF Preheaters/Dryers - NG	0.6	lb/MMcf	283	MMcf	0.08	included in line 18	-	-	-	-
13	0007 & 0012	01	"A & B" Blast Furnace - Casthouse	0.2006	lb/ton proc.	2,059,557	tons proc.	206.57	3,321,500	tons proc.	422.00	-	Est. Annual Max
14	0005 & 0010	01	"A & B" Blast Furnace - Uncap. roof	0.0104	lb/ton proc.	2,059,557	tons proc.	10.71	3,321,500	tons proc.	21.94	-	Est. Annual Max
15	----	--	Iron Spout Baghouse	0.0073	lb/ton proc.	2,059,557	tons proc.	7.52	3,321,500	tons proc.	13.89	-	Est. Annual Max
16	0071 & 0119	01	Continuous Casters #1 & #2 - NG	0.6	lb/MMcf	57	MMcf	0.02	included in line 18	-	-	-	
17			Natural Gas	0.6	lb/MMcf	-	MMcf	-	1,145	lb/MMcf	0.34	-	
18			Blast Furnace Gas	6.65	lb/MMcf	-	MMcf	-	188,212	lb/MMcf	625.80	-	
19			Fuel Oil	141.3	lb/Mgal	-	Mgal	-	365	lb/Mgal	25.79	-	
	TOTALS:							**628.73**			**1,109.77**	**481.04**	
			Contemperaneous Changes									(0.40)	
			Net Change									***480.64***	

TABLE 3-4
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - PM-10

Projected Emissions Based On: Blast Furnance @ 9,100 NTPD
BOF @ 10,300 NTPD

8/92 - 7/94

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy	COMMENTS
1	0004	01	"A" Blast Furnace Stoves - BFG	2.9	lb/MMcf	22,774	MMcf	33.02	Included in line 39	-	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	2.9	lb/MMcf	22,203	MMcf	32.19	Included in line 39	-	-	-	-
3	0008	01	By-Products Flare - BFG	2.9	lb/MMcf	26,132	MMcf	37.89	Included in line 39	-	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	2.9	lb/MMcf	37,501	MMcf	54.38	Included in line 39	-	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	5.1	lb/MMcf	361	MMcf	0.92	Included in line 38	-	-	-	-
6	0044	01	Boiler #11 - BFG	2.9	lb/MMcf	5,323	MMcf	7.72	Included in line 39	-	-	-	-
7	0044	91	Boiler #11 - NG	5.1	lb/MMcf	226	MMcf	0.58	Included in line 38	-	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	9.72	lb/Mgal	15.00	Mgal	0.07	Included in line 40	-	-	-	-
9	0048	01	Boiler #12 - BFG	2.9	lb/MMcf	7,106	MMcf	10.30	Included in line 39	-	-	-	-
10	0048	91	Boiler #12 - NG	5.1	lb/MMcf	218	MMcf	0.56	Included in line 38	-	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	9.72	lb/Mgal	1.00	Mgal	0.00	Included in line 48	-	-	-	-
12	0033	01	BOF 2 Vessels	0.0996	lb/ton proc.	2,413,406	tons proc.	120.19	3,759,500	ton proc.	300.03	179.84	limit
13	0038	01	BOF Preheaters/Dryers - NG	5.1	lb/MMcf	283	MMcf	0.72	Included in line 38	-	-	-	-
14	0005 & 0010	01	"A" & "B" Blast Furnace - Uncap. Fugitives	0.0155	lb/ton proc.	2,059,557	tons proc.	15.96	3,321,500	tons proc.	25.74	9.78	-
15	0006 & 0011	01	"A" & "B" Blast Furnace - Charging	0.04675	lb/ton proc.	2,059,557	tons proc.	48.14	3,321,500	tons proc.	77.64	29.50	-
16	0007 & 0012	01	"A" & "B" Blast Furnace - Baghouse Stack	0.0217	lb/ton proc.	2,053,521	tons proc.	22.28	3,321,500	tons proc.	139.14	116.86	limit
17	0034	01	Roof Monitor - Charge thru Tap	0.120	lb/ton proc.	2,413,406	tons proc.	144.80	3,759,500	tons proc.	225.57	80.77	-
18	0035	01	Hot Metal Reladling - Xfer Pit	0.185	lb/ton proc.	2,413,406	tons proc.	1.12	3,759,500	tons proc.	1.43	0.31	Com. w/0107
19	0037	01	Flux Conv. & Xfer Pts., Bin Floor - BOF	0.039	lb/ton proc.	2,413,406	tons proc.	0.32	3,759,500	tons proc.	3.75	3.43	limit
20	0040	01	Hot Metal Chging Ladle Slag Skimmer	0.0170	lb/ton proc.	2,413,406	tons proc.	0.21	3,759,500	tons proc.	9.95	9.74	limit

TABLE 3-4
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - PM-10

Projected Emissions Based On: Blast Furnance @ 9,100 NTPD
BOF @ 10,300 NTPD

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy	COMMENTS
21	0070 & 0120	01	Caster Mold - Casters #1 & #2	0.006	lb/ton prod.	2,413,406	tons prod.	7.24	3,759,500	ton prod.	11.28	4.04	-
22	0071 & 0119	01	Cont. Casters #1 & #2 - Spray Chamber	0.00852	lb/ton proc.	2,413,406	tons prod.	2.06	3,759,500	ton prod.	3.20	1.15	-
23	0071 & 0119	01	Continuous Casters #1 & #2 - NG	5.1	lb/MMcf	57	MMcf	0.15	Included in line 38	-	-	-	-
24	0072 & 0118	01	Slab Cutoff - Casters #1 & #2	0.0071	lb/ton proc.	2,413,406	tons prod.	8.57	3,759,500	ton prod.	13.35	4.78	-
25	0103, 0104 & 0121	01	Argon Stirring #1 & #2, Material Handling Tripper	0.014	lb/ton proc.	2,413,406	tons prod.	16.89	3,759,500	ton prod.	16.60	-0.29	limit
26	0105 & 0106	01	Deslagging Station & Material HS	0.0043	lb/ton proc.	2,413,406	tons prod.	5.19	3,759,500	ton prod.	8.23	3.04	limit
27			BOF Hopper Baghouse			2,413,406	tons proc.	0.00	3,759,500	tons proc.	0.75	0.75	limit
28	0107	01	Desulf. Station (inside BOF shop)	1.09	lb/ton proc.	2,413,406	tons prod.	6.58	3,759,500	ton prod.	73.70	67.12	Com. w/0035
29	0113	01	Blast Furnace Slag Pits	0.0075468	lb/ton slag	420,194	tons slag	1.59	529,444	ton prod.	2.00	0.41	-
30	9003	01	Iron Pellet Screen	0.0023766	lb/ton proc.	2,413,406	tons proc.	2.87	3,759,500	tons proc.	4.47	1.60	-
31		01	Iron Spout Baghouse	0.00352	lb/ton proc.	2,413,406	tons proc.	4.25	3,759,500	tons proc.	32.80	28.55	limit
32			Fugitive Unpaved Roads					771.06		-	59.32	(711.74)	-
33			Fugitive Paved Roads					178.35		-	249.38	71.03	-
34			Material Handling					18.88		-	28.47	9.59	-
35			Unpaved Parking Lots					-		-	-	-	-
36			Paved Parking Lots					-		-	-	-	-
37			Natural Gas	5.1	lb/MMcf	-	MMcf	-	1,145	-	2.92	-	-
38			Blast Furance Gas	2.9	lb/MMcf	-	MMcf	-	188,212	-	272.91	-	-
39			Fuel Oil	9.72	lb/Mgal	-	Mgal	-	365	-	1.77	-	-
	TOTALS:							**1,555.03**			**1,564.40**	**9.36**	
			Contemperaneous Changes									(9.40)	
			Net Change									***(0.04)***	

TABLE 3-5
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - TSP

Projected Emissions Based On: Blast Furance @ 9,100 NTPD
BOF @ 10,300 NTPD

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy	COMMENTS
1	0004	01	"A" Blast Furnace Stoves - BFG	2.9	lb/MMcf	22,774	MMcf	33.02	included in line 43	-	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	2.9	lb/MMcf	22,203	MMcf	32.19	included in line 43	-	-	-	-
3	0008	01	By-Products Flare - BFG	2.9	lb/MMcf	26,132	MMcf	37.89	included in line 43	-	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	2.9	lb/MMcf	37,501	MMcf	54.38	included in line 43	-	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	5.1	lb/MMcf	361	MMcf	0.92	included in line 42	-	-	-	-
6	0044	01	Boiler #11 - BFG	2.9	lb/MMcf	5,323	MMcf	7.72	included in line 43	-	-	-	-
7	0044	91	Boiler #11 - NG	5.1	lb/MMcf	226	MMcf	0.58	included in line 42	-	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	10.8	lb/Mgal	15.00	Mgal	0.08	included in line 44	-	-	-	-
9	0048	01	Boiler #12 - BFG	2.9	lb/MMcf	7,106	MMcf	10.30	included in line 43	-	-	-	-
10	0048	91	Boiler #12 - NG	5.1	lb/MMcf	218	MMcf	0.56	included in line 42	-	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	10.8	lb/Mgal	1.00	Mgal	0.01	included in line 44	-	-	-	-
12	0033	01	BOF 2 Vessels Stack	0.0996	lb/ton proc.	2,413,406	tons proc.	120.19	3,759,500	ton proc.	300.03	179.84	limit
13	0038	01	BOF Preheaters/Dryers - NG	5.1	lb/MMcf	283	MMcf	0.72	included in line 42	-	-	-	-
14	0005	01	"A" Blast Furnace - Uncap. Fugitives	0.0155	lb/ton proc.	1,029,779	tons proc.	7.98	1,660,750	tons proc.	12.87	4.89	-
15	0006	01	"A" Blast Furnace - Charging	0.04675	lb/ton proc.	1,029,779	tons proc.	24.07	1,660,750	tons proc.	38.82	14.75	-
16	0007	01	"A" Blast Furnace - Baghouse Stack	0.0217	lb/ton proc.	1,029,779	tons proc.	11.17	1,660,750	tons proc.	69.57	58.40	limit
17	0010	01	"B" Blast Furnace - Uncap. Fugitives	0.0155	lb/ton proc.	1,029,779	tons proc.	7.98	1,660,750	tons proc.	12.87	4.89	-
18	0011	01	"B" Blast Furnace - Charging	0.04675	lb/ton proc.	1,029,779	tons proc.	24.07	1,660,750	tons proc.	38.82	14.75	-
19	0012	01	"B" Blast Furnace - Baghouse Stack	0.0217	lb/ton proc.	1,029,779	tons proc.	11.17	1,660,750	tons proc.	69.57	58.40	limit
20	0034	01	Roof Monitor - Charge thru Tap	0.120	lb/ton proc.	2,413,406	tons proc.	144.80	3,759,500	tons proc.	225.57	80.77	-
21	0035	01	Hot Metal Reladling - Xfer Pit	0.185	lb/ton proc.	2,413,406	tons proc.	1.12	3,759,500	tons proc.	1.74	0.62	Com. w/0107

TABLE 3-5
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - TSP

Projected Emissions Based On: Blast Furance @ 9,100 NTPD
BOF @ 10,300 NTPD

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy	COMMENTS
22	0037	01	Flux Conv. & Xfer Pts., Bin Floor - BOF	0.039	lb/ton proc.	2,413,406	tons proc.	0.32	3,759,500	tons proc.	3.75	3.43	limit
23	0040	01	Hot Metal Chging Ladle Slag Skimmer	0.0170	lb/ton proc.	2,413,406	tons proc.	0.21	3,759,500	tons proc.	9.95	9.74	limit
24	0070 & 0120	01	Caster Mold - Casters #1 & #2	0.006	lb/ton prod.	2,413,406	tons prod.	7.24	3,759,500	ton prod.	11.28	4.04	-
25	0071 & 0119	01	Cont. Casters #1 & #2 - Spray Chamber	0.00852	lb/ton proc.	2,413,406	tons prod.	2.06	3,759,500	ton prod.	3.20	1.15	-
26	0071 & 0119	01	Continuous Casters #1 & #2 - NG	5.1	lb/MMcf	57	MMcf	0.15	included in line 42	-	-	-	-
27	0072 & 0118	01	Slab Cutoff - Casters #1 & #2	0.0071	lb/ton proc.	2,413,406	tons prod.	8.57	3,759,500	ton prod.	13.35	4.78	-
28	0103 & 0121 & 104	01	Argon Stirring #1 & #2, Material Handling Tripper	0.014	lb/ton proc.	2,413,406	tons prod.	16.89	3,759,500	ton prod.	16.60	(0.29)	-
29	0105 & 0106	01	Deslagging Station & Material HS	0.0043	lb/ton proc.	2,413,406	tons prod.	5.19	3,759,500	ton prod.	8.23	3.04	limit
30			BOF Hopper Baghouse	-	-	2,413,406	tons prod.	0.00032	3,759,500	ton prod.	0.75	0.75	limit
31	0107	01	Desulf. Station (inside BOF shop)	1.09	lb/ton proc.	2,413,406	tons prod.	6.58	3,759,500	ton prod.	73.70	67.12	Com. w/0035
32	0113	01	Blast Furnace Slag Pits	0.0075468	lb/ton slag	420,194	tons slag	1.59	529,444	ton prod.	2.00	0.41	-
33	9003	01	Iron Pellet Screen	0.0023766	lb/ton proc.	2,675,991	tons proc.	3.18	3,759,500	tons proc.	4.47	1.29	-
34		01	Iron Spout Baghouse	0.00352	lb/ton proc.	2,413,406	tons proc.	4.25	3,759,500	tons proc.	32.80	28.55	limit
35			Fugitive Unpaved Roads	-	-	-	-	771.06	-	-	59.32	(711.74)	-
36			Fugitive Paved Roads	-	-	-	-	178.35	-	-	249.38	71.03	-
37			Material Handling	-	-	-	-	18.88	-	-	28.47	9.59	-
38			Unpaved Parking Lots	-	-	-	-	-	-	-	-	-	-
39			Paved Parking Lots	-	-	-	-	-	-	-	-	-	-
40			Natural Gas	5.1	lb/MMcf	-	MMcf	-	1,145	MMcf	2.92	-	-
41			Blast Furnace Gas	2.9	lb/MMcf	-	MMcf	-	188,212	MMcf	272.91	-	-
42			Fuel Oil	10.8	lb/Mgal	-	Mgal	-	365	Mgal	1.97	-	-
	TOTALS:							**1,555.42**			**1,564.90**	**9.48**	
			Contemperaneous Changes									(9.40)	
			Net Change									***0.08***	

TABLE 3-6
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - VOM

Projected Emissions Based On: Blast Furnace @ 9,100 NTPD
BOF @ 10,300 NTPD

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	0.0	lb/MMcf	22,774	MMcf	0.00	included in line 18	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	0.0	lb/MMcf	22,203	MMcf	0.00	included in line 18	-	-	-
3	0008	01	By-Products Flare - BFG	0.0	lb/MMcf	26,132	MMcf	0.00	included in line 18	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	0.0	lb/MMcf	37,501	MMcf	0.00	included in line 18	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	2.8	lb/MMcf	361	MMcf	0.51	included in line 17	-	-	-
6	0044	01	Boiler #11 - BFG	0.0	lb/MMcf	5,323	MMcf	0.00	included in line 18	-	-	-
7	0044	91	Boiler #11 - NG	1.4	lb/MMcf	226	MMcf	0.16	included in line 17	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	0.28	lb/Mgal	15.00	Mgal	0.00	included in line 19	-	-	-
9	0048	01	Boiler #12 - BFG	0.0	lb/MMcf	7,106	MMcf	0.00	included in line 18	-	-	-
10	0048	91	Boiler #12 - NG	1.4	lb/MMcf	218	MMcf	0.15	included in line 17	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	0.28	lb/Mgal	1.00	Mgal	0.00	included in line 19	-	-	-
12	0033	01	BOF Preheaters/Dryers - NG	2.8	lb/MMcf	283	MMcf	0.40	included in line 17	-	-	-
13	0007 & 0012	01	"A & B" Blast Furnace - Casthouse	0.1016	lb/ton proc.	2,059,557	tons proc.	104.67	3,321,500	tons proc.	168.80	-
14	0005 & 0010	01	"A & B" Blast Furnace - Uncap. roof	0.0050	lb/ton proc.	2,059,557	tons proc.	5.19	3,321,500	tons proc.	8.37	-
15	0071 & 0119	01	Continuous Casters #1 & #2 - NG	2.8	lb/MMcf	57	MMcf	0.08	included in line 17	-	-	-
16			Natural Gas	2.8	lb/MMcf	-	MMcf	-	1,145	MMcf	1.60	-
17			Blast Furnace Gas	0.0	lb/MMcf	-	MMcf	-	188,212	MMcf	0.00	-
18			Fuel Oil	0.28	lb/Mgal	-	Mgal	-	365	lb/Mgal	0.05	-
	TOTALS:							**111.15**			**178.82**	**67.67**
			Contemperaneous Changes									(32.86)
			Net Change									***34.81***

TABLE 3-7

Projected Emissions Based On: Blast Furnace @ 9,100 NTPD
BOF @ 10,300 NTPD

GRANITE CITY DIVISION of NATIONAL STEEL

NETTING ANALYSIS SUMMARY - Pb

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION TPY	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0044	03	Boiler #11 - Fuel Oil	0.01600000	lb/Mgal	15.00	Mgal	0.0001	included in line 19	-	-	-
2	0048	03	Boiler #12 - Fuel Oil	0.01600000	lb/Mgal	1.00	Mgal	0.0000	included in line 19	-	-	-
3	0005	01	"A" Blast Furnace - Uncap. Fugitives	0.00039000	lb/hr	8760	hours	0.0017	-	tons proc.	0.00275464	-
4	0006	01	"A" Blast Furnace - Charging	0.00055000	lb/hr	8760	hours	0.0024	-	tons proc.	0.00388475	-
5	0007	01	"A" Blast Furnace - Baghouse Stack	0.00022000	lb/hr	8760	hours	0.0010	-	tons proc.	0.00155390	-
6	0010	01	"B" Blast Furnace - Uncap. Fugitives	0.00036700	lb/hr	8760	hours	0.0016	-	tons proc.	0.00259219	-
7	0011	01	"B" Blast Furnace - Charging	0.00053700	lb/hr	8360	hours	0.0022	-	tons proc.	0.00361974	-
8	0012	01	"B" Blast Furnace - Baghouse Stack	0.00021400	lb/hr	8360	hours	0.0009	-	tons proc.	0.00144250	-
9	0033	01	BOF 2 Vessels Stack	0.17000000	lb/hr	8760	hours	0.7446	-	tons prod.	1.15993788	-
10	0034	01	Roof Monitor - Charge thru Tap	0.01290000	lb/hr	8760	hours	0.0565	-	tons prod.	0.08801882	-
11	0035	01	Hot Metal Reladling - Xfer Pit	0.00002320	lb/hr	8760	hours	0.0001	-	tons prod.	0.00015830	-
12	0037	01	Flux Conv. & Xfer Pts., Bin Floor - BOF	0.00000062	lb/hr	8760	hours	0.0000	-	tons prod.	0.00000426	-
13	0040	01	Hot Metal Chging Ladle Slag Skimmer	0.00002250	lb/hr	8760	hours	0.0001	-	tons prod.	0.00015352	-
14	0050	01	Coal Crushing & Pulverizing	0.00000002	lb/hr	8760	hours	0.0000	-	tons proc.	0.00000015	-
15	0103	01	Argon Stirring #1 & #2	0.00020200	lb/hr	8760	hours	0.0009	-	tons prod.	0.00137828	-
16	0105	01	Deslagging Station	0.00240000	lb/hr	8760	hours	0.0105	-	tons prod.	0.01637559	-
17	0107	01	Desulf. Station (inside BOF shop)	0.01330000	lb/hr	4385	hours	0.0292	-	tons prod.	0.04542584	-
18	0120	01	Caster Mold - Casters	0.00113000	lb/hr	7930	hours	0.0045	-	tons prod.	0.00697965	-
19			Boilers -Fuel Oil	0.01600000	lb/Mgals	-	-	-	365	Mgals	0.00292000	-
	TOTAL							**0.856**			**1.337**	**0.481**
			Contemperaneous Changes									0.000
			Net Change									***0.481***

GC-PB-D1.XLS

Woodward-Clyde 12/29/94

TABLE 5-1
AMBIENT SIGNIFICANT IMPACT LEVELS IN CLASS II AREAS ($\mu g/m^3$)

	Averaging Periods				
Pollutant	1-hour	3-hour	8-hour	24-hour	Annual
CO	2,000	---	500	---	---
SO_2	---	25	---	5	1

TABLE 5-2
NATIONAL AMBIENT AIR QUALITY STANDARD (NAAQS) LEVELS ($\mu g/m^3$)

	Averaging Periods				
Pollutant	1-hour	3-hour	8-hour	24-hour	Annual
CO	40,000	---	10,000	---	---
SO_2	---	1,300	---	365	80

TABLE 5-3
CLASS II PSD INCREMENT LEVELS ($\mu g/m^3$)

	Averaging Period		
Pollutant	3-hour	24-hour	Annual
SO_2	512	91	20

TABLE 5-4
DE MINIMIS PRECONSTRUCTION MONITORING IMPACT LEVELS ($\mu g/m^3$)

	Averaging Periods				
Pollutant	1-hour	3-hour	8-hour	24-hour	Annual
CO	---	---	575	---	---
SO_2	---	---	---	13	---

TABLE 5-5
SOURCE DATA PARAMETERS

Source Name	Source ID#	East	North	Stack Height	Exit Temp.	Exit Velocity	Diameter
		(m)	(m)	(m)	(K)	(m/s)	(m)
Casthouse Baghouse	17000	749675	4286481	19.32	339	20.33	3.35
Iron Spout Baghouse	17005	749780	4286540	16.76	416	20.70	0.76
Blast Furnace Stove B	17010	749730	4286485	68.58	533	18.56	2.74
Boiler House 1 (Boilers 1-7)	17020	749815	4286590	68.58	460	4.85	4.11
Blast Furnace Stove A	17030	749880	4286560	66.14	533	26.84	2.13
Boiler 11	17040	749945	4286640	46.33	510	11.88	2.13
Boiler 12	17050	749945	4286640	46.33	510	10.64	2.13
Boiler House 1 (Boilers 8-10)	17060	749760	4286660	60.96	460	3.44	3.20
A Underfire Battery	17110	750170	4286730	9.15	529	3.31	2.74
B Underfire Battery	17120	750180	4286730	9.15	529	4.79	2.74
Slab Furnace #1	17130	747740	4286570	33.53	616	18.96	2.07
Slab Furnace #2	17140	747770	4286570	33.53	616	18.96	2.07
Slab Furnace #3	17150	747750	4286550	33.53	616	18.96	2.07
Slab Furnace #4	17340	747680	4286530	44.50	644	8.15	4.20
By-Products Flare	17260	750050	4286770	32.00	1273	20.00	1.94
BOF Ladle Preheater/Dryer	30030	748430	4286320	Volume Source			
BOF	21760	748360	4286450	48.80	561	16.00	5.49
Continuous Caster #1	22100	748560	4286320	34.69	339	8.29	1.98
Continuous Caster #2	22292	748630	4286410	40.23	339	17.52	2.23

TABLE 5-6
SIGNIFICANT IMPACT MODELING RESULTS
INDIVIDUAL AND WORST-CASE COMBINED IMPACTS - CO

	Chi/Q Impacts		Blast Furnace Gas			Fuel Oil			Other			Totals	
Source	1-hour	8-hour	Emission Rate	1-hour Impact	8-hour Impact	Emission Rate	1-hour Impact	8-hour Impact	Emission Rate	1-hour Impact	8-hour Impact	1-hour Impact	8-hour Impact
	(ug/m3)	(ug/m3)	(g/sec)	(ug/m3)	(ug/m3)	(g/sec)	(ug/m3)	(ug/m3)	(g/sec)	(ug/m3)	(ug/m3)	(ug/m3)	(ug/m3)
BOF	9.4783	4.3226	0.00	0.0	0.0	0.00	0.0	0.0	174.12	1,650.4	752.6	1,650.4	752.6
Blast Furnace Stove A	2.0532	1.0151	13.24	27.2	13.4	0.00	0.0	0.0	0.00	0.0	0.0	27.2	13.4
Blast Furnace Stove B	1.8693	1.0145	13.24	24.7	13.4	0.00	0.0	0.0	0.00	0.0	0.0	24.7	13.4
Boiler House 1 (Boilers 1-7)	3.1081	1.4475	13.24	41.1	19.2	0.02	0.1	0.0	0.00	0.0	0.0	41.2	19.2
Boiler House 1 (Boilers 8-10)	6.0184	2.9815	13.24	79.7	39.5	0.02	0.2	0.1	0.00	0.0	0.0	79.8	39.5
Boiler 11	5.5322	3.2387	13.24	73.2	42.9	0.02	0.1	0.1	0.00	0.0	0.0	73.4	43.0
Boiler 12	5.5725	3.4203	13.24	73.8	45.3	0.02	0.1	0.1	0.00	0.0	0.0	73.9	45.4
By-Products Flare	1.7171	0.8079	13.24	22.7	10.7	0.00	0.0	0.0	0.00	0.0	0.0	22.7	10.7
Maximum Combined Impact Levels:												**1,730**	**798**
Significant Impact Levels:												**2,000**	**500**

TABLE 5-7

SIGNIFICANT IMPACT MODELING RESULTS

INDIVIDUAL AND WORST-CASE COMBINED IMPACTS - SO2

	Chi/Q Impacts			Blast Furnace Gas				Fuel Oil			
Source	3-hour (ug/m3)	24-hour (ug/m3)	Annual (ug/m3)	Emission Rate (g/sec)	3-hour Impact (ug/m3)	24-hour Impact (ug/m3)	Annual Impact (ug/m3)	Emission Rate (g/sec)	3-hour Impact (ug/m3)	24-hour Impact (ug/m3)	Annual Impact (ug/m3)
Blast Furnace Stove A	1.4869	0.7043	0.0849	6.43	9.6	4.5	0.5	0.00	0.0	0.0	0.0
Blast Furnace Stove B	1.4918	0.5830	0.0764	6.43	9.6	3.7	0.5	0.00	0.0	0.0	0.0
Boiler House 1 (Boilers 1-7)	2.2918	1.1350	0.1330	6.43	14.7	7.3	0.9	0.71	1.6	0.8	0.1
Boiler House 1 (Boilers 8-10)	4.1050	1.8747	0.2569	6.43	26.4	12.0	1.7	0.71	2.9	1.3	0.2
Boiler 11	4.6445	2.0769	0.2546	6.43	29.8	13.3	1.6	0.71	3.3	1.5	0.2
Boiler 12	4.8437	2.2734	0.2785	6.43	31.1	14.6	1.8	0.71	3.4	1.6	0.2
A&B Blast Furnace - Casthouse	20.1379	12.1341	1.2887	0.00	0.0	0.0	0.0	0.00	0.0	0.0	0.0
A&B Blast Furnace - Uncap. Roof Fugs.	164.2107	69.5259	9.3195	0.00	0.0	0.0	0.0	0.00	0.0	0.0	0.0
Iron Spout Baghouse	102.1884	32.4756	3.8891	0.00	0.0	0.0	0.0	0.00	0.0	0.0	0.0
By-Products Flare	1.2329	0.3581	0.0390	6.43	7.9	2.3	0.3	0.00	0.0	0.0	0.0
Maximum Combined Impact Levels:											
Significant Impact Levels:											

TABLE 5-7
SIGNIFICANT IMPACT MODELING RESULTS
INDIVIDUAL AND WORST-CASE COMBINED IMPACTS - SO2

	Chi/Q Impacts			Other				Totals		
Source	3-hour (ug/m3)	24-hour (ug/m3)	Annual (ug/m3)	Emission Rate (g/sec)	3-hour Impact (ug/m3)	24-hour Impact (ug/m3)	Annual Impact (ug/m3)	3-hour Impact (ug/m3)	24-hour Impact (ug/m3)	Annual Impact (ug/m3)
Blast Furnace Stove A	1.4869	0.7043	0.0849	0.00	0.0	0.0	0.0	9.6	4.5	0.5
Blast Furnace Stove B	1.4918	0.5830	0.0764	0.00	0.0	0.0	0.0	9.6	3.7	0.5
Boiler House 1 (Boilers 1-7)	2.2918	1.1350	0.1330	0.00	0.0	0.0	0.0	16.3	8.1	0.9
Boiler House 1 (Boilers 8-10)	4.1050	1.8747	0.2569	0.00	0.0	0.0	0.0	29.3	13.4	1.8
Boiler 11	4.6445	2.0769	0.2546	0.00	0.0	0.0	0.0	33.1	14.8	1.8
Boiler 12	4.8437	2.2734	0.2785	0.00	0.0	0.0	0.0	34.5	16.2	2.0
A&B Blast Furnace - Casthouse	20.1379	12.1341	1.2887	6.20	124.8	75.2	8.0	124.8	75.2	8.0
A&B Blast Furnace - Uncap. Roof Fugs.	164.2107	69.5259	9.3195	0.32	53.0	22.5	3.0	53.0	22.5	3.0
Iron Spout Baghouse	102.1884	32.4756	3.8891	0.20	20.8	6.6	0.8	20.8	6.6	0.8
By-Products Flare	1.2329	0.3581	0.0390	0.00	0.0	0.0	0.0	7.9	2.3	0.3
Maximum Combined Impact Levels:								**233**	**120**	**14**
Significant Impact Levels:								**25**	**5**	**1**

TABLE 5-8

NAAQS MODELING RESULTS

INDIVIDUAL AND WORST-CASE COMBINED IMPACTS - CO

	Chi/Q Impacts		Blast Furnace Gas			Natural Gas			Coke Oven Gas		
Source	1-hour	8-hour	Emission Rate	1-hour Impact	8-hour Impact	Emission Rate	1-hour Impact	8-hour Impact	Emission Rate	1-hour Impact	8-hour Impact
	(ug/m3)	(ug/m3)	(g/sec)	(ug/m3)	(ug/m3)	(g/sec)	(ug/m3)	(ug/m3)	(g/sec)	(ug/m3)	(ug/m3)
BOF	9.4783	4.3226	0.00	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0
Blast Furnace Stove A	2.0532	1.0151	37.09	76.1	37.6	2.89	5.9	2.9	2.52	5.2	2.6
Blast Furnace Stove B	1.8693	1.0145	37.09	69.3	37.6	2.89	5.4	2.9	2.52	4.7	2.6
Boiler House 1 (Boilers 1-7)	3.1081	1.4475	37.09	115.3	53.7	2.89	9.0	4.2	2.52	7.8	3.6
Boiler House 1 (Boilers 8-10)	6.0184	2.9815	37.09	223.2	110.6	2.89	17.4	8.6	2.52	15.2	7.5
Boiler 11	5.5322	3.2387	37.09	205.2	120.1	2.89	16.0	9.3	2.52	13.9	8.2
Boiler 12	5.5725	3.4203	37.09	206.7	126.9	2.89	16.1	9.9	2.52	14.0	8.6
Continuous Caster #1	41.7285	17.9392	0.00	0.0	0.0	2.89	120.4	51.8	0.00	0.0	0.0
Continuous Caster #2	65.6823	25.7982	0.00	0.0	0.0	2.89	189.6	74.5	0.00	0.0	0.0
Slab Furnace #1	20.2760	11.3136	0.00	0.0	0.0	2.89	58.5	32.7	2.52	51.1	28.5
Slab Furnace #2	16.9908	10.9717	0.00	0.0	0.0	2.89	49.0	31.7	2.52	42.8	27.6
Slab Furnace #3	28.6036	12.3773	0.00	0.0	0.0	2.89	82.6	35.7	2.52	72.1	31.2
Slab Furnace #4	4.4349	2.3828	0.00	0.0	0.0	2.89	12.8	6.9	2.52	11.2	6.0
"A" Underfire	19.7897	14.7393	0.00	0.0	0.0	0.00	0.0	0.0	2.52	49.9	37.1
"B" Underfire	14.7496	11.2577	0.00	0.0	0.0	0.00	0.0	0.0	2.52	37.2	28.4
BOF Ladle Preheater/Dryer	152.9160	59.5354	0.00	0.0	0.0	2.89	441.4	171.8	2.52	385.4	150.0
By-Products Flare	1.7171	0.8079	37.09	63.7	30.0	0.00	0.0	0.0	0.00	0.0	0.0
Maximum Combined Impact Levels:											
Background CO Concentration:											
Total CO Impacts:											
National Ambient Air Quality Standard:											

TABLE 5-8

NAAQS MODELING RESULTS

INDIVIDUAL AND WORST-CASE COMBINED IMPACTS - CO

	Chi/Q Impacts		Fuel Oil			Other			Totals	
Source	1-hour (ug/m3)	8-hour (ug/m3)	Emission Rate (g/sec)	1-hour Impact (ug/m3)	8-hour Impact (ug/m3)	Emission Rate (g/sec)	1-hour Impact (ug/m3)	8-hour Impact (ug/m3)	1-hour Impact (ug/m3)	8-hour Impact (ug/m3)
BOF	9.4783	4.3226	0.00	0.0	0.0	486.30	4,609.3	2,102.1	4,609.3	2,102.1
Blast Furnace Stove A	2.0532	1.0151	0.00	0.0	0.0	0.00	0.0	0.0	87.2	43.1
Blast Furnace Stove B	1.8693	1.0145	0.00	0.0	0.0	0.00	0.0	0.0	79.4	43.1
Boiler House 1 (Boilers 1-7)	3.1081	1.4475	0.02	0.1	0.0	0.00	0.0	0.0	132.2	61.5
Boiler House 1 (Boilers 8-10)	6.0184	2.9815	0.02	0.2	0.1	0.00	0.0	0.0	255.9	126.8
Boiler 11	5.5322	3.2387	0.02	0.1	0.1	0.00	0.0	0.0	235.2	137.7
Boiler 12	5.5725	3.4203	0.02	0.1	0.1	0.00	0.0	0.0	236.9	145.4
Continuous Caster #1	41.7285	17.9392	0.00	0.0	0.0	0.00	0.0	0.0	120.4	51.8
Continuous Caster #2	65.6823	25.7982	0.00	0.0	0.0	0.00	0.0	0.0	189.6	74.5
Slab Furnace #1	20.2760	11.3136	0.00	0.0	0.0	0.00	0.0	0.0	109.6	61.2
Slab Furnace #2	16.9908	10.9717	0.00	0.0	0.0	0.00	0.0	0.0	91.9	59.3
Slab Furnace #3	28.6036	12.3773	0.00	0.0	0.0	0.00	0.0	0.0	154.6	66.9
Slab Furnace #4	4.4349	2.3828	0.00	0.0	0.0	0.00	0.0	0.0	24.0	12.9
"A" Underfire	19.7897	14.7393	0.00	0.0	0.0	0.00	0.0	0.0	49.9	37.1
"B" Underfire	14.7496	11.2577	0.00	0.0	0.0	0.00	0.0	0.0	37.2	28.4
BOF Ladle Preheater/Dryer	152.9160	59.5354	0.00	0.0	0.0	0.00	0.0	0.0	826.7	321.9
By-Products Flare	1.7171	0.8079	0.00	0.0	0.0	0.00	0.0	0.0	63.7	30.0
Maximum Combined Impact Levels:									**5,436**	**2,424**
Background CO Concentration:									**9,200**	**4,255**
Total CO Impacts:									**14,636**	**6,679**
National Ambient Air Quality Standard:									**40,000**	**10,000**

TABLE 5-9
PSD CLASS II INCREMENT MODELING RESULTS
INDIVIDUAL AND WORST-CASE COMBINED IMPACTS - SO2

Source	Chi/Q Impacts			Blast Furnace Gas				Fuel Oil			
	3-hour (ug/m3)	24-hour (ug/m3)	Annual (ug/m3)	Emission Rate (g/sec)	3-hour Impact (ug/m3)	24-hour Impact (ug/m3)	Annual Impact (ug/m3)	Emission Rate (g/sec)	3-hour Impact (ug/m3)	24-hour Impact (ug/m3)	Annual Impact (ug/m3)
Blast Furnace Stove A	1.4869	0.7043	0.0849	6.43	9.6	4.5	0.5	0.00	0.0	0.0	0.0
Blast Furnace Stove B	1.4918	0.5830	0.0764	6.43	9.6	3.7	0.5	0.00	0.0	0.0	0.0
Boiler House 1 (Boilers 1-7)	2.2918	1.1350	0.1330	6.43	14.7	7.3	0.9	0.71	1.6	0.8	0.1
Boiler House 1 (Boilers 8-10)	4.1050	1.8747	0.2569	6.43	26.4	12.0	1.7	0.71	2.9	1.3	0.2
Boiler 11	4.6445	2.0769	0.2546	6.43	29.8	13.3	1.6	0.71	3.3	1.5	0.2
Boiler 12	4.8437	2.2734	0.2785	6.43	31.1	14.6	1.8	0.71	3.4	1.6	0.2
A&B Blast Furnace - Casthouse	20.1379	12.1341	1.2887	0.00	0.0	0.0	0.0	0.00	0.0	0.0	0.0
A&B Blast Furnace - Uncap. Roof Fugs.	164.2107	69.5259	9.3195	0.00	0.0	0.0	0.0	0.00	0.0	0.0	0.0
Iron Spout Baghouse	102.1884	32.4756	3.8891	0.00	0.0	0.0	0.0	0.00	0.0	0.0	0.0
By-Products Flare	1.2329	0.3581	0.0390	6.43	7.9	2.3	0.3	0.00	0.0	0.0	0.0
Maximum Combined Impact Levels:											
Class II PSD Increments:											

TABLE 5-9

PSD CLASS II INCREMENT MODELING RESULTS

INDIVIDUAL AND WORST-CASE COMBINED IMPACTS - SO2

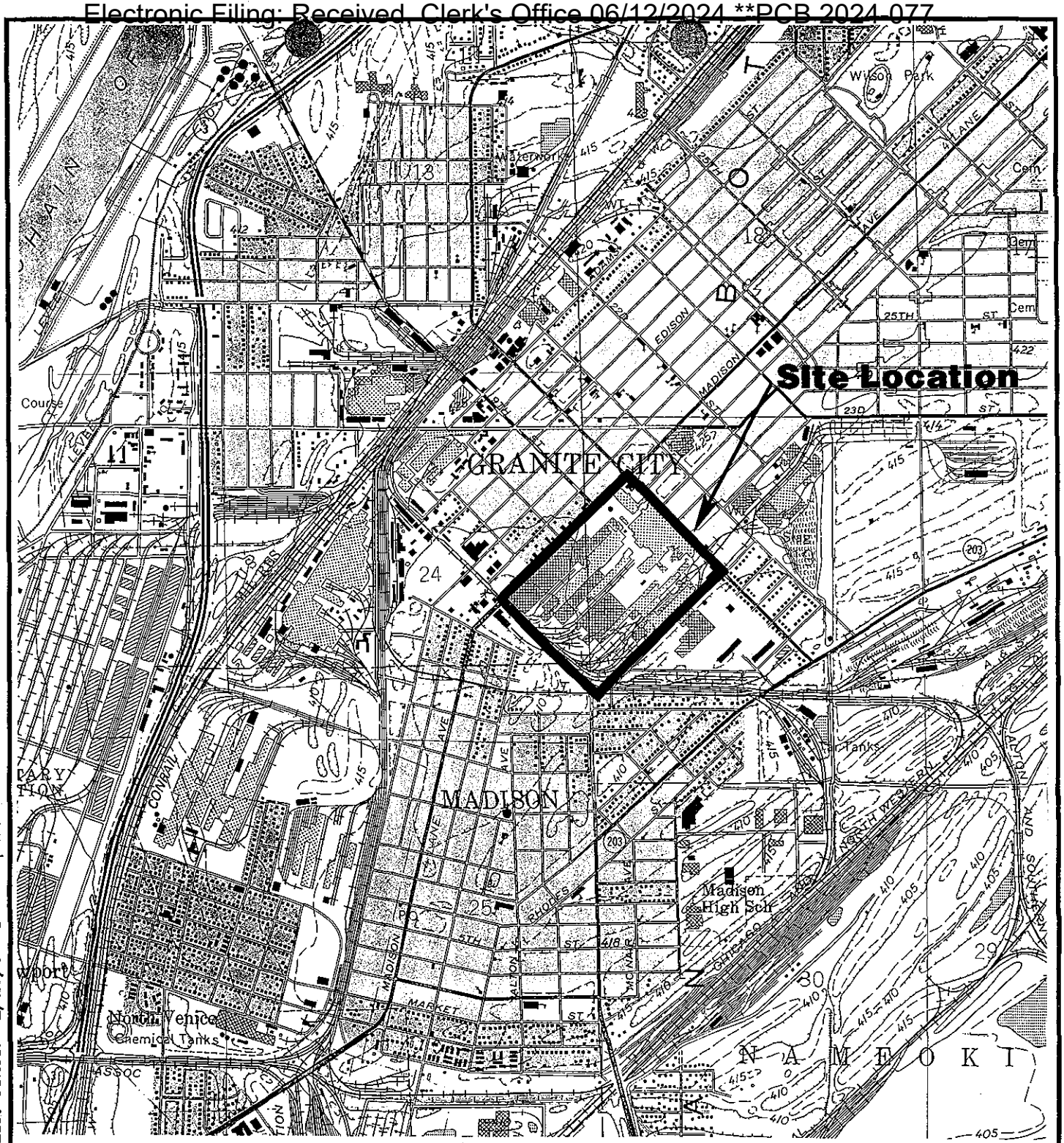
	Chi/Q Impacts			Other				Totals		
Source	3-hour (ug/m3)	24-hour (ug/m3)	Annual (ug/m3)	Emission Rate (g/sec)	3-hour Impact (ug/m3)	24-hour Impact (ug/m3)	Annual Impact (ug/m3)	3-hour Impact (ug/m3)	24-hour Impact (ug/m3)	Annual Impact (ug/m3)
Blast Furnace Stove A	1.4869	0.7043	0.0849	0.00	0.0	0.0	0.0	9.6	4.5	0.5
Blast Furnace Stove B	1.4918	0.5830	0.0764	0.00	0.0	0.0	0.0	9.6	3.7	0.5
Boiler House 1 (Boilers 1-7)	2.2918	1.1350	0.1330	0.00	0.0	0.0	0.0	16.3	8.1	0.9
Boiler House 1 (Boilers 8-10)	4.1050	1.8747	0.2569	0.00	0.0	0.0	0.0	29.3	13.4	1.8
Boiler 11	4.6445	2.0769	0.2546	0.00	0.0	0.0	0.0	33.1	14.8	1.8
Boiler 12	4.8437	2.2734	0.2785	0.00	0.0	0.0	0.0	34.5	16.2	2.0
A&B Blast Furnace - Casthouse	20.1379	12.1341	1.2887	6.20	124.8	75.2	8.0	124.8	75.2	8.0
A&B Blast Furnace - Uncap. Roof Fugs.	164.2107	69.5259	9.3195	0.32	53.0	22.5	3.0	53.0	22.5	3.0
Iron Spout Baghouse	102.1884	32.4756	3.8891	0.20	20.8	6.6	0.8	20.8	6.6	0.8
By-Products Flare	1.2329	0.3581	0.0390	0.00	0.0	0.0	0.0	7.9	2.3	0.3
Maximum Combined Impact Levels:								**233**	**120**	**14**
Class II PSD Increments:								**512**	**91**	**20**

TABLE 5-10
REFINED MODELING RESULTS - PSD INCREMENT ANALYSIS
24-HOUR IMPACTS

Case #	Description	Maximum 24-hour Impact	Class II PSD Increment
		($\mu g/m^3$)	($\mu g/m^3$)
1	BF Stove A + 3 Process Sources	80.16	91
2	BF Stove B + 3 Process Sources	80.16	91
3	Boilers 1-7 + 3 Process Sources	80.16	91
4	Boilers 8-10 + 3 Process Sources	86.10	91
5	Boiler 11 + 3 Process Sources	80.16	91
6	Boiler 12 + 3 Process Sources	80.16	91
7	By-Products Flare + 3 Process Sources	80.16	91

* The 3 Process sources include the Blast Furnace Casthouse, the Blast Furnace Uncaptured Roof Fugitives, and the Iron Spout Baghouse.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077



NOTE: Drawing taken from U.S.G.S.–Granite City, IL 7.5 minute Quadrangle dated 1982.

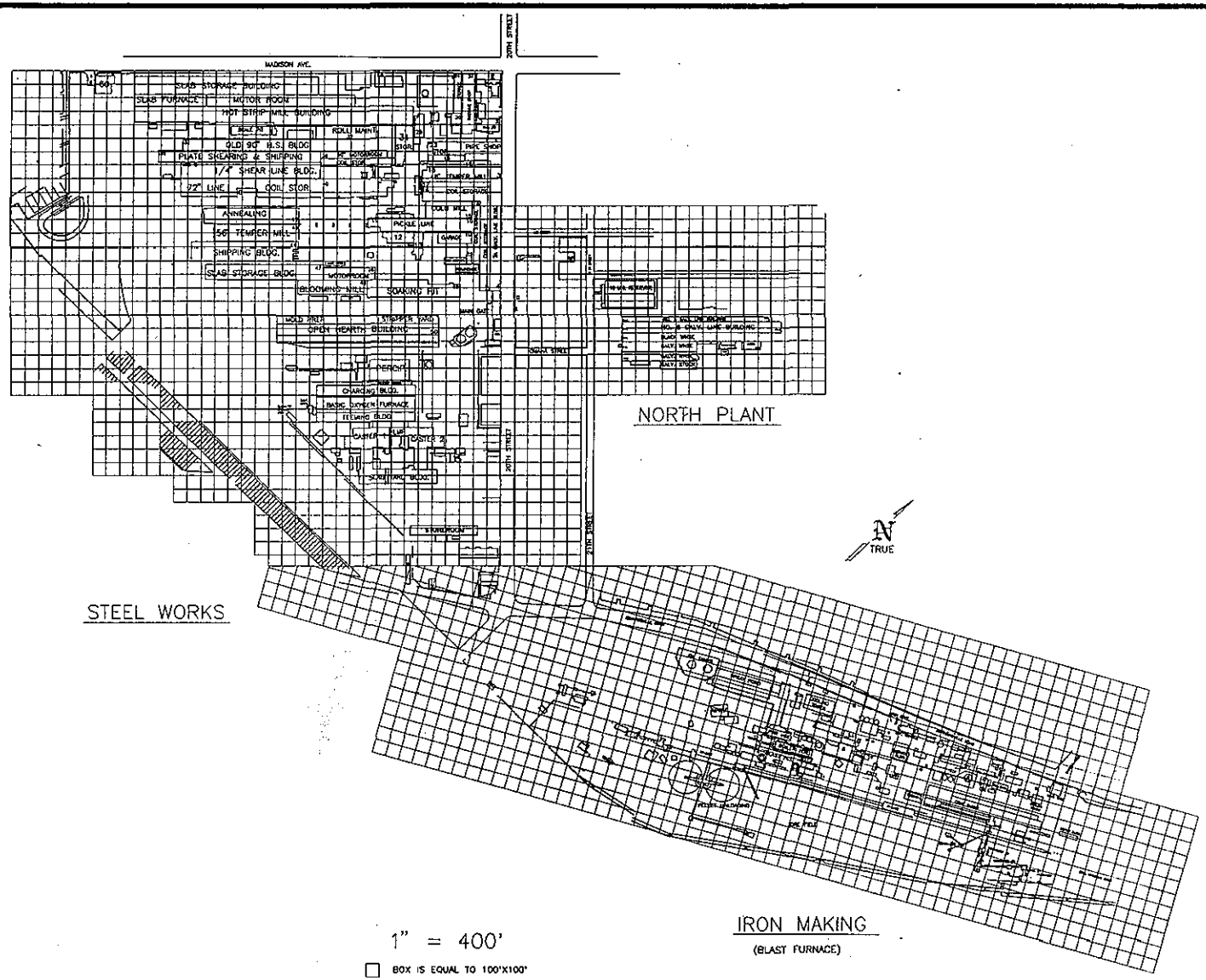
N

Ø 100

SCALE FEET

GRANITE CITY STEEL GRANITE CITY, ILLINOIS	PROJECT NO. 4EØ81Ø9
Woodward-Clyde Consultants Engineering & sciences applied to the earth & its environment	
DRN. BY: kdw 12/29/94 DSGN. BY: CHKD. BY:	Site Location Map
	FIG. NO. 1–1

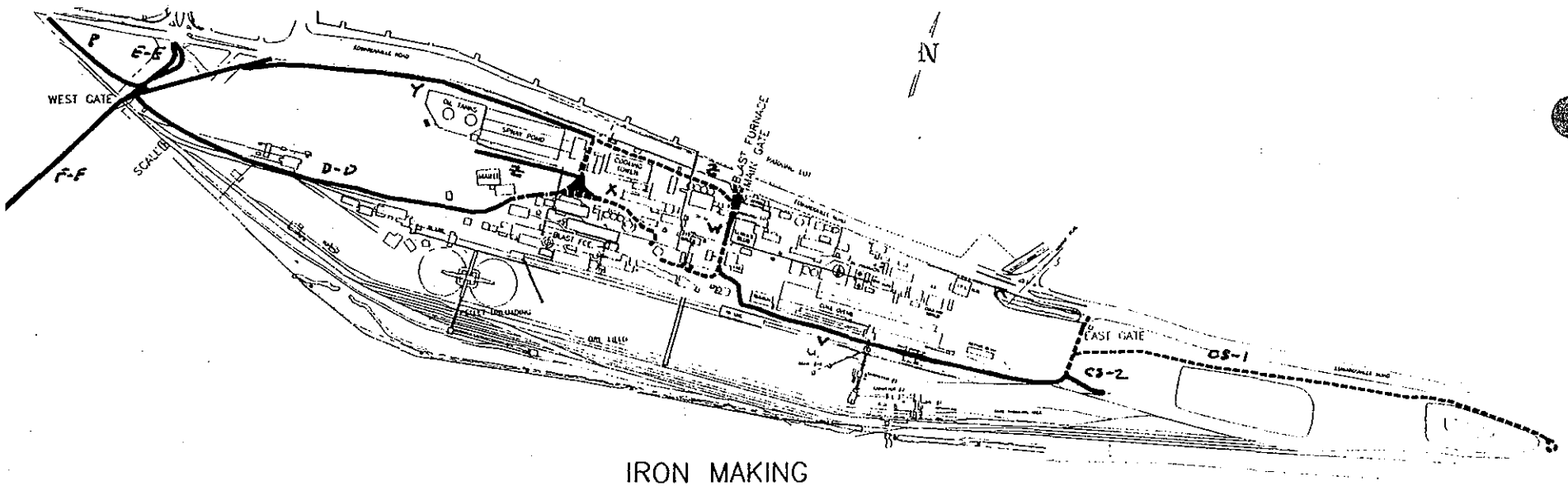
File: F:\4E08109\FIG1-1.DWG Last edited: 12/29/94 @ 1:14 p.m. @ WCC-ST.LOUIS



SOURCE: Map from Granite City Steel.

GRANITE CITY STEEL GRANITE CITY, ILLINOIS	PROJECT NO. 4E08109
Woodward-Clyde Consultants Engineering & sciences applied to the earth & its environment	
DRN. BY: kdw 12/29/94 DSGN. BY: CHKD. BY:	Site Map — FIG. NO. 1-2

File: F:\4E08109\FIG1-2.DWG Last edited: 12/29/94 @ 1:09 p.m. @ WCC-ST.LOUIS



LEGEND

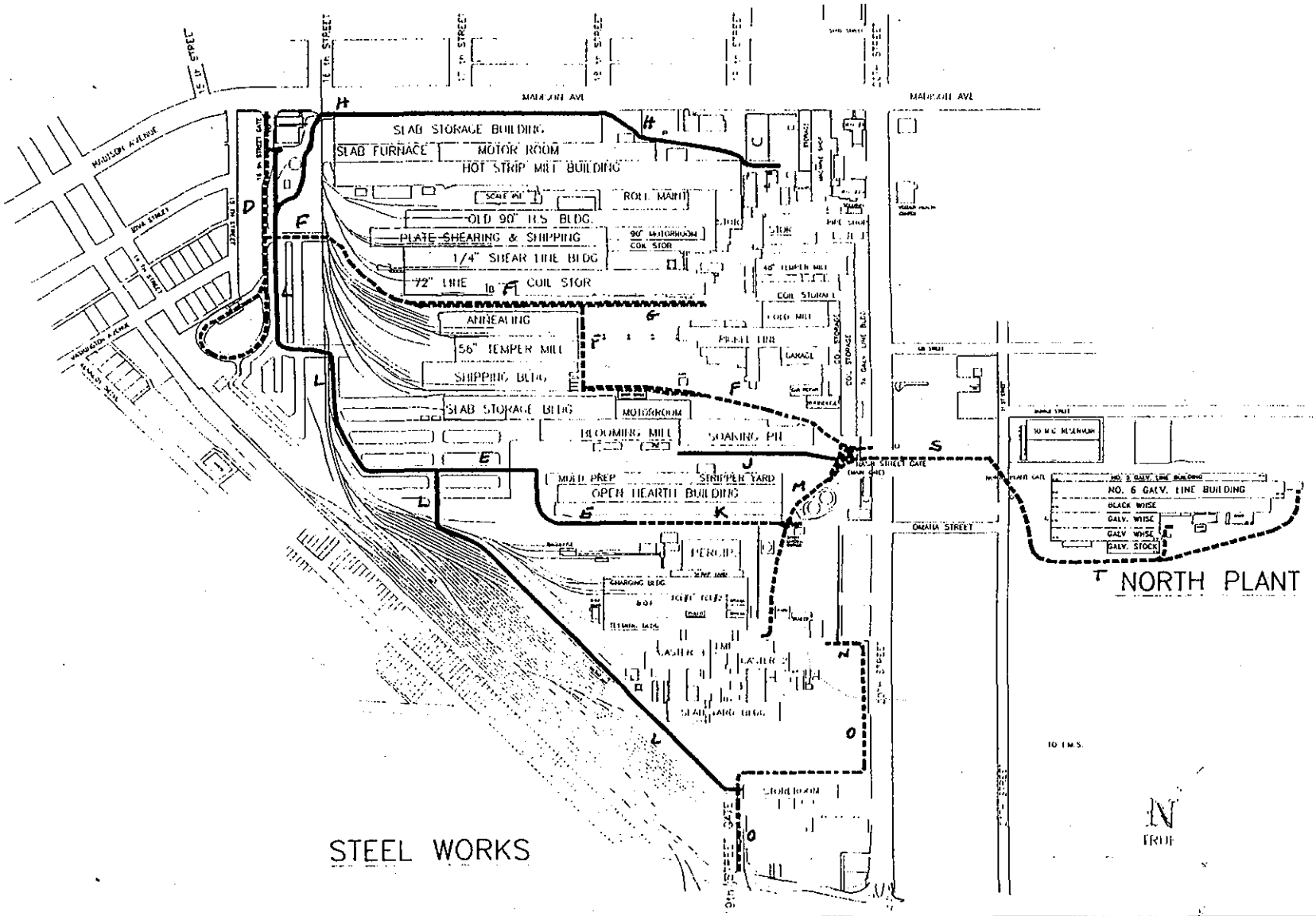
PAVED ROADS (ASPHALT)

DIRT ROADS (SPRAY)

SOURCE: Map from Granite City Steel.

GRANITE CITY STEEL GRANITE CITY, ILLINOIS	PROJECT NO. 4E0810 9
Woodward-Clyde Consultants Engineering & sciences applied to the earth & its environment	
DRN. BY: kdw 12/29/94 DSGN. BY: CHKD. BY:	Road Network Iron Making Area
	FIG. NO. 3-3

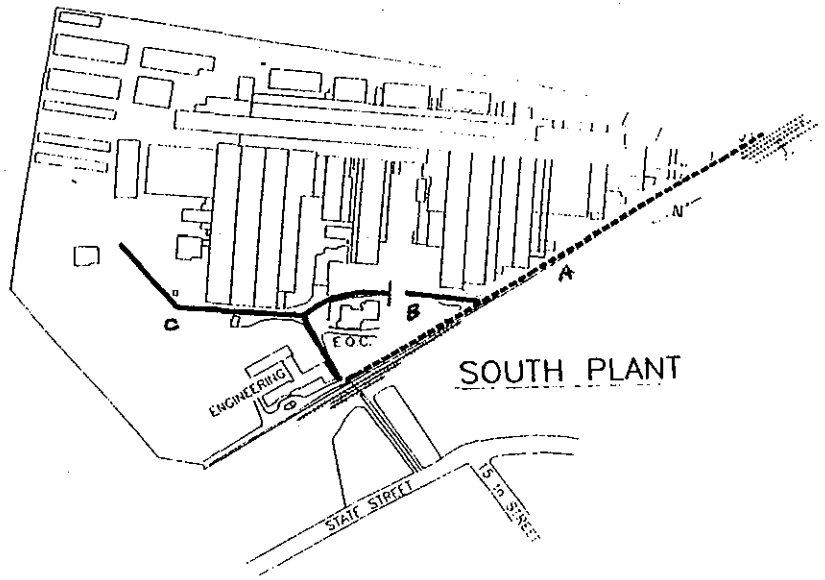
File: F:\4E08109\FIG3-3.DWG Last edited: 12/29/94 @ 1:08 p.m. @ WCC-ST.LOUIS

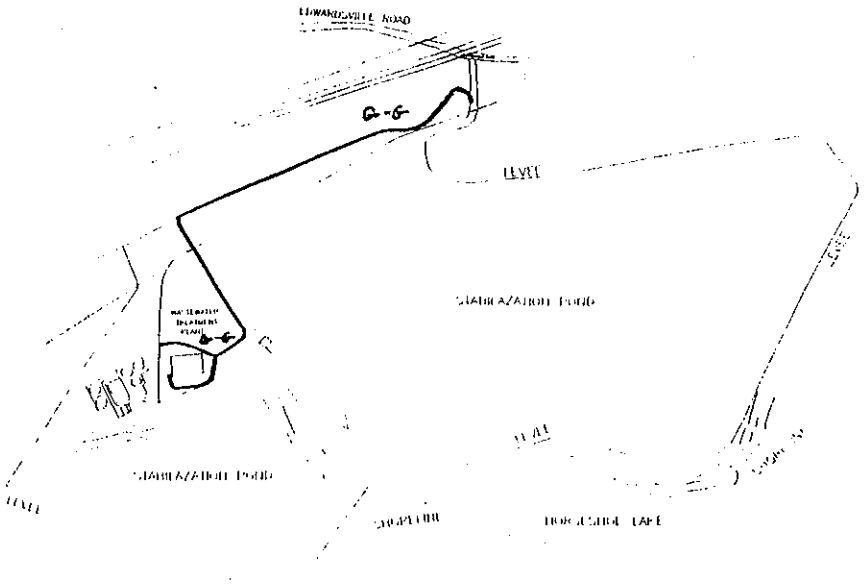


SOURCE: Map from Granite City Steel.

GRANITE CITY STEEL GRANITE CITY, ILLINOIS	PROJECT NO. 4E0810Ø9
Woodward-Clyde Consultants Engineering & sciences applied to the earth & its environment	
DRN. BY: kdw 12/29/94 DSGN. BY: CHKD. BY:	Road Network Steel Works
	FIG. NO. 3–2

File: F:\4E08109\FIG3-2.DWG Last edited: 12/29/94 ● 1:11 p.m. ● WCC-ST.LOUIS





N

WASTEWATER TREATMENT FACILITY

LEGEND

PAVED ROADS (ASPHALT)

DIRT ROADS (GRAVEL)

SOURCE: Map from Granite City Steel.

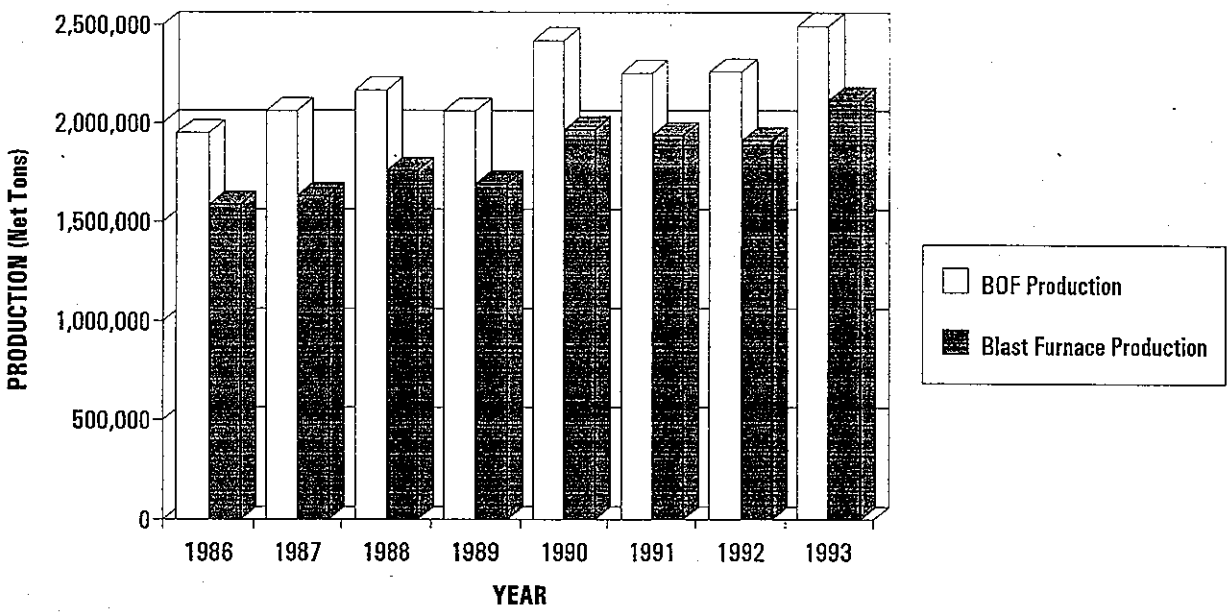
GRANITE CITY STEEL GRANITE CITY, ILLINOIS	PROJECT NO. 4E0810 9
Woodward-Clyde Consultants Engineering & sciences applied to the earth & its environment	
DRN. BY: kdw 12/29/94 DSGN. BY: CHKD. BY:	Road Network South Plant & WWTP
	FIG. NO. 3-4

File: F:\4E08109\FIG3-4.DWG Last edited: 12/29/94 @ 1:10 p.m. @ WCC-ST.LOUIS

FIGURE 3-1

GRANITE CITY DIVISION of NATIONAL STEEL CORPORATION

PRODUCTION TRENDS



PRODUCT.XLS Chart 1

Woodward-Clyde 12/29/94

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

SULFUR DIOXIDE EMISSION TEST PROGRAM
BLAST FURNACE IRON SPOUT BAGHOUSE EXHAUST STACK

GRANITE CITY STEEL DIVISION
NATIONAL STEEL CORPORATION
GRANITE CITY, ILLINOIS

ARI PROJECT NO. 436-47
NATIONAL STEEL CORP. P.O. #30-320892

REPORT PREPARED FOR:

GRANITE CITY STEEL DIVISION
NATIONAL STEEL CORPORATION
20TH AND STATE STREETS
GRANITE CITY, ILLINOIS

REPORT PREPARED BY:

ARI ENVIRONMENTAL, INC.
951 OLD RAND ROAD UNIT 106
WAUCONDA, ILLINOIS 60084
(708) 487-1580

JULY 1, 1993 TEST

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-0

II. TESTING AND ANALYTICAL PROCEDURES

Overview

ARI Environmental, Inc. was retained by the Granite City Steel Division of the National Steel Corporation in Granite City, Illinois to conduct a sulfur dioxide compliance test program on the Blast Furnace Iron Spout Baghouse exhaust stack on July 1, 1993.

Methodology

Sampling was conducted following USEPA Methods 1-4 and 6 as detailed in the Code of Federal Regulations, CFR40, Part 60, 1992 and the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, Stationary Source Specific Methods.

Sample Location (USEPA Method 1)

Samples were taken from two 3" diameter test ports located on on the stack exhaust. The test ports were located eight diameters downstream and two diameters upstream from the last flow disturbances. The stack diameter at this sampling location was 82 inches.

Gas Flow and Temperature (USEPA Method 2)

Velocity and volume flow was determined following USEPA Method 2. Velocity and temperature readings were taken on each of 8 points on two traverses for a total of 16 points.

Velocity traverses in the stack were made with a type "S" pitot tube. The velocity head was read on a Dwyer inclined vertical manometer to the nearest 0.01 in H_2O. Temperature measurements in the stack were made with a Chromel-Alumel thermocouple and connected to an Omega Model 170 digital direct read-out potentiometer accurate to approximately 1% of the absolute stack temperature.

Stack Gas CO_2, O_2 and N_2 Content (USEPA Method 3)

The stack gas molecular weight was determined following EPA Method 3. Gas samples were collected in a 60 liter Tedlar bag using ARI's integrated bag collection system and analyzed for CO_2, O_2 and N_2 (by difference) using a Hays Orsat type gas analyzer after each sampling run.

Stack Gas Moisture Content (USEPA Method 4)

Moisture sampling was conducted simultaneously with the sulfur dioxide sampling per USEPA Method 4 using large EPA Method 5 impingers.

Sulfur Dioxide Determination (USEPA Method 6)

Sulfur dioxide sampling was conducted in accordance with EPA Method 6 using large EPA Method 5 impingers.

The first impinger contained 100 mls of 80% IPA to collect SO_3. The second, third and fourth impingers contained 100 mls of 10% hydrogen peroxide. The fifth impinger contained 200 grams of silica gel.

The test repetition times varied with each batch cycle time. The test times were 77, 83 and 67 minutes for runs 1 through 3, respectively.

A final leak check and 20 minute purge were conducted at the completion of each run.

The SO_2 samples were analyzed at ARI's laboratory using standard titrations to a thorin endpoint with barium chloride as specified in EPA Method 6.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

SULFUR DIOXIDE EMISSION TEST PROGRAM
BLAST FURNACE IRON SPOUT BAGHOUSE EXHAUST STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

SUMMARY OF EMISSION TEST RESULTS

TABLE: III-1

COMPANY: Granite City Steel Division: Granite City, Illinois

LOCATION: Blast Furnace Iron Spout Baghouse Exhaust Stack

TEST DATE: July 1, 1993

TEST RUN:	1	2	3	
TEST TIME:	0904-1021	1117-1240	1338-1445	Average
STACK GAS				
Temperature, °F	123.3	124.2	123.6	123.7
Velocity, fps	71.7	68.6	68.1	69.5
Volume flow, acfm	157,818.4	150,970.0	149,783.1	152,857.2
Volume flow, dscfh	8,318,765.7	7,944,645.5	7,905,846.1	8,066,419.1
Moisture, % by vol	0.7	1.1	0.9	0.9
CO_2, % by volume	0.5	0.7	0.7	0.7
O_2, % by volume	20.1	20.1	20.1	20.1
SULFUR DIOXIDE				
Concentration				
lbs/dscf x 10^{-5}	0.0492	0.0429	0.0373	0.0431
ppmv db	3.0	2.6	2.2	2.6
Emission rate				
lbs/hr	4.1	3.4	3.0	3.5

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

BLAST FURNACE IRON SPOUT BAGHOUSE
EMISSION TEST - JULY 1, 1993

Production Data	Tons per Cast	Time Per Cast (hrs)
Run #1	624	1.25
Run #2	544	1.375
Run #3	630	1.125
Average	**599**	**1.25**

SO_2

$$\frac{1.25 \text{ hr./cast} \times 3.5 \text{ lb./hr. } SO_2}{599 \text{ tons/cast}} = 0.0073 \text{ lb./ton}$$

EMTEST.JTB

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

EMISSION TEST PROGRAM
BLAST FURNACE CAST HOUSE BAGHOUSE EXHAUST STACK
SIMULTANEOUS OVERLAP CASTING OPERATION

GRANITE CITY STEEL DIVISION
NATIONAL STEEL CORPORATION
GRANITE CITY, ILLINOIS

ARI PROJECT NO. 436-46
NATIONAL STEEL CORP. P.O. #30-320892

REPORT PREPARED FOR:

GRANITE CITY STEEL DIVISION
NATIONAL STEEL CORPORATION
20TH AND STATE STREETS
GRANITE CITY, ILLINOIS

REPORT PREPARED BY:

ARI ENVIRONMENTAL, INC.
951 OLD RAND ROAD UNIT 106
WAUCONDA, ILLINOIS 60084
(708) 487-1580

JULY 1, 1993 TEST

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

National Steel

Granite City Division
National Steel Corporation
20th & State Streets
Granite City, Illinois 62040
(618) 451-3456

August 3, 1993

CERTIFIED MAIL NO. P 111 549 790
RETURN RECEIPT REQUESTED

Illinois Environmental Protection Agency
Division of Air Pollution Control
Attn. Source Emission Test Specialist
Intercontinental Center
1701 1st Avenue
Maywood, Illinois 60153

Dear Sir:

Subject: July 1, 1993 Blast Furnace Simultaneous Cast Emissions Compliance Test results for the Casthouse and Iron Spout Baghouses.

Attached please find "The Final Report" regarding the July 1st emission test as required by special conditions 4e, g, and h of the Construction Permit for the Blast Furnace and Basic Oxygen Furnace Production Increase (application no. 92090104) for Granite City Division.

Compliance was achieved in accordance with USEPA Methods 1-5, 6, 6c, 7e, 9, and 25a. The attached information indicates the following emissions rates:

BLAST FURNACE CASTHOUSE BAGHOUSE

Emissions Type	Avg. Conc.	Limit
Particulate	.003 gr/dscf	.010 gr/dscf
Sulfur Dioxide	96.1 lbs/hr	n/a
Nitrogen Oxide	6.9 lbs/hr	n/a
VOM (as C_1)	40.6 lbs/hr	n/a

BLAST FURNACE IRON SPOUT BAGHOUSE

Emissions Type	Avg. Conc.	Limit
Sulfur Dioxide	3.5 lbs/hr	n/a

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

II. TESTING AND ANALYTICAL PROCEDURES

Overview

ARI Environmental, Inc. was retained by the Granite City Steel Division of the National Steel Corporation in Granite City, Illinois to conduct an emission compliance test program on the Blast Furnace Cast House Baghouse exhaust stack on July 1, 1993.

The purpose of this formal test program was to determine total particulate, sulfur dioxide (SO_2), nitrogen oxides (as NO_2) and volatile organic compounds (as C_1) emissions over the duration of simultaneous casting operations.

Methodology

Sampling was conducted following USEPA Methods 1-5, 6C, 7E and 25A as detailed in the Code of Federal Regulations, CFR40, Part 60, 1992 and the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, Stationary Source Specific Methods.

Sample Location (USEPA Method 1)

Samples were taken from four 3" diameter test ports located on the stack exhaust. The test ports were located two diameters downstream and one-half diameters upstream from the last flow disturbances. The stack diameter at this location was 132.0 inches.

Gas Flow and Temperature (USEPA Method 2)

Velocity and volume flow was determined following USEPA Method 2. Velocity and temperature readings were taken on each of 6 points on four traverses for a total of 24 points.

Velocity traverses in the stack were made with a type "S" pitot tube. The velocity head was read on a Dwyer inclined vertical manometer to the nearest 0.01 in H_2O. Temperature measurements in the stack were made with a Chromel-Alumel thermocouple and connected to an Omega Model 170 digital direct read-out potentiometer accurate to approximately 1% of the absolute stack temperature.

Stack Gas CO_2, O_2 and N_2 Content (USEPA Method 3)

The stack gas molecular weight was determined following EPA Method 3. Gas samples were collected in a 60 liter Tedlar bag using ARI's integrated bag collection system and analyzed for CO_2, O_2 and N_2 (by difference) using a Hays Orsat type gas analyzer after each sampling run.

Stack Gas Moisture Content

Moisture sampling was conducted simultaneously with the particulate sampling in the back half of the Method 5 sampling train per USEPA Method 4.

Stack Particulate Sampling Train

The particulate sampling train used during the test series was an Andersen Samplers, Incorporated Method 5 sampling train. The major components are described below:

1. Nozzle - Type 316 stainless steel with sharp tapered leading edge.

2. Probe - Heated glass lined probe with attached pitot tube and stack temperature thermocouple connected to a heated filter holder.

3. Andersen Samplers, Incorporated Sample Case and Control Module - as per EPA Method 5 test specifications.

Sampling Train Assembly

The sample train was assembled as follows:

1. A stainless steel nozzle was selected, sized to maintain isokinetic sampling and attached to the heated glass lined probe.

2. A preweighed filter was placed in the filter holder and its number noted on the data sheets.

3. 100 mls of deionized distilled water was placed in the first and second impinger.

4. The third impinger was assembled dry.

5. 200 grams of dry silica gel was placed in the fourth impinger.

6. The clean glassware and entire sampling train was then assembled at the sampling location.

Sampling Train Leak Check Procedures (Pre and Post)

1. The pump was started.

2. The course flow adjustment valve was opened.

3. Flow through the dry gas meter was checked.

4. The probe inlet was plugged.

5. The fine flow adjustment valve was adjusted to yield a vacuum gauge reading of 15 in Hg.

6. If the flow exceeded .02 ACFM, the pump was shut off and all connections were rechecked for tightness and the leak test procedure was repeated until acceptable results were obtained.

Pitot Tube Leak Check Procedure

1. A positive (or negative) pressure was created in the pitot line to be checked.

2. The line was then plugged to hold the pressure and the magnehelic gauge was monitored to watch for any change in the manometer fluid level.

3. If the fluid level changed, the system was rechecked for leaks and the leak check procedure was repeated until no leaks were found.

Particulate Sampling Procedure

Crushed ice was added to the impinger compartment, the nozzle was uncapped and the probe was introduced into the stack to the first sampling point. The dry gas meter reading was recorded and sampling was started. At each point, a pitot reading was made and the sampling rate was adjusted using K-Factor calculations which were based on preliminary temperature, pressure and moisture estimates. When sampling at the last point in the port was completed, the pump was turned off and the probe was carefully removed from that port.

Initially the sampling was conducted for 2.5 minutes on each of the 24 points. When the simultaneous casting operation exceeded the time required to complete the full four port sampling run of 60 minutes, sampling was continued for 2.5 minutes per traverse point while traversing the stack in reverse order. The total sampling times were 77, 82.5 and 67.5 minutes for runs 1, 2 and 3 respectively.

A final leak test was performed on the sampling train as previously described. The umbilical cord was disconnected and the sample case and probe were then disassembled.

Particulate Sample Recovery

1. The filter was removed from the heated filter holder and placed in a clean Petrie dish and labeled as Container #1.

2. A brush was used to clean the nozzle and other fittings as required. The acetone washings from the inner surfaces of the nozzle, and upstream portion of the filter holder were collected in a bottle and labeled as Container #2.

3. The contents of impinger #4 were transferred to a clean bottle to be weighed at a later time for moisture content and was labeled as Container #3.

4. The contents of impingers #1, #2, and #3 were placed in a graduated cylinder to measure the total volume of water collected.

Particulate Sample Analysis

1. Container #1 - At ARI's laboratory, the container was opened and placed in a desiccator and allowed to dry to a constant weight. Each filter and any loose matter were then weighed to the nearest 0.1 mg.

2. Container #2 - At ARI's laboratory, the contents of this container were transferred to a tared beaker and allowed to evaporate at room temperature in a fume hood. It was then placed in a desiccator and weighed on an analytical balance to the nearest 0.1 mg.

3. Container #3 - The contents of this container were transferred to a tared beaker and the weight of the silica gel was determined. The difference between this final weight and 200 grams was the total moisture collected by the silica gel.

4. The net weight gain recorded for Containers #1 and #2 were summed to yield the total solid particulates collected.

Sulfur Dioxide Determination (USEPA Method 6C)

Sulfur dioxide sampling was conducted following EPA Method 6C protocols. A Western Research Model 721 ATM Photometric SO_2 monitor was used during the testing. Results were recorded on ARI's data logger and computer system.

ARI's sampling system consisted of a heated probe with in-stack filter in each stack followed by a 3-way calibration valve connected to a heated Teflon sample line connected to a 3-way valve at ground level. The Teflon sample line was connected to an ice-cooled condenser to remove moisture followed by a Teflon lined pump. A sample manifold was connected to the exhaust side of the pump with intake lines for ARI's SO_2 and NO_x monitors.

Certified SO_2 calibration standards and zero air were used to calibrate the monitor. The gas standards were introduced directly into the three way valve at the end of the heated sample probe.

Specifically, gas standards of zero air, 491 ppm and 910 ppm SO_2 in N_2 were used for calibration. The SO_2 monitor span was set at 1000 ppm during the testing.

A pre-test and post-test measurement system bias test and calibration error test was done after each test repetition. The average zero and calibration drift values obtained during each test run on the monitor were used to correct the data for each test run.

Nitrogen Oxides Determination (USEPA Method 7E)

Continuous nitrogen oxides (as NO_2) sampling was conducted following EPA Method 7E. The NO_x monitor used was ARI's TECO Model 10 monitor. Data was recorded on ARI's data logger and computer system. Calibration gas and zero air was introduced directly into the 3-way valve for calibration of the NO_x monitor.

A converter efficiency test and response time test were conducted prior to beginning the testing following EPA Method 20 procedures.

A pre-test and post-test measurement system bias test and calibration error test were performed using certified master gas calibration standards of 57.0 ppm, 142.8 ppm and 217.7 ppm NO_x in N_2. The monitor span was set at 250 ppm. Zero and calibration drift test results were well within 3% of span for each calibration gas. The average zero and calibration drift values obtained during each test run on each monitor were used to correct the data for that test run.

Determination of Total VOC (USEPA Method 25A)

Total volatile organic compounds sampling and analysis were conducted on-site on the stack exhaust using a Ratfisch Model RS-55 Total Hydrocarbon Analyzer. The monitor was calibrated using propane as the VOC standard. The VOC concentration was converted to a C_1 basis using the factor of 3 as listed in USEPA Method 25A. The analyzer utilizes a continuous heated FID which keeps the sample gas stream above its dewpoint.

The sampling systems consisted of the following:

1) Stainless steel probe with instack filter holder.

2) 3-way calibration valve and line located at the probe.

3) Heated Teflon line (>250°F) from the probe to the analyzer.

The Ratfisch analyzer was operated at the following conditions:

Oven temperature	:	150°C
Sample backpressure	:	200 m bar
Air	:	11.5 psi
Hydrogen	:	6.0 psi
Response time	:	30 seconds
Chart speed	:	10 cm/hr
Data logger	:	15 sec. - 1 minute average
Span	:	1000 ppm propane

Zero gas and USEPA protocol 1 certified propane standards in N_2 gas standards were used for calibration of the instrument. The calibration gases were introduced at the 3-way calibration valve located at the end of each sample probe. Calibration gases used were 253.9 ppm, 467.1 ppm and 844.2 ppm propane in N_2.

Emission Calculations

The particulate, sulfur dioxide and nitrogen oxides (as NO_2) emission rates in lbs/hr were calculated for each run by multiplying the measured particulate, sulfur dioxide and nitrogen oxides concentrations (lbs/dscf) by the stack gas volumetric flow rate (dscfh).

The volatile organic compound emission rate in lbs/hr were calculated for each run by multiplying the measured VOC concentration (lbs/scf wb) by the stack gas volumetric flow rate (scfh wb).

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

EMISSION TEST PROGRAM
BLAST FURNACE CAST HOUSE BAGHOUSE EXHAUST STACK
SIMULTANEOUS OVERLAP CASTING OPERATION
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS
SUMMARY OF EMISSION TEST RESULTS

TABLE: III-1
COMPANY: Granite City Steel Division: Granite City, Illinois
LOCATION: Blast Furnace Cast House Baghouse Exhaust Stack
TEST DATE: 7/01/93 (Simultaneous casting during each run)

TEST RUN:	1	2	3	Average
TEST TIME:	0904-1021	1117-1240	1338-1445	
STACK GAS				
Temperature, F	112.3	117.3	121.9	117.1
Velocity, fps	73.8	73.8	74.0	73.9
Volume flow, acfm	421,019.1	420,607.0	421,692.9	421,106.3
Volume flow, scfm db	374,039.0	370,068.6	367,931.7	370,679.8
Volume flow, scfh wb	22,849,051.7	22,629,550.0	22,508,057.9	22,662,219.9
Volume flow, dscfh	22,442,338.6	22,204,114.9	22,075,903.9	22,240,785.6
Moisture, % by vol	1.8	1.9	1.9	1.9
CO_2, % by volume	0.0	0.0	0.0	0.0
O_2, % by volume	20.9	20.9	20.9	20.9
PARTICULATE SAMPLE				
Time, min.	75.0	82.5	67.5	75.0
Volume, dscf	53.8	61.2	50.4	55.1
Solids collected, mg	10.6	12.6	11.8	11.7
Isokinetic ratio, %	95.2	99.5	100.7	98.4
PARTICULATES				
Concentration				
gr/dscf	0.003	0.003	0.004	0.003
x 10^{-6} lbs/dscf	0.435	0.454	0.516	0.468
Emission rate				
lbs/hr	9.752	10.071	11.388	10.404
SULFUR DIOXIDE				
Concentration				
ppmv db	21.6	29.7	26.7	26.0
x 10^{-6} lbs/dscf	3.595	4.939	4.436	4.323
Emission rate				
lbs/hr	80.7	109.7	97.9	96.1
NITROGEN OXIDES (as NO_2)				
Concentration				
ppmv, db	2.9	2.6	2.3	2.6
x 10^{-6} lbs/dscf	0.351	0.306	0.274	0.310
Emission rate				
lbs/hr	7.9	6.8	6.0	6.9
VOC (as C_1)				
Concentration				
ppmv wb	57.1	57.0	58.3	57.5
x 10^{-6} lbs/scf wb	1.778	1.777	1.815	1.790
Emission rate				
lbs/hr	40.6	40.2	40.9	40.6

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

BLAST FURNACE CASTHOUSE BAGHOUSE
EMISSION TEST - JULY 1, 1993

Production Data	Tons per Cast	Time Per Cast (hrs)
Run #1	624	1.25
Run #2	544	1.375
Run #3	630	1.125
Average	**599**	**1.25**

TSP and PM_{10}

$$\frac{1.25 \text{ hr./cast} \times 10.404 \text{ lb./hr.}}{599 \text{ tons/cast}} = 0.0217 \text{ lb./ton TSP and } PM_{10}$$

SO_2

$$\frac{1.25 \text{ hr./cast} \times 96.1 \text{ lb./hr. } SO_2}{599 \text{ tons/cast}} = 0.2006 \text{ lb./ton } SO_2$$

NO_x

$$\frac{1.25 \text{ hr./cast} \times 6.9 \text{ lb./hr. } NO_x}{599 \text{ tons/cast}} = 0.0144 \text{ lb./ton } NO_x$$

VOC

$$\frac{1.25 \text{ hr./cast} \times 40.6 \text{ lb./hr. VOC}}{599 \text{ tons/cast}} = 0.0847 \text{ lb./ton VOC}$$

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

FORMAL EMISSION TEST PROGRAM
BOF PRECIPITATOR EXHAUST STACK

GRANITE CITY STEEL DIVISION
NATIONAL STEEL CORPORATION
GRANITE CITY, ILLINOIS

ARI PROJECT NO. 436-53
GRANITE CITY P.O. 30-25149

REPORT PREPARED FOR:

GRANITE CITY STEEL DIVISION
NATIONAL STEEL CORPORATION
20TH AND STATE STREETS
GRANITE CITY, ILLINOIS

REPORT PREPARED BY:

ARI ENVIRONMENTAL, INC.
951 OLD RAND ROAD UNIT 106
WAUCONDA, ILLINOIS 60084
(708) 487-1580

AUGUST 27-28, 1993 TEST

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

II. TESTING AND ANALYTICAL PROCEDURES

Overview

ARI Environmental, Inc. was retained by the Granite City Steel Division of the National Steel Corporation in Granite City, Illinois to conduct a formal emission test program on the exhaust stack associated with the electrostatic precipitator serving the basic oxygen furnace on August 27-28, 1993.

Testing was conducted on August 27, 1993 with the fan flow rate set at 650,000 cfm on the electrostatic precipitator. As a result ofa delayed ignition condition which occurred at the beginning of the blow on the second run, a fourth run was conducted.

Testing was conducted on August 28, 1993 with the fan flow rate set at 680,000 cfm. Three sample runs were done at this condition.

Methodology

Sampling was conducted following USEPA Methods 1-5, 7E and 10 as detailed in the Code of Federal Regulations, CFR40, Part 60, 1992 and the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, Stationary Source Specific Methods.

Sample Location (USEPA Method 1)

Samples were taken from four 3" diameter test ports located on the stack exhaust. The test ports were located two diameters downstream and one-half diameters upstream from the last flow disturbances. The stack diameter at this location was 147.75 inches.

Gas Flow and Temperature (USEPA Method 2)

Velocity and volume flow was determined following USEPA Method 2. Velocity and temperature readings were taken on each of 6 points on four traverses for a total of 24 points.

Velocity traverses in the stack were made with a type "S" pitot tube. The velocity head was read on a Dwyer inclined vertical manometer to the nearest 0.01 in H_2O. Temperature measurements in the stack were made with a Chromel-Alumel thermocouple and connected to an Omega Model 170 digital direct read-out potentiometer accurate to approximately 1% of the absolute stack temperature.

Stack Gas O_2 and CO_2 Determination (USEPA Method 3A)

Continuous oxygen sampling was conducted in accordance with EPA Method 3A using ARI's OFC Infrared Industries Model IR-2000 oxygen monitor. The monitor results were recorded on a strip chart recorder and ARI's datalogger system.

ARI's sampling system consisted of a heated probe with in-stack filter followed by a 3-way calibration valve connected to a heated Teflon sample line. The Teflon sample line was connected to an ice-cooled condenser to remove moisture followed by a Teflon lined pump. A sample manifold was connected to the exhaust side of the pump with intake lines for ARI's O_2, CO_2, NO_x and CO monitors.

Certified gas standards of zero air, nitrogen and 12.1 O_2 in N_2 calibration gases were introduced at the three-way calibration valve located at the end of the sample probe for calibration of the O_2 monitor. The O_2 monitor span was set at 25% during the testing.

Continuous carbon dioxide sampling was conducted using ARI's Horiba NDIR Model 2000 carbon dioxide monitor. The monitor results were recorded on a strip chart recorder and ARI's datalogger system.

Certified gas standards of nitrogen, 8.2 and 12.9 CO_2 in N_2 calibration gases were used to calibrate the monitor. The CO_2 monitor span was set at 15% during the testing.

Stack Gas Moisture Content

Moisture sampling was conducted simultaneously with the particulate sampling in the back half of the Method 5 sampling trains per USEPA Method 4.

Total Particulate Determination (USEPA Method 5)

Particulate emission sampling was conducted using two Method 5 sampling trains in order to complete each sampling run within a specified time frame and to allow continuous sampling throughout a complete emissions cycle without sampling downtime due to sampling port changes.

Sampling was conducted for 1.5 minutes per point at each of 24 points (six points per port and four ports). The sampling rate during each run was adjusted to compensate for the changes in stack gas temperature and moisture content throughout the cycle to maintain isokinetic sampling. The sampling time for each run varied based on the duration of the cycle. The first 36 minutes consisted of initially sampling the 24 points. Backwards traversing was then performed at each point at 1½ minutes per point until the process cycle was completed.

Stack Particulate Sampling Train

The particulate sampling train used during the test series was an Andersen Samplers, Incorporated Method 5 sampling train. The major components are described below:

1. Nozzle - Type 316 stainless steel with sharp tapered leading edge:

2. Probe - Heated glass lined probe with attached pitot tube and stack temperature thermocouple connected to a heated filter holder.

3. Andersen Samplers, Incorporated Sample Case and Control Module - as per EPA Method 5 test specifications.

Sampling Train Assembly

The sample train was assembled as follows:

1. A stainless steel nozzle was selected, sized to maintain isokinetic sampling and attached to the heated glass lined probe.

2. A preweighed filter was placed in the filter holder and its number noted on the data sheets.

3. 100 mls of deionized distilled water was placed in the first and second impinger.

4. The third impinger was assembled dry.

5. 200 grams of dry silica gel was placed in the fourth impinger.

6. The clean glassware and entire sampling train was then assembled at the sampling location.

Sampling Train Leak Check Procedures (Pre and Post)

1. The pump was started.

2. The course flow adjustment valve was opened.

3. Flow through the dry gas meter was checked.

4. The probe inlet was plugged.

5. The fine flow adjustment valve was adjusted to yield a vacuum gauge reading of 15 in Hg.

6. If the flow exceeded .02 ACFM, the pump was shut off and all connections were rechecked for tightness and the leak test procedure was repeated until acceptable results were obtained.

Pitot Tube Leak Check Procedure

1. A positive (or negative) pressure was created in the pitot line to be checked.

2. The line was then plugged to hold the pressure and the magnehelic gauge was monitored to watch for any change in the manometer fluid level.

3. If the fluid level changed, the system was rechecked for leaks and the leak check procedure was repeated until no leaks were found.

Particulate Sampling Procedure

Crushed ice was added to the impinger compartment, the nozzle was uncapped and the probe was introduced into the stack to the first sampling point. The dry gas meter reading was recorded and sampling was started. At each point, a pitot reading was made and the sampling rate was adjusted using K-Factor calculations which were based on preliminary temperature, pressure and moisture estimates. When sampling at the last point in the port was completed, the pump was turned off and the probe was carefully removed from that port.

The two sampling trains were positioned at their respective port locations with the "A" train serving the South and West ports and the "B" train serving the East and North ports.

At the beginning of each cycle, sampling was started in the South port. Sampling was conducted for 1½ minutes at each of six points in the first port. At the completion of nine minutes of sampling, the second sampling train in the East port was immediately started and sampling conducted in the second port identical to the first. This process was repeated for the North and West ports with sampling and traversing continued backwards from the last sample point (24) until the cycle time was completed. Sampling was conducted continuously throughout the entire cycle.

The sampling rate during each run was adjusted to compensate for the changes in stack gas temperature and moisture content throughout the cycle to maintain isokinetic sampling rate at all times.

A final leak test was performed on the sampling train as previously described. The umbilical cord was disconnected and the sample case and probe were then disassembled.

Particulate Sample Recovery

1. The filter was removed from the heated filter holder and placed in a clean Petrie dish and labeled as Container #1.

2. A brush was used to clean the nozzle and other fittings as required. The acetone washings from the inner surfaces of the nozzle, and upstream portion of the filter holder were collected in a bottle and labeled as Container #2.

3. The contents of impinger #4 were transferred to a clean bottle to be weighed at a later time for moisture content and was labeled as Container #3.

4. The contents of impingers #1, #2, and #3 were placed in a graduated cylinder to measure the total volume of water collected.

Particulate Sample Analysis

1. Container #1 - At ARI's laboratory, the container was opened and placed in a desiccator and allowed to dry to a constant weight. Each filter and any loose matter were then weighed to the nearest 0.1 mg.

2. Container #2 - At ARI's laboratory, the contents of this container were transferred to a tared beaker and allowed to evaporate at room temperature in a fume hood. It was then placed in a desiccator and weighed on an analytical balance to the nearest 0.1 mg.

3. Container #3 - The contents of this container were transferred to a tared beaker and the weight of the silica gel was determined. The difference between this final weight and 200 grams was the total moisture collected by the silica gel.

4. The net weight gain recorded for Containers #1 and #2 were summed to yield the total solid particulates collected.

Nitrogen Oxides Determination (USEPA Method 7E)

Continuous NO_x sampling was conducted following EPA Method 7E. The NO_x monitor used was ARI's TECO Model 10 NO_x monitor. Data was recorded on a dual pen strip chart recorder and ARI's datalogger system. Calibration gas and zero was introduced directly into the 3-way valve for calibration of the NO_x monitor.

A converter efficiency test and response time test were conducted prior to beginning the testing following EPA Method 20 procedures.

A pretest and post-test measurement system bias test and calibration error test were performed using certified master gas NO_x calibration standards of 57.0 ppm, 142.8 ppm and 217.7 ppm NO_x. The NO_x monitor span was set at 250 ppm. Zero and calibration drift test results were well within 3% of span for each calibration gas. The average zero and calibration drift values obtained during each test run on each monitor were used to correct the data for that test run.

Carbon Monoxide Determination (USEPA Method 10)

Continuous carbon monoxide sampling was conducted in accordance with USEPA Method 10. A TECO Model 48 Gas Filter Correlation CO monitor was used for CO analysis. Results were recorded out on a dual pen strip chart recorder and recorded on ARI's datalogger system.

Certified CO calibration standards and zero air were used to calibrate the CO monitor. The gas standards were introduced directly into the three way valve at the end of the heated sample probe.

CO calibration standards of 5,750, 8,748 and 18,600 in N_2 were used to calibrate the CO monitor. The CO monitor span was set at 20,000 ppm during the testing.

A pretest and post-test measurement system bias test and calibration error test was done after each test repetition. The average zero and calibration drift values obtained during each test run on the monitor were used to correct the data for that test run.

Emission Calculations

The stack particulate emission rate (lbs/cycle) for each of the sampling runs was determined by summing the particulate emission rates (lbs/run) determined for each of the two sampling trains "A" and "B" used during each sampling run. This combined total represented the total stack particulate emissions for each complete BOF emissions cycle.

The total nitrogen oxides and carbon monoxide emission rates were calculated by summing the stack flow rate for each run and calculating the emission rate (lb/run) by multiplying the total flow rate (dscf/run) by the nitrogen oxides and carbon monoxide concentrations (lb/dscf).

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

NORMAL EMISSION TEST PROGRAM
BOF PRECIPITATOR EXHAUST STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

SUMMARY OF EMISSION TEST RESULTS

TABLE: III-1
COMPANY: Granite City Steel Division: Granite City, Illinois
LOCATION: BOF Precipitator Exhaust Stack
FAN FLOW: 650,000 cfm

TEST DATE: 8/27/93
TEST RUN: 1
TEST TIME: 0911-0957
BLOW TIME: 0919-0938

SAMPLING TRAIN:	A	B
STACK GAS		
Temperature, °F	311.1	313.4
Velocity, fps	76.4	79.7
Volume flow, acfm	545,611.4	569,697.6
Volume flow, scfm db	303,519.9	309,880.3
Volume flow, dscf/run	8,195,036.9	5,577,845.4
Moisture, % by vol	18.1	19.7
CO_2, % by volume	3.8	3.8
O_2, % by volume	18.6	18.6
PARTICULATE SAMPLE		
Time, min.	27.0	18.0
Volume, dscf	13.834	9.418
Particulate collected, mg	11.1	5.8
Isokinetic ratio, %	104.9	105.0
PARTICULATES		
Concentration		
gr/dscf	0.0124	0.0095
x 10^{-6} lbs/dscf	1.764	1.351
Emission rate		
lbs/run	14.46	7.54
lbs/cycle (total)	22.00	

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

FORMAL EMISSION TEST PROGRAM
BOF PRECIPITATOR EXHAUST STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

SUMMARY OF EMISSION TEST RESULTS

TABLE: III-2
COMPANY: Granite City Steel Division: Granite City, Illinois
LOCATION: BOF Precipitator Exhaust Stack
FAN FLOW: 650,000 cfm

TEST DATE: 8/27/93
TEST RUN: 3
TEST TIME: 1230-1310
BLOW TIME: 1237-1254

SAMPLING TRAIN:	A	B
STACK GAS		
Temperature, °F	314.2	318.2
Velocity, fps	76.0	82.8
Volume flow, acfm	542,645.7	591,510.8
Volume flow, scfm db	293,391.8	313,670.5
Volume flow, dscf/run	6,601,314.8	5,646,068.2
Moisture, % by vol	20.1	21.2
CO_2, % by volume	4.1	4.1
O_2, % by volume	18.6	18.6
PARTICULATE SAMPLE		
Time, min.	22.5	18.0
Volume, dscf	11.607	9.274
Particulate collected, mg	9.2	5.7
Isokinetic ratio, %	109.3	101.6
PARTICULATES		
Concentration		
gr/dscf	0.0122	0.0094
x 10^{-6} lbs/dscf	1.746	1.346
Emission rate		
lbs/run	11.52	7.60
lbs/cycle (total)	19.12	

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

FORMAL EMISSION TEST PROGRAM
BOF PRECIPITATOR EXHAUST STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

SUMMARY OF EMISSION TEST RESULTS

TABLE: III-3
COMPANY: Granite City Steel Division: Granite City, Illinois
LOCATION: BOF Precipitator Exhaust Stack
FAN FLOW: 650,000 cfm

TEST DATE: 8/27/93
TEST RUN: 4
TEST TIME: 1413-1451
BLOW TIME: 1419-1438

SAMPLING TRAIN:	A	B
STACK GAS		
Temperature, °F	310.1	317.8
Velocity, fps	78.7	85.0
Volume flow, acfm	561,878.6	607,439.9
Volume flow, scfm db	326,542.8	326,660.2
Volume flow, dscf/run	5,877,771.3	5,879,882.7
Moisture, % by vol	14.6	20.1
CO_2, % by volume	4.5	4.5
O_2, % by volume	18.1	18.1
PARTICULATE SAMPLE		
Time, min.	18.0	18.0
Volume, dscf	10.499	10.284
Particulate collected, mg	11.1	12.4
Isokinetic ratio, %	102.4	108.8
PARTICULATES		
Concentration		
gr/dscf	0.0162	0.0185
x 10^{-6} lbs/dscf	2.321	2.648
Emission rate		
lbs/run	13.64	15.57
lbs/cycle (total)	29.21	

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

PARTICULATE EMISSION TEST PROGRAM
OF PRECIPITATOR EXHAUST STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

SUMMARY OF EMISSION TEST RESULTS

TABLE: III-7

TEST DATE:	8/27/93	8/27/93	8/27/93
TEST TIME:	0911-0957	1230-1310	1413-1451
FAN FLOW, CFM:	650,000	650,000	650,000
TEST RUN:	1	3	4
Volume flow, dscf	13,772,882	12,247,383	11,757,654
Nitrogen Oxides (as NO_2)			
Concentration ppmv db	6.2	5.7	6.2
Emission rate, lbs/run	10.2	8.4	8.8
Carbon Monoxide			
Concentration ppmv db	2,133	2,165	2,663
Emission rate, lbs/run	2,135.5	1,926.6	2,275.8

BOF EMISSIONS TEST
ESP EXHAUST STACK
8/27/93 - 8/28/93

TSP and PM_{10}

Avg Emission Rate 23.4 lb/cycle

$$\frac{23.4\ lb/cycle}{234.926\ ton/cycle} = 0.0996\ lb/ton\ produced$$

NO_x

Avg Emission Rate 9.133 lb/cycle

$$\frac{9.133\ lb/cycle}{234.926\ ton/cycle} = 0.0389\ lb/ton\ produced$$

CO

Avg Emission Rate 2112.633 lb/cycle

$$\frac{2{,}1126.633\ lb/cycle}{234.926\ ton/cycle} = 8.993\ lb/ton\ produced$$

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

NO_x EMISSION TEST
#12 BOILER STACK
GRANITE CITY STEEL DIVISION
NATIONAL STEEL CORPORATION
GRANITE CITY, ILLINOIS

ARI PROJECT NO. 436-34

REPORT PREPARED FOR:

GRANITE CITY STEEL DIVISION
NATIONAL STEEL CORPORATION
20TH & STATE STREETS
GRANITE CITY, ILLINOIS

REPORT PREPARED BY:

ARI ENVIRONMENTAL, INC.
951 OLD RAND ROAD, UNIT 106
WAUCONDA, ILLINOIS 60084
(708) 487-1580

NOVEMBER 4, 1992 TEST

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

NO_x EMISSION TEST
#12 BOILER STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

I. INTRODUCTION AND SUMMARY

ARI Environmental, Inc. was retained by the Granite City Steel Division of the National Steel Corporation located ~~in~~ Granite City, Illinois to conduct a nitrogen oxide emission test on the #12 Boiler exhaust stack on November 4, 1992.

The run was completed on November 4, 1992 when the boiler was operating with natural gas.

Test methods followed those as detailed in the Code of Federal Regulations, CFR40, Part 60, Appendix A; and the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, Stationary Source Specific Methods.

Testing was conducted boy Mr. M. Barton, Mr. D. Chapman and Mr. E. Kelly of ARI Environmental. Mr. Jeff Blaies of Granite City Steel was present to coordinate the tests and monitor the process conditions.

This report summarizes the test procedures and results of the test. Included, as appendices, is a documentation of all field test data, calculation summary data, strip chart data and logger data.

The results of the test are summarized below:

#12 Boiler (Natural Gas)

	Run #1
Nitrogen Oxide (as NO_2)	
Concentration, ppmv	73.7
Emission rate, lbs./hr.	32.276

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

NO_x EMISSION TEST
#12 BOILER STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

II. TESTING AND ANALYTICAL PROCEDURES

Overview

ARI Environmental, Inc. was retained by the Granite City Steel Division of the National Steel Corporation in Granite City, Illinois to conduct a nitrogen oxide emission test on the #12 Boiler exhaust stack November 4, 1992.

Methodology

Sampling was conducted following USEPA Methods 1-4, 6C, 7E and 10 as detailed in the Code of Federal Regulations, CFR40, Part 60, 1991 and the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, Stationary Source Specific Methods.

Sample Location (USEPA Method 1)

Samples were taken from two 3" diameter test ports located on the stack exhaust. The test ports were located five diameters downstream and five diameters upstream from the last flow disturbances. The stack diameter at this location was 90.5 inches.

Gas Flow and Temperature (USEPA Method 2)

Velocity and volume flow was determined following USEPA Method 2. Velocity and temperature readings were taken on each of 8 points on two traverses for a total of 16 points.

Velocity traverses in the stack were made with a type "S" pitot tube. The velocity head was read on a Dwyer inclined vertical manometer to the nearest 0.01 in H_2O. Temperature measurements in the stack were made with a Chromel-Alumel thermocouple and connected to an Omega Model 170 digital direct read-out potentiometer accurate to approximately 1% of the absolute stack temperature.

Stack Gas CO_2, O_2 and N_2 Content (USEPA Method 3)

The stack gas molecular weight was determined following EPA Method 3. Gas samples were collected in a 60 liter Tedlar bag using ARI's integrated bag collection system and analyzed for CO_2, O_2 and N_2 (by difference) using a Hays Orsat type gas analyzer after each sampling run.

Stack Gas Moisture Content (USEPA Method 4)

Moisture sampling was conducted following EPA Method 4 on the exhaust stack.

Nitrogen Oxides Determination (USEPA Method 7E)

Continuous NO_x sampling was conducted following EPA Method 7E. The NO_x monitor used was ARI's TECO Model 10 NO_x monitor. Data was recorded on a pen strip chart recorder and ARI's data logger system. Calibration gas and zero air was introduced directly into the 3-way valve for calibration of the NO_x monitor.

The average zero and calibration drift values obtained during each test run on each monitor were used to correct the data for that test run.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

NO_x EMISSION TEST
#12 BOILER STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

SUMMARY OF EMISSION TEST RESULTS

TABLE: III-2

COMPANY: Granite City Steel Division: Granite City, Illinois

LOCATION: #12 Boiler Stack (Natural Gas)

TEST DATE: November 4, 1992
TEST TIME: 1223-1333

STACK GAS

Temperature, °F	300.6
Velocity, fps	35.4
Volume flow, acfm	94,999.5
Volume flow, scfm db	61,131.2
Volume flow, dscfh	3,667,873.2
Moisture, % by volume	6.7
CO_2, % by volume	8.1

NITROGEN OXIDES (as NO_2)

Concentration	
ppmv, db	73.7
x 10^{-6} lbs./dscf	8.8
Emission rate	
lbs./hr.	32.276

EMTEST.LS

SEP. 8. '94 02:32PM GCS ENVIRONMENTAL

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

NO_x EMISSION TEST
12 BOILER STACK
NOVEMBER 4, 1992

Natural Gas Usage 117 MMBTU/hr.

$$\frac{32.276 \text{ lb./hr. } NO_x}{117 \text{ MMBTU/hr.}} = 0.3 \text{ lb./MMBTU } NO_x$$

$$0.3 \text{ lb./MMBTU} \times 1019 \text{ BTU/ft.}^3 = 306 \text{ lb./MM ft.}^3 \text{ } NO_x$$

DEC 28 '94 02:33PM GCS ENVIRONMENTAL

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

NO_x EMISSION TEST
#12 BOILER STACK
GRANITE CITY STEEL DIVISION
NATIONAL STEEL CORPORATION
GRANITE CITY, ILLINOIS

ARI PROJECT NO. 436-38

REPORT PREPARED FOR:

GRANITE CITY STEEL DIVISION
NATIONAL STEEL CORPORATION
20TH & STATE STREETS
GRANITE CITY, ILLINOIS

REPORT PREPARED BY:

ARI ENVIRONMENTAL, INC.
951 OLD RAND ROAD, UNIT 106
WAUCONDA, ILLINOIS 60084
(708) 487-1580

FEBRUARY 1, 1993 TEST

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

NO_x EMISSION TEST
#12 BOILER STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

I. INTRODUCTION AND SUMMARY

ARI Environmental, Inc. was retained by the Granite City Steel Division of the National Steel Corporation located in Granite City, Illinois to conduct a nitrogen oxide emission test program on the #12 Boiler exhaust stack on February 1, 1993.

The run was completed on February 1, 1993 with the Boiler operating with blast furnace gas.

Test methods followed those as detailed in the Code of Federal Regulations, CFR40, Part 60, Appendix A; and the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, Stationary Source Specific Methods.

Testing was conducted boy Mr. M. Ames, Mr. M. Barton, Mr. D. Chapman and Mr. J. Whitaker of ARI Environmental. Mr. Jeff Blaies of Granite City Steel was present to coordinate the tests and monitor the process conditions.

This report summarizes the test procedures and results of this test. Included, as appendices, is a documentation of all field test data, calculation summary data, strip chart data and logger data.

The results of the test are summarized below:

#12 Boiler

	Blast Furnace Gas
Nitrogen Oxide (as NO_2)	
Concentration, ppmv	15.2
Emission rate, lbs./hr.	7.373

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

NO_x EMISSION TEST
#12 BOILER STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

II. TESTING AND ANALYTICAL PROCEDURES

Overview

ARI Environmental, Inc. was retained by the Granite City Steel Division of the National Steel Corporation in Granite City, Illinois to conduct a nitrogen oxide emission test on the #12 Boiler exhaust stack February 1, 1993.

Methodology

Sampling was conducted following USEPA Methods 1-4, and 7E as detailed in the Code of Federal Regulations, CFR40, Part 60, 1992 and the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, Stationary Source Specific Methods.

Sample Location (USEPA Method 1)

Samples were taken from two 3" diameter test ports located on the stack exhaust. The test ports were located five diameters downstream and five diameters upstream from the last flow disturbances. The stack diameter at this location was 90.5 inches.

Gas Flow and Temperature (USEPA Method 2)

Velocity and volume flow was determined following USEPA Method 2. Velocity and temperature readings were taken on each of 8 points on two traverses for a total of 16 points.

Velocity traverses in the stack were made with a type "S" pitot tube. The velocity head was read on a Dwyer inclined vertical manometer to the nearest 0.01 in H_2O. Temperature measurements in the stack were made with a Chromel-Alumel thermocouple and connected to an Omega Model 170 digital direct read-out potentiometer accurate to approximately 1% of the absolute stack temperature.

Stack Gas CO_2, O_2 and N_2 Content (USEPA Method 3)

The stack gas molecular weight was determined following EPA Method 3. Gas samples were collected in a 60 liter Tedlar bag using ARI's integrated bag collection system and analyzed for CO_2, O_2 and N_2 (by difference) using a Hays Orsat type gas analyzer after each sampling run.

Stack Gas CO_2 and O_2 Determination (USEPA Method 3A)

Continuous carbon dioxide and oxygen sampling was conducted on the exhaust stack in accordance with EPA Method 3A using ARI's Horiba PIR-2000 carbon dioxide analyzer and OFC Infrared Industries Model IR-2000 oxygen monitor. The monitor's results were recorded on ARI's data logger system.

Calibration gas and zero air were introduced directly into the 3-way valve located at the end of the sample probe. The CO_2 monitor span was set at 15% and the O_2 monitor was set at 25% during the testing.

Stack Gas Moisture Content (USEPA Method 4)

Moisture sampling was conducted following EPA Method 4 on the exhaust stack.

Nitrogen Oxides Determination (USEPA Method 7E)

Continuous NO_x sampling was conducted following EPA Method 7E. The NO_x monitor used was ARI's TECO Model 10 NO_x monitor. Data was recorded on a pen strip chart recorder and ARI's data logger system. Calibration gas and zero air was introduced directly into the 3-way valve for calibration of the NO_x monitor.

The average zero and calibration drift values obtained during each test run on each monitor were used to correct the data for that test run.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

NO_x EMISSION TEST
#12 BOILER STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS
SUMMARY OF EMISSION TEST RESULTS

TABLE: III-1

COMPANY: Granite City Steel Division: Granite City, Illinois

LOCATION: #12 Boiler Stack

TEST DATE: 02/01/93
TEST TIME: 1520-1620
CONDITION: Blast Furnace Gas

STACK GAS

Temperature, °F	469.8
Velocity, fps	48.0
Volume flow, acfm	128,744.0
Volume flow, scfm db	67,898.0
Volume flow, dscfh	4,073,882.7
Moisture, % by volume	7.3
CO_2, % by volume	12.6
O_2, % by volume	8.4

NITROGEN OXIDES (as NO_2)

Concentration	
ppmv, db	15.2
x 10^{-6} lbs./dscf	1.810
Emission rate	
lbs./hr.	7.373

EMTEST.LS

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

NO_x EMISSION TEST
12 BOILER STACK
FEBRUARY 1, 1993

Blast Furnace Gas Fuel Usage Rate 112.4 MMBTU/hr.

$$\frac{7.373 \text{ lb./hr. } NO_x}{112.4 \text{ MMBTU/hr.}} = 0.066 \text{ lb./MMBTU}$$

$$.066 \text{ lb./MMBTU} \times 80 \text{ BTU/ft.}^3 = 5.28 \text{ lb./MM ft.}^3 \ NO_x$$

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

NO_x EMISSION TEST
#4 SLAB FURNACE
STACK EMISSION TEST
MAY 19, 1992

Introduction and Summary of Results

On March 19, 1992 the exhaust gas from #4 Slab Furnace was tested for NO_x concentration while burning natural gas. Test Methods followed those detailed in the Code of Federal Regulations, CFR 40, Part 60, Appendix A: and the Quality Assurance Handbook for Air Pollution Measurement. System, Volume III, Stationary Source Specific Methods. The results of the test indicate an average emission rate of .393 lb. NO_x per mmbtu.

Overview

In order to determine the NO_x emissions generated during #4 Slab Furnace was fired on natural gas. Based upon the amount of fuel used during the test and the NO_x lb./hr. obtained by testing the NO_x lb./mmbtu are determined.

Test Methodology and Equipment

Sampling was conducted following USEPA Method 7E. The NO_x monitor used was AIR's TECO Model 10 NO_x monitor. Data was recorded on a dual pen strip chart recorder. Calibration gas and zero air was introduced directly into the 3-way valve for calibration of the NO_x monitor.

The average zero and calibration drift valves obtained during each test run on each monitor were used to correct the data for that test run.

Results

Average concentration of NO_x during the tests are as follows:

Run one	= 96.561 lb./hr.
Run two	= 96.256 lb./hr.
Run three	= 100.960 lb./hr.
Average	= 97.925 lb./hr.

Average fuel usage rate = 250.67 mmbtu/hr.

97.925 lb. NO_x/hr./250.67 mmbtu/hr. = 0.393 lb./mmbtu

SONOCO
~~NOX1990~~.JNR

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

II. TESTING AND ANALYTICAL PROCEDURES

Overview

ARI Environmental, Inc. was retained by Granite City Steel Division of the National Steel Corporation in Granite City, Illinois to conduct a sulfur dioxide, nitrogen oxide and carbon monoxide test program on the #4 Slab Furnace exhaust stack on March 19, 1992.

Methodology

Sampling was conducted following USEPA Method 1-4, 6C, 7E and 10 as detailed in the Code of Federal Regulations CFR40, Part 60, 1991 and Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, Stationary Source Specific Methods.

Sample Location (USEPA Method 1)

Samples were taken from four 3" diameter test ports located on the stack exhaust. The test ports were located three diameters downstream and three diameters upstream from the last flow disturbances. The stack diameter at this location was 180 inches.

Gas Flow and Temperature (USEPA Method 2)

Velocity and volume flow was determined following USEPA Method 2. Velocity and temperature readings were taken on each of 4 points on four traverses for a total of 16 points.

Velocity traverses in the stack were made with a type "S" pitot tube. The velocity head was read on a Dwyer inclined vertical manometer to the nearest 0.01 in H_2O. Temperature measurements in the stack were made with a Chromel-Alumel thermocouple and connected to an Omega Model 170 digital direct read-out potentiometer accurate to approximately 1% of the absolute stack temperature.

Temperature measurements were determined using a Chromel-Alumel thermocouple connected to an Omega digital direct read-out potentiometer accurate to approximately 1% of the absolute stack temperature.

Stack Gas CO_2, O_2 and N_2 Content (USEPA Method 3)

The stack gas molecular weight was determined following EPA Method 3. Gas samples were collected in a 60 liter Tedlar bag using ARI's integrated bag collection system and analyzed for CO_2, O_2 and N_2 (by difference) using a Hays Orsat type gas analyzer after each sampling run.

SR 2069

Stack Gas Moisture Content (USEPA Method 4)

Moisture sampling was conducted following EPA Method 4 on the exhaust stack.

Sulfur Dioxide Determination - Instrument Method (USEPA Method 6C)

Sulfur dioxide sampling and analyses were performed on a one-hour continuous basis in accordance with USPEA Method 6C.

A Western Research Model 5R UV monitor was used for the testing zero air and calibration gases were introduced into the 3 way calibration valve located at the end of the heated sample probe.

Nitrogen Oxides Determination (USEPA Method 7E)

Continuous NO_X sampling was conducted following EPA Method 7E. The NO_X monitor used was ARI's TECO Model 10 NO_X monitor. Data was recorded on a dual pen strip chart recorder. Calibration gas and zero was introduced directly into the 3-way valve for calibration of the NO_X monitor.

Carbon Monoxide Determination (USPEA Method 10)

Carbon monoxide sampling and analyses were conducted continuously in accordance with USPEA Method 10. A TECO Model 48 Gas Filter Correlation CO monitor was used for CO analysis. Results were printed out on a dual pen strip chart recorder.

Certified CO calibration standards and zero air were used to calibrate the CO monitor which were introduced directly into the three way valve at the end of the heated sample probe.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

SO_2, NO_x, CO EMISSION TEST PROGRAM
#4 SLAB FURNACE EXHAUST STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

SUMMARY OF EMISSION TEST RESULTS

TABLE: III-1

COMPANY: Granite City Steel Division: Granite City, Illinois

LOCATION: Slab Furnace No. 4 Exhaust Stack

TEST DATE: 3/19/92

TEST RUN:	1	2	3	Avg
TEST TIME:	1522-1622	1639-1739	1757-1857	
STACK GAS				
Temperature, ^oF	776.5	789.8	791.1	785.8
Velocity, fps	22.6	23.2	22.7	22.8
Volume flow, acfm	239,771	246,125	240,463	242,120
Volume Flow, scfm, db	89,105	90,503	88,524	89,377
Volume flow, dscfh	5,346,298	5,430,194	5,311,457	5,362,650
Moisture, % by volume	11.4	11.4	11.2	11.3
CO_2, % by volume	6.5	6.6	6.6	6.6
O_2, % by volume	9.1	9.2	9.1	9.1
Sulfur Dioxide				
Concentration ppmv db	14.1	15.8	16.1	15.3
x 10^{-6} lbs/dscf	2.3	2.6	2.7	2.5
Emission Rate lbs/hr	12.484	14.214	14.231	13.64
Carbon Monoxide				
Concentration ppmv,db	5.8	6.3	5.8	6.0
x 10^{-6} lbs/dscf	0.4	0.5	0.4	0.4
Emission Rate lbs/hr	2.263	2.496	2.243	2.3
Nitrogen Oxides (As NO_2)				
Concentration ppmv, db	151.3	148.5	159.2	153.0
x 10^{-6} lbs/dscf	18.1	17.7	19.0	18.3
Emission Rate lbs/hr	96.561	96.256	100.960	97.9


APPENDIX B

Granite City Division of National Steel Corporation

Blast Furnace and BOF Production

BOF PRODUCTION (net tons/month)									
month	1986	1987	1988	1989	1990	1991	1992	1993	1994
1	173,972	111,383	190,588	112,096	207,516	176,208	205,846	202,208	182,626
2	120,008	95,872	166,852	109,648	184,568	157,456	196,156	183,411	201,262
3	162,006	189,720	137,144	180,017	211,206	163,633	205,846	205,652	226,972
4	176,100	182,040	185,160	178,410	205,182	184,658	198,229	200,932	211,520
5	173,507	181,102	201,965	195,672	212,644	202,159	205,258	213,685	218,556
6	174,540	184,380	186,960	188,820	199,833	195,417	184,015	209,603	211,124
7	174,716	188,449	193,409	201,438	208,108	170,827	202,551	216,556	213,900
8	170,872	183,334	187,426	125,767	208,627	207,474	213,186	217,920	
9	160,680	183,570	185,160	205,350	183,596	198,852	136,526	211,498	
10	157,914	183,086	195,858	202,213	204,291	194,996	151,808	218,585	
11	175,260	191,670	184,800	185,430	203,250	199,712	207,000	210,646	
12	132,556	188,201	153,760	176,390	192,767	203,843	156,635	205,000	
total	1,952,131	2,062,807	2,169,082	2,061,251	2,421,588	2,255,235	2,263,056	2,495,696	

BLAST FURNACE PRODUCTION (net tons/month)									
month	1986	1987	1988	1989	1990	1991	1992	1993	1994
1	143,437	89,931	153,171	93,682	164,925	150,713	173,739	170,141	157,484
2	98,392	77,756	135,772	91,616	148,404	133,608	162,818	154,107	175,540
3	132,711	151,559	113,491	150,474	169,449	143,364	173,613	173,453	196,360
4	143,340	91,380	148,890	147,690	167,318	161,388	168,325	173,707	182,527
5	139,345	150,970	161,169	159,898	173,396	174,700	174,661	178,714	187,766
6	140,610	155,220	153,840	154,800	162,136	166,374	157,507	175,806	184,430
7	141,577	154,535	156,302	163,928	169,738	149,959	174,651	183,744	186,723
8	139,407	152,210	150,784	104,656	170,399	178,011	182,629	187,742	
9	134,490	150,480	156,090	165,780	148,870	172,407	114,551	179,321	
10	132,494	151,621	156,984	160,518	167,405	168,123	125,780	185,734	
11	135,900	154,350	150,210	150,780	167,573	170,330	175,665	178,574	
12	107,012	152,737	124,434	150,319	160,251	173,513	129,677	178,938	
total	1,588,715	1,632,749	1,761,137	1,694,141	1,969,864	1,942,490	1,913,616	2,119,981	

Blast Furnace and BOF Shop Production
Base Period for Netting Analysis

BOF PRODUCTION (net tons/month)

month	*1992*	*1993*	*1994*	*Total (24 months)*	*Avg. (12 months)*	*Average (NTPD)*
1		202,208	182,626			
2		183,411	201,262			
3		205,652	226,972			
4		200,932	211,520			
5		213,685	218,556			
6		209,603	211,124			
7		216,556	213,900			
8	213,186	217,920				
9	136,526	211,498				
10	151,808	218,585				
11	207,000	210,646				
12	156,635	205,000				
total	865,155	2,495,696	1,465,960	4,826,811	2,413,406	6,612

BLAST FURNACE PRODUCTION (net tons/month)

month	1992	1993	1994			
1		170,141	157,484			
2		154,107	175,540			
3		173,453	196,360			
4		173,707	182,527			
5		178,714	187,766			
6		175,806	184,430			
7		183,744	186,723			
8	182,629	187,742				
9	114,551	179,321				
10	125,780	185,734				
11	175,665	178,574				
12	129,677	178,938				
total	728,302	2,119,981	1,270,830	4,119,113	2,059,557	5,643

BASE PERIOD FUEL USE

	BFG (MMBtu)					BFG (MMcf)						
Source	Aug - Dec '92	1993	Jan - Jul '94	Total	Average	Average						
"A" Stoves	547,311	1,861,751	1,234,705	3,643,767	1,821,884	22,774						
"B" Stoves	752,802	1,792,114	1,007,535	3,552,451	1,776,226	22,203						
Boilers 1-10	1,125,491	3,288,275	1,586,436	6,000,202	3,000,101	37,501						
Boiler 11	164,301	417,788	269,591	851,680	425,840	5,323						
Boiler 12	319,314	582,520	235,193	1,137,027	568,514	7,106						
B.F. Flare	850,135	2,124,204	1,406,818	4,181,158	2,090,579	26,132						
Slab Furnaces 1 - 4												
Casters												
Totals				19,366,285	9,683,143	121,039						
	#6 Oil (MMBtu)					# 6 Oil (Mgals)	NG (MMBtu)					NG (MMcf)
Source	Aug - Dec '92	1993	Jan - Jul '94	Total	Average	Average	Aug - Dec '92	1993	Jan - Jul '94	Total	Average	Average
"A" Stoves												
"B" Stoves												
Boilers 1-10							102,015	195,510	437,409	734,934	367,467	361
Boiler 11	0	1,013	3,638	4,651	2,326	15	43,915	240,390	175,846	460,151	230,076	226
Boiler 12	0	300	0	300	150	1	97,964	240,760	106,361	445,085	222,543	218
B.F. Flare										0	0	0
BOF Preheaters/Dryers							123,962	288,958	154,814	577,735	288,868	283
Totals				4,951	2475.5	16				2,217,805	1,108,953	1,088


APPENDIX C

EMISSION CHANGING PROJECTS SINCE 1986 (TPY)

Project	Effective Date	PM_{10}	SO_2	NO_x	CO	VOM
Removal Blast Furnace Slag Spout Hood	January 1990	+4.9				
#2 Caster Production	December 1990	+11.7				
Ingot Teeming Shutdown	April 1991	-22.4				
Installation of NESHAP Controls Coke By-Product	July 1991					-31.63
Shutdown of Blooming Mill	April 1991	-3.38	-0.34	-217.82	-22.12	-0.92
Shutdown of Batch Annealing	December 1991	-0.18	-0.04	-8.72	-1.19	-0.31
Net Change		-9.36	-0.38	-226.54	-23.42	-32.86

REMOVAL OF BLAST FURNACE SLAG SPOUT HOOD - JANUARY 1990

Based on May 8, 1969 submittal for modification of operating permit for "A" and "B" Blast Furnaces. +4.9 TPY

#2 CASTER PRODUCTION - DECEMBER 1990

Summary of Project Emission Changes (tons/yr)[1] (Assuming all steel produced is continuous cast)

Argon Stirring and Baghouse	4.85
Tundish with Shrouds	--
Powder Addition	7.49
Slab Casting	2.01
Slab Cut-off	9.03
Slab Ripping and Baghouse	2.58
	26.0 tons/yr PM_{10}
Caster #1 Actual Emissions	14.3 tons/yr PM_{10}
Caster #2 Actual Emissions	26.0 - 14.3 = 11.7 tons/yr PM_{10}

INGOT TEEMING SHUTDOWN - APRIL 1991

670,000 tons/yr * 0.067 lbs/ton = 22.4 tons/yr PM_{10} reduction

[1]Reference - March 16, 1988 IEPA "Project Summary for Proposed Issuance of an Air Pollution Control Construction Permit for Continuous Caster"

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

INSTALLATION OF NESHAP CONTROLS AT COKE BY-PRODUCT PLANT

VOC Emissions Reduction at Coke By-Product Plant after Installation of NESHAPS Controls

It was reported, in Attachment 2 of the October 8, 1991 submittal of additional information in application for modification of Operating Permits for the Granite City Division Emission Reduction Plant Production Increase Project, that the installation of benzene emission controls (NESHAPS) at the Coke By-Product Recovery Plant would provide a reduction of 31.6 TPY VOC other than benzene. The following is a demonstration of the derivation of that VOC emission reduction.

All calculations are based on 1990 coke production of 577,473 tons.

Emission factors are taken from the publication EPA-450/3-83-016a, "Benzene Emissions from Coke By-Product Recovery Plants - Background Information for Proposed Standards." The NESHAPS emission factors contained in this publication are for benzene only. The emissions of other light oil (L.O.) constituents were calculated by taking the ratio of the mole fraction of each L.O. constituent (liquid) times the vapor pressure of that constituent to the mole fraction of benzene (liquid) times the vapor pressure of benzene, then multiplying that ration by the calculated benzene emissions. It is assumed that all emissions are vapors and that the vapors are in equilibrium with the liquid light oil.

Sample calculation:

For the direct water cooling tower, benzene emissions are calculated as follows:

$$(577{,}473 \text{ tons coke}) \times \frac{2000 \text{ lb.}}{\text{ton}} \times \frac{454 \text{g}}{\text{lb.}} \times \frac{1 \text{ Mg}}{10^6 \text{g}} = 524{,}346 \text{ Mg coke}$$

$$\frac{524{,}346 \text{ Mg coke}}{\text{yr.}} \times \frac{270 \text{g}}{\text{Mg}} \times \frac{1 \text{ lb.}}{454 \text{g}} = 311{,}836 \text{ lb./year}$$

where 270g/Mg = uncontrolled benzene emission factor from Table 3 - 7, attached.

From the Light Oil Constituents table, attached,

Benzene: $y(P^\circ) = .71(96) = 68.16$

where .71 = benzene mole fraction
and 96 = benzene vapor pressure

Similarly,

Toluene: $y(P^\circ) = .159(30) = 4.77$

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Hence, the toluene emissions, with no controls, from the direct water cooling tower are

$$\frac{4.77}{68.16} \text{ (311,836 lb/yr.)} = 21{,}823 \text{ lb. toluene/year}$$

Toluene emissions after installation of NESHAPS controls with 100% efficiency are

21,823 lb. toluene (100 - 100) = 0 lb. toluene/yr.

Emission of benzene, toluene, xylene, ethylbenzene and styrene are calculated, as above, for the various emission sources at the By-Product Plant and presented in the table Emissions of Light Oil Constituents after Installation of NESHAPS Controls at the Coke Oven By-Products Plant, attached.

The non-benzene emissions controlled by the NESHAPS project are then calculated, for each light oil constituent considered, by subtracting the total emissions after controls were applied at all sources from the total emissions prior to application of controls at all sources. These calculations are presented in the table entitled Non-Benzene Emissions Controlled by NESHAPS Project, attached.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Non-Benzene Emissions Controlled by NESHAPS Project

	Total Uncontrolled Emissions	-	Total Uncontrolled Emissions after NESHAPS Controls Installed	=				=	
Toluene	59,584	-	997	=	58,587 lbs.	x	1T / 2000	=	29.3 tons/yr.
Xylene	2,871	-	48	=	2,823 lbs.	x	1T / 2000	=	1.4 tons/yr.
Ethylbenzene	959	-	10	=	949 lbs.	x	1T / 2000	=	0.5 tons/yr.
Styrene	868	-	9	=	859 lbs.	x	1T / 2000	=	0.4 tons/yr.
									31.6 tons/yr.

SEP 13 '94 04:29PM GCS ENVIRONMENTAL

Emissions of Light Oil Constituents after Installation of NESHAPS Controls at the By-Product Plant

By-Product Source	Uncontrolled Benzene Factor (g Mg)	NESHAPS Control	NESHAPS Control Effiency %	Benzene (lb./yr.) A*	Benzene (lb./yr.) B**	Toluene (lb./yr.) A	Toluene (lb./yr.) B	Xylene (lb./yr.) A	Xylene (lb./yr.) B	Ethylbenzene (lb./yr.) A	Ethylbenzene (lb./yr.) B	Styrene (lb./yr.) A	Styrene (lb./yr.) B
Direct Water Cooling Tower	270	Tar Spray Final Cooler	100	311,836	0	21,823	0	1,050	0	351	0	317	0
Light Oil Condenser Vent	89	Gas Blanket	98	102,790	2,056	7,193	144	346	7	116	2	105	2
Napthlene Separator	87	Tar Spray	100	100,480	0	7,032	0	339	0	113	0	102	0
Napthalene Processing	20	Tar Spray	100	23,099	0	1,617	0	78	0	26	0	23	0
Tar-intercepting Sump	95	Gas Blanket	98	109,720	2,194	7,678	154	370	7	124	3	112	2
Tar Dewatering	21	Steam Blanket	98	24,254	485	1,697	34	82	2	27	1	25	1
Tar Decanter	77	Steam Blanket	98	88,931	1,779	6,224	125	300	6	100	2	90	2
Tar Storage	12	Steam Blanket	98	13,859	277	970	19	47	1	16	0	14	0
Light Oil Sump	15	Gas Blanket	98	17,324	347	1,212	24	58	1	20	0	18	0
Light Oil Storage	5.8	Gas Blanket	98	6,699	134	469	9	23	1	8	0	7	0
BTX Storage (TLO)	5.8	Gas Blanket	98	6,699	134	469	9	23	1	8	0	7	0
Leaks	14	Manual Detection	88	16,169	1,940	1,132	136	55	7	18	2	16	2
lushing Liquor Circulation Tank	9	Steam Blanket	98	10,395	208	727	15	35	1	11	0	11	0
ccess Ammonia Liquor Tank	9	Steam Blanket	98	10,395	208	727	15	35	1	11	0	11	0
ash Oil Decanter	3.8	Uncontrolled	0	4,389	4,389	307	307	15	15	5	0	5	0
ash Oil Circulating Tank	3.8	Gas Blanket	98	4,389	88	307	6	15	0	5	0	5	0
				851,428	14,239	59,584	997	2,871	48	959	10	868	0

*Uncontrolled emissions

**Emissions after NESHAPS controls installed

SEP 13 '94 04:29PM GCS ENVIRONMENTAL P.11

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

LIGHT OIL CONSTITUENTS

Chemical	Weight fraction (X)	MW	X/MW	Mole fraction (y)	P° at 25°C
enzene	.5925	78.11	.0076	.710	96 mm Hg
oluene	.1598	92.13	.0017	.159	30
ylene (mixed)	.0336	106.16	.0003	.028	8.2
ylbenzene	.0100	106.16	.00009	.008	9.6
rene	.0136	104.14	.0001	.009	7.7
hthalene	.005	128.16	.00004	.004	<1
bon disulfide	.003	76.14	.00004	.004	366
marin	.0367	118.13	.00031	.029	100
lohexane	.0009	84.16	.00001	.001	98
lohexene	.0276	82.14	.00034	.032	100
lopentadiene	.0064	66.10	.00009	.008	600
lene	.0029	70.13	.00004	.004	654
tane	.0014	72.15	.00002	.002	533
ophene	.0024	84.13	.00003	.003	79
,5-trimethylbenzene	.0028	120.20	.00002	.002	7.0
,3-trimethylbenzene	.0130	120.20	.0001	.002	6.8

$\Sigma \frac{X}{MW} = .01071$

* Benzene, toluene, and xylene weight fractions were the average of two analysis OM of light oil samples: Environmetrics on March 1, 1991, and by Doug Stracke of Granite City Steel on March 24, 1985.

Average molecules weight of light oil = EyM = 84.47
Average vapor pressure of light oil = EyP = 89.67

SEP 13 '94 04:30PM GCS ENVIRONMENTAL

SEP 13 '94 04:30PM GCS ENVIRONMENTAL
Electronic Filing: Received, Clerk's Office 09/13/2024 **PCB 2024-072**

Office of Air Quality Planning and Standards
Environmental Protection Agency
Research Triangle Park NC 27711
Air
EPA-450/3-83-016a
May 1984

EPA

Benzene Emissions from Coke By-Product Recovery Plants - Background Information for Proposed Standards

Draft EIS

RECEIVED
JUL 12 1984
DEQO

NESHAP

B-11

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

TABLE 3-7. UNCONTROLLED BENZENE EMISSION FACTORS FOR COKE BY-PRODUCT PLANTS

Source	Emission factor (g benzene/Mg coke)	Industry emissions (Mg/yr)[36]
Cooling tower		
Direct-water	270	6,340
Tar-bottom	70	1,090
Light-oil condenser vent	89	4,080
Naphthalene separation	87	2,040
Naphthalene processing	20	470
Tar-intercepting sump	95	5,360
Tar dewatering	21	1,090
Tar decanter	77	4,350
Tar storage	12	680
Light-oil sump	15	780
Light-oil storage	5.8	300
BTX storage	5.8	80
Benzene storage	5.8	80
Flushing-liquor circulation tank	9	510
Excess-ammonia liquor tank	9	510
Wash-oil decanter	3.8	180
Wash-oil circulation tank	3.8	180
Pump seals	a	600
Valves	a	400
Pressure-relief devices	a	270
Exhausters	a	30
Sample connections	a	50
Open-ended lines	a	20
Total (rounded)		29,000

[a] Emissions were estimated on the basis of number of potentially leaking units. Emission factors are listed in Table 3-6.

SHUTDOWN OF BLOOMING MILL - APRIL 1991

Coke oven gas consumed at Soaking Pits, 1,076,926 MMBtu in 1990

The coke oven gas which was consumed at the Blooming Mill Soaking Pits (firing rate 408 MMBtu/hr/furnace) is to be used at the Hot Strip Slab Furnaces (1-3) (firing rate 321.8 MMBtu/hr/furnace) and Slab Furnace 4 (firing rate 495 MMBtu/hr).

The emission reductions for the displaced use of natural gas on the slab reheat furnaces is based on the AIRS 1990 emission factor for natural gas sources greater than 100 MMBtu/hr and the "ACT for NO_x Emissions from Iron and Steel Mills".

1990

Coke Oven Gas Soaking Pits - General (< 10 MMBtu/hr)

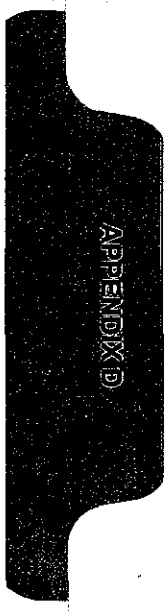
44,134 * 0.003 * 1/2000 = 0.066 tpy PM_{10} emission reduction
44,134 * 0.0006 * 1/2000 = 0.013 tpy SO_2 emission reduction
44,134 * 0.10 * 1/2000 = 2.21 tpy NO_x emission reduction
44,134 * 0.0053 * 1/2000 = 0.12 tpy VOM emission reduction
44,134 * 0.02 * 1/2000 = 0.44 tpy CO emission reduction

Natural Gas Blooming Mill (< 10 MMBTU/hr)

18,083 * 0.003 * 1/2000 = 0.027 tpy PM_{10} emission reduction
18,083 * 0.0006 * 1/2000 = 0.005 tpy SO_2 emission reduction
18,083 * 0.10 * 1/2000 = 0.90 tpy NO_x emission reduction
18,083 * 0.0053 * 1/2000 = 0.05 tpy VOM emission reduction
18,083 * 0.02 * 1/2000 = 0.18 tpy CO emission reduction

Coke Oven Gas Soaking Pits

1,076,926 * 0.005 * 1/2000 = 2.69 tpy PM_{10} emission reduction
1,076,926 * 0.0006 * 1/2000 = 0.32 tpy SO_2 emission reduction
1,076,926 * 0.399 * 1/2000 = 214.71 tpy NO_x emission reduction
1,076,926 * 0.0014 * 1/2000 = 0.75 tpy VOM emission reduction
1,076,926 * 0.04 * 1/2000 = 21.54 tpy CO emission reduction


APPENDIX D

Granite City Steel Company
PM-10 Netting Analyses (Unpaved Roads)

Road	Segment	Current						Production Ratio	Proposed and Contemporaneous Reductions				Net Change in Emissions**	
		Uncontrolled Emissions				Controlled Emissions			Uncontrolled Emissions		Controlled Emissions*			
		lb/day	lb/day (1)	TPY	TPY (1)	lb/day	TPY		lb/day	TPY	lb/day	TPY	lb/day	TPY
South Plant	B	78.05	78.05	9.91	9.91	39.03	4.96	1.00	78.05	9.91	7.81	0.99	(31.22)	(3.96)
	C	59.03	59.03	7.46	7.46	29.52	3.73	1.00	59.03	7.46	5.90	0.75	(23.61)	(2.98)
Steelworks	E	69.36	69.36	8.79	8.79	34.68	4.40	1.00	69.36	8.79	6.94	0.88	(27.74)	(3.52)
	F***	1,175.07	1,373.66	148.15	173.19	686.83	86.59	Paved	0.00	0.00	0.00	0.00	(686.83)	(86.59)
	G***	31.36	36.66	3.96	4.63	36.66	4.63	Paved	0.00	0.00	0.00	0.00	(36.66)	(4.63)
	H	89.06	89.06	11.24	11.24	89.06	11.24	1.00	89.06	11.24	8.91	1.12	(80.15)	(10.12)
	J	64.03	64.03	8.10	8.10	32.02	4.05	1.00	64.03	8.10	6.40	0.81	(25.61)	(3.24)
	L	1,274.92	1,490.38	161.37	188.64	1,490.38	188.64	1.56	2,322.01	293.90	232.20	29.39	(1,258.18)	(159.25)
	R***	20.31	23.74	2.57	3.00	11.87	1.50	Paved	0.00	0.00	0.00	0.00	(11.87)	(1.50)
BOF	N	219.34	256.41	27.75	32.44	256.41	32.44	1.56	399.48	50.54	39.95	5.05	(216.46)	(27.39)
	P	224.98	263.00	28.44	33.25	131.50	16.62	1.56	409.76	51.80	40.98	5.18	(90.53)	(11.44)
Furnace	V***	518.08	605.64	65.65	76.74	302.82	38.37	Paved	0.00	0.00	0.00	0.00	(302.82)	(38.37)
	W***	59.24	69.25	7.49	8.76	34.63	4.38	Paved	0.00	0.00	0.00	0.00	(34.63)	(4.38)
	X***	1,885.37	2,204.00	238.15	278.40	2,204.00	278.40	Paved	0.00	0.00	0.00	0.00	(2,204.00)	(278.40)
	Y	87.52	87.52	11.06	11.06	87.52	11.06	1.00	87.52	11.06	8.75	1.11	(78.77)	(9.95)
	Z****	345.76	404.19	43.70	51.09	202.10	25.54	1/2-Paved	325.38	41.12	32.54	4.11	(169.56)	(21.43)
Area	D-D	331.41	387.42	41.87	48.95	193.71	24.47	1.61	624.52	78.90	62.45	7.89	(131.26)	(16.58)
	E-E	13.38	15.64	1.69	1.98	7.82	0.99	1.61	25.21	3.18	2.52	0.32	(5.30)	(0.67)
	F-F	12.12	14.17	1.53	1.79	14.17	1.79	1.61	22.84	2.88	2.28	0.29	(11.88)	(1.50)
	CS(1)	107.34	125.48	13.57	15.86	125.48	15.86	Paved	0.00	0.00	0.00	0.00	(125.48)	(15.86)
	CS(2)	66.82	66.82	8.49	8.49	66.82	8.49	1.00	66.82	8.49	6.68	0.85	(60.14)	(7.64)
	G-G	46.43	46.43	5.81	5.81	23.22	2.91	1.00	46.43	5.81	4.64	0.58	(18.57)	(2.32)
	Total:	**6,778.98**	**7,829.94**	**856.75**	**989.57**	**6,100.22**	**771.06**		**4,689.50**	**593.19**	**468.95**	**59.32**	**(5,631.27)**	**(711.74)**

*** Proposed controlled emissions include a 90% reduction for dust control measures.**
**** Net Change represents the difference in the proposed controlled and the current controlled emissions.**
***** Segments are proposed (or recently) paved and emissions are accounted for in the Paved Roads table.**
****** Half of the segment is proposed for paving. Proposed emissions reflect only the remaining unpaved portion.**
(1) Adjusted to account for 16.9% increase in production between the 1988 inventory year and the August 1992 through July 1994 base period.

Granite City Steel Company
PM-10 Netting Analyses (Paved Roads)

Road	Segment	Current						Production Ratio	Proposed				Net Change in Emissions**	
		Uncontrolled Emissions				Controlled Emissions			Uncontrolled Emissions		Controlled Emissions*			
		lb/day	lb/day (1)	TPY	TPY (1)	lb/day	TPY		lb/day	TPY	lb/day	TPY	lb/day	TPY
South Plant	A	142.97	142.97	26.09	26.09	142.97	26.09	1.00	142.97	26.09	71.49	13.05	(71.49)	(13.05)
Steelworks	D	250.54	292.88	45.72	53.45	292.88	53.45	1.56	456.31	83.27	228.15	41.63	(64.73)	(11.81)
	F***	0.00	0.00	0.00	0.00	0.00	0.00	1.56	534.22	97.50	267.11	48.75	267.11	48.75
	G***	0.00	0.00	0.00	0.00	0.00	0.00	1.56	55.62	10.15	27.81	5.08	27.81	5.08
	K	34.13	39.90	6.23	7.28	39.90	7.28	1.56	62.16	11.35	31.08	5.67	(8.82)	(1.61)
	M	40.50	47.34	7.39	8.64	47.34	8.64	1.56	73.76	13.46	36.88	6.73	(10.46)	(1.91)
	R***	0.00	0.00	0.00	0.00	0.00	0.00	1.56	23.74	4.33	11.87	2.17	11.87	2.17
BOF	O	206.10	240.93	37.61	43.97	240.93	43.97	1.56	375.37	68.50	187.69	34.25	(53.25)	(9.72)
Furnace	V***	0.00	0.00	0.00	0.00	0.00	0.00	1.10	72.04	13.15	36.02	6.57	36.02	6.57
	W***	0.00	0.00	0.00	0.00	0.00	0.00	1.10	75.31	13.74	37.66	6.87	37.66	6.87
	X***	0.00	0.00	0.00	0.00	0.00	0.00	1.61	565.75	103.25	282.87	51.62	282.87	51.62
	Z****	0.00	0.00	0.00	0.00	0.00	0.00	1.61	65.96	12.04	32.98	6.02	32.98	6.02
North Plant	S	98.31	98.31	17.84	17.84	98.31	17.84	1.00	98.31	17.84	49.16	8.92	(49.16)	(8.92)
	T	115.56	115.56	21.09	21.09	115.56	21.09	1.00	115.56	21.09	57.78	10.55	(57.78)	(10.55)
Area	CS(1)***	0.00	0.00	0.00	0.00	0.00	0.00	1.00	16.47	3.01	8.24	1.50	8.24	1.50
	Total:	**888.11**	**977.89**	**161.97**	**178.35**	**977.89**	**178.35**		**2,733.55**	**498.76**	**1,366.78**	**249.38**	**388.88**	**71.02**

* Proposed controlled emissions include a 50% reduction for road sweeping dust control measures.
** Net Change represents the difference in the proposed controlled and the current controlled emissions.
*** Segments are currently unpaved and current emissions are accounted for in the Unpaved Roads table.
**** Half of the segment is proposed for paving. Proposed emissions reflect only the paved portion.
(1) Adjusted to account for 16.9% increase in production between the 1988 inventory year and the August 1992 through July 1994 base period.

Granite City Steel Company
PM-10 Netting Analyses (Materials Handling)

Material	Current Uncontrolled Emissions				Current Controlled Emissions		Production Ratio	Proposed Uncontrolled Emissions		Proposed Controlled Emissions		Net Change in Emissions*	
	lb/day	lb/day (1)	TPY	TPY (1)	lb/day	TPY		lb/day	TPY	lb/day	TPY	lb/day	TPY
Coal	7.99	9.34	1.45	1.70	9.34	1.70	1.00	9.34	1.70	9.34	1.70	0.00	0.00
Coke	34.89	40.79	6.37	7.45	40.79	7.45	1.56	63.55	11.60	63.55	11.60	22.76	4.16
Coke Breeze	0.06	0.07	0.01	0.01	0.07	0.01	1.56	0.11	0.02	0.11	0.02	0.04	0.01
Pellets	36.67	42.87	6.71	7.84	42.87	7.84	1.56	66.79	12.22	66.79	12.22	23.92	4.38
Limestone	8.82	10.31	1.61	1.88	10.31	1.88	1.56	16.06	2.93	16.06	2.93	5.75	1.05
	88.43	**103.37**	**16.15**	**18.88**	**103.37**	**18.88**		**155.85**	**28.47**	**155.85**	**28.47**	**52.47**	**9.59**

*** Net Change represents the difference in the proposed controlled and the current controlled emissions.**
(1) Adjusted to account for 16.9% increase in production between the 1988 inventory year and the August 1992 through July 1994 base period.

Electronic Filing: Received, Clerk's Office 06/12/2024 *PCB 2024-077

119 813 AAT

FOR G.C. Steel

DRAFT REPORT

RECEIVED
DEC 22 1994
IEPA - DAPC - SPFLD

Best Available Control Technology (BACT) Review for a Proposed Production Increase

RECEIVED
[illegible]
COLLINSVILLE [illegible]

Prepared for:

Granite City Division of National Steel Corporation Granite City, Illinois

Prepared by:

Woodward-Clyde
2318 Millpark Drive
St. Louis, Missouri

4E08109
December 1994

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

TABLE OF CONTENTS

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

SR 2094

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

1.0
DESCRIPTION OF EXISTING MILL

1.1 GENERAL DESCRIPTION OF MILL

The Granite City Division of National Steel Corporation owns and operates an integrated steel mill in Granite City, Illinois. Integrated steel manufacturing involves raw material preparation, iron production, iron preparation, and steel production.

1.2 GENERAL PROCESS DESCRIPTION

In this mill, iron is produced in blast furnaces by reducing iron bearing material with a hot gas. The charge, consisting of iron ore, coke, limestone, and other materials, is heated to a temperature above 900°C in the blast furnace. Air heated from 870°C to 1100°C is blown through tuyeres into bottom of the furnace. Oxygen in the air reacts with coke, forming carbon monoxide, which in turn reduces the iron oxides in the ore to iron. Limestone and other fluxs in the charge combine with the sulfur in the ore to form sulfates, which float to the top of the mix and are removed in the slag. A trace amount of sulfur are present in the blast furnace gas as it exits due to the reactions and oxidation taking place in the furnace. Molten iron and slag, accumulated in the hearth of the furnace, are drained into a trough equipped with a skimmer and a dam, resulting in the separation of molten iron from the slag.

The molten iron is further desulfurized by injecting a desulfurization reagent through a lance into the hot metal in the torpedo car using a carrier gas. This process is conducted in a desulfurization station located inside the BOF shop. The constituents of this reagent are typically CaC_2 which desulfurizes the molten metal, and $CaCO_3$ which provides the CO_2 gas required to mix the metal with the desulfurization agent. This treatment can reduce the sulfur content of the metal to less than 0.005%. Sulfur in the molten metal react to form calcium sulfate compounds, which are skimmed off the molten metal as slag. A collection hood will collect emissions from the desulfurization process.

The basic oxygen furnace receives a charge composed of approximately 30% metal scrap and 70% molten iron. High purity oxygen is injected below the surface of the molten metal converting it into molten steel. Limestone is added to the charge to form a slag to capture the oxidation products.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

2.0
PROPOSED PROJECT

The Granite City Division of National Steel Corporation proposes to increase production from their two blast furnaces, two basic oxygen furnaces, and two continuous casters. Based on an analysis to determine the net emissions changes resulting from the proposed project, the production increase would result in a net increase of sulfur dioxide (SO_2), carbon monoxide (CO), nitrogen oxides (NO_x), total suspended particulate matter (TSP), volatile organic material (VOM), and lead (Pb) emissions. Emissions of particulate matter less than 10 microns in diameter (PM_{10}) would decrease as a result of the production increase.

The Granite City facility is located in an area that is designated as attainment for SO_2, CO, and Pb and nonattainment for ozone (including NO_x and VOM) and particulate matter (including TSP and PM_{10}). The net emission increases for SO_2 and CO are in excess of the applicable Prevention of Significant Deterioration (PSD) significance levels of 40 and 100 tons per year, respectively. Therefore, the proposed increase in production is considered a major modification requiring a Best Available Control Technology (BACT) analysis. The net emission increases for Pb and the nonattainment pollutants are all below the PSD and new source review (NSR) significance levels. Therefore no additional control technology analyses for these pollutants are necessary.

Related to the production increase, the amount of fuel used by the boilers at the mill will also increase. However, the increase in fuel use by the boilers will not bring total fuel use to an amount greater than allowed by Granite City Steel's existing permits. Also, the fuels types used by the boilers will not change. Therefore, the boilers are not considered part of the major modification and are exempt from BACT review as specified in the federal regulations at 40 CFR 52.21(b)(2)(iii). Increases in emissions due to increased fuel use will, however, be included in the air quality modeling analysis for this application.

It should also be noted that the actual increase in the use of blast furnace gas can only be estimated at this time. This is because actual operation of the blast furnaces at the proposed production level is needed to determine the actual increase in the blast furnace gas generated. Granite City Steel has estimated the increase in blast furnace gas for this application and is

confident that the total emissions associated with this fuel for the production increase will be no greater than that represented in this application. Depending on the actual fuel mix and steam demand that accompanies the production increase, Granite City Steel may consider replacement of some existing boilers or modifications to existing boilers to more efficiently use blast furnace gas which would otherwise be flared. Again, these boiler changes would not adversely affect the total emissions associated with the fuel mix. Such changes, if they appear prudent, will be discussed with IEPA prior to implementation.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

3.0
BEST AVAILABLE CONTROL REVIEW

3.1 REQUIREMENTS AND APPLICABILITY

BACT is defined as an emission limitation based on the maximum degree of reduction of each pollutant subject to regulation which would be emitted from any proposed major stationary source or major modification which the Administrator (on a case-by-case basis, taking into account energy, environmental and economic impacts, and other costs) determines is achievable for such pollutant. BACT limitations must not cause the exceedance of any applicable New Source Performance Standards (NSPS) and/or National Emission Standards for Hazardous Pollutants (NESHAP).

The requirement to conduct a BACT analysis and determination is set forth in Section 165(a)(4) of the Clean Air Act and in federal regulations at 40 CFR 52.21(j). BACT must also comply with all the applicable limits established by the State of Illinois.

BACT is required for each regulated major source pollutant emitted in excess of the significant emission rates. Individual BACT determinations are to be performed for each pollutant subjected to a PSD review emitted from the same emission unit. The BACT determination must also separately address, for each regulated pollutant with a significant emission increase at the source, air pollution controls for each emissions unit or pollutant emitting activity subject to review.

Based on emission estimates for the proposed project, a BACT review is required for both SO_2 and CO control for the proposed project and is presented in the following format:

- BACT procedures
- Control Technology Review
- Previous BACT Determinations
- BACT Conclusion

Preparation of the BACT analysis included in this document incorporates the most recent "top-down" BACT guidance (EPA, 1990) by United States Environmental Protection Agency (EPA) for PSD permit determinations. That is, for each pollutant, the most stringent emission limit potentially applicable for a given pollutant was considered and then compared to the proposed project to determine its technical and economic feasibility.

When the most stringent technically feasible emission limitation is not selected as BACT, justification must be provided in terms of adverse economic, environmental, or energy impacts. Several other factors may be considered in justification of rejecting more stringent controls, including:

a. A showing that utilizing the control would adversely impact the project's financial viability.

b. A showing that the costs associated with the control are significantly higher for this specific project than for other similar projects that have installed this control system or in general for controlling the pollutant.

c. A showing that those economic considerations outweigh the energy and environmental benefits.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

4.0
SO_2 CONTROL TECHNOLOGY REVIEW

4.1 REQUIREMENTS AND APPLICABILITY

The sources of SO_2 emissions impacted by the proposed production increases and considered as a part of the BACT review include the blast furnace stoves, the blast furnace casthouse, the ladle dryer preheater and the continuous casters. The increase in iron-making by the blast furnaces may correspondingly increase the production of process blast furnace gas.

4.2 INHERENTLY LOWER-EMITTING PROCESSES/PRACTICES

4.2.1 Blast Furnace Stoves

The blast furnace stoves will burn increased amounts of blast furnace gas and comparable amounts of natural gas to accommodate the production increase. Due to the low concentrations of SO_2 and other pollutants in blast furnace gas and natural gas, these products are typically thought of as clean burning fuels[1].

Emissions of SO_2 will be impacted by the quantity of fuel required and the sulfur content of the fuel. For example, blast furnace gas has trace amounts of sulfur but is lower in heating value than natural gas or fuel oil. Therefore, it takes a much greater volume of blast furnace gas to provide the same heat energy as these other fuels. The greater volume and respective sulfur concentration must be compared to the lower volumes and respective sulfur concentration for natural gas or fuel oil to determine a lower emitting practice.

Based on fuel data for each type of fuel used, the lowest emitting fuel for SO_2 is natural gas (approximately 6.0×10^{-4} lbs/mmBtu). The next lowest emitting fuel for SO_2 is blast furnace gas (approximately 8.3×10^{-2} lbs/mmBtu). There may be a small increase in fuel oil use associated with the production increase. Fuel oil combustion results in SO_2 emissions of approximately 1.0 lb/mmBtu.

Increased quantities of blast furnace gas will be produced by the blast furnaces with the proposed production increase. If this fuel is not used in the blast furnace stoves or in other combustion sources, it must be flared. Although blast furnace gas is a higher emitting fuel than natural gas, substituting natural gas at the blast furnace stoves would still result in the combustion of the blast furnace gas at the flare. Therefore, combustion of blast furnace gas in the blast furnace stoves is the inherently lowest emitting practice on a plantwide basis.

4.2.2 Casthouse Emissions

As discussed in Section 1.2, SO_2 emissions from iron-making operations are limited by process practices. At the blast furnace, sulfurous gases are removed by the molten iron oxide and flux. This effectively reduces SO_2 emissions to trace amounts[4]. No other lower emitting practices are in use in the steel industry[3,4,5].

4.2.3 Ladle Dryer Preheater and Continuous Caster Emissions

The ladle dryer preheater and continuous casters may require an increase in fuel usage as a result of the production increase. However, because natural gas is the only fuel used at these units, the lowest emitting practice is in place and will continue to be employed.

4.3 SO_2 CONTROL TECHNOLOGY OPTIONS

There are no add-on SO_2 control technologies currently in use in the steel industry for SO_2 control at blast furnace stoves using process blast furnace gas, or to control SO_2 at the blast furnace casthouse, ladle dryer preheater and continuous casters.

4.4 INFEASIBLE OPTIONS - SO_2

The proposed production increases to the blast furnaces will result in increased blast furnace gas generation and require additional fuel combustion in the blast furnace stoves. Blast furnace gas and natural gas are considered clean fuels and are the preferred supplemental fuels for the increased combustion needs based on inherently lower emitting practices.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Blast furnace gas is a low Btu fuel (approximately 80 Btu/cubic feet). Because of its low Btu value, large volumes of blast furnace gas are necessary to produce the required heat energy for the proposed production increases. Because the use of blast furnace gas in some processes is limited by other factors, such as physical limitations of the gas lines and burners, natural gas may also be used as a supplemental fuel. However, the overall quantity of natural gas usage throughout the plant will remain constant.

Blast furnace gas and natural gas typically contains approximately 0.01 and 0.001 percent sulfur (by weight). Based on these low sulfur concentrations, SO_2 reduction using add-on controls is technically infeasible.

4.5 SELECTED BACT - SO_2

Based on a review of the BACT/LAER clearinghouse, information obtained from the U.S. EPA Control Technology Group, and literature from the U.S. EPA Office of Air Quality Planning and Standards, no add-on BACT determination has been made for SO_2 emissions at these sources. Based on the extremely low concentrations of SO_2 in blast furnace gas, control of SO_2 emissions at blast furnace stoves is not practiced in the steel industry[3,4,5].

The combustion of blast furnace gas in the blast furnace stoves to supplement existing fuel combustion is the only feasible option to support the proposed production increases. Therefore, this option is determined as BACT for SO_2.

Sulfur dioxide emissions from the blast furnace casthouse are effectively controlled by the solubility of sulfur containing gases in the liquid iron oxide and the efficiency of fluxing to remove impurities, including SO_2. Based on the low SO_2 concentrations in casthouse emissions, reduction using add-on controls is technically infeasible. SO_2 emissions from the blast furnace casthouse are effectively reduced by using current industry work practices. This option is selected as BACT for casthouse SO_2 emissions.

The use of natural gas in the ladle dryer preheater and continuous casters is the only feasible control option to support the proposed production increases based on inherently lower emitting practices.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

5.0
CO CONTROL TECHNOLOGY REVIEW

5.1 REQUIREMENTS AND APPLICABILITY

The major sources of CO emissions impacted by the proposed production increases include the blast furnace stoves, the basic oxygen furnaces (BOF), the ladle dryer preheater and the continuous casters. CO emissions may increase as a result of additional process blast furnace firing in the stoves, additional steel production at the BOF and additional fuel requirements at the ladle dryer preheater and continuous casters. A BACT review requires an evaluation of inherently lower-emitting processes/practices and technically feasible add-on controls.

5.2 INHERENTLY LOWER-EMITTING PROCESSES/PRACTICES

5.2.1 Blast Furnace Stoves

CO formation results from the incomplete combustion of fossil fuels and oxidation of carbon containing materials. The better the combustion practices, the lower the CO formation.

Good combustion practices requires the following elements:

- Proper fuel/air mixture
- Proper mixing
- High temperature

Good combustion practice is the inherently lowest emitting method of controlling CO emissions from combustion sources[2,6].

5.2.2 Basic Oxygen Furnaces (BOF)

CO is formed in the BOFs by oxidizing carbon in the molten iron. Because high-purity oxygen is the industry standard for making steel, there is no lower-emitting practice for this source.

5.2.3 Ladle Dryer Preheater and Continuous Casters

The ladle dryer preheater and continuous casters may require an increase in fuel usage as a result of the production increase. However, because natural gas is the only fuel used at these units, the lowest emitting practice is in place and will continue to be employed.

5.3 CO CONTROL TECHNOLOGY OPTIONS

The following control technologies are currently available to control CO emissions from affected sources.

5.3.1 Blast Furnace Stoves

The following add-on control technology options are currently available to control CO emissions from the blast furnace stoves:

- Direct Combustion (flaring)
- Thermal Oxidization
- Catalytic Oxidation

5.3.1.1 Direct Combustion

Flaring is a combustion control process in which combustible gases are burned in an open flame in the open air using a specially designed burner tip. Completeness of combustion in a flare is governed by flame temperature, residence time in the combustion zone, turbulent mixing, and available oxygen. The major factors affecting flare combustion efficiency are gas flammability, auto-ignition temperature, heating value (Btu/scf), density, and flame zone mixing.

The heating value affects flame stability, emissions, and flame structure. A lower heating value produces a cooler flame that does not favor combustion and is more easily extinguished.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

5.3.1.2 Thermal Oxidizers

Thermal oxidizers refer to any device that uses a flame combined within an enclosed chamber to convert combustible gases to carbon dioxide and water. Thermal oxidizers operate most effectively at temperatures between 1,300 to 1,500°F with a residence time of 0.1 to 0.5 seconds. By raising the temperature, the residence time for complete combustion can be reduced and vice versa. However, temperature is the more important process variable. The removal efficiency for CO is in the range of 90 to 95 percent.

Besides temperature and residence time, the concentration of the pollutant in the gas stream also affects operation of the system. The concentration of the pollutant dictates the amount of supplemental fuel required. Low concentrations of the combustible gas require increased supplemental fuel usage.

5.3.1.3 Catalytic Oxidation

Catalytic incinerators employ a bed of active material (catalyst) that facilitates the overall combustion reaction. The catalyst is a substance that speeds up the rate of a chemical reaction at a given temperature without being permanently altered. The use of a catalyst in an enclosed combustor enables oxidation at temperatures in the range of 500 to 600°F. Common catalysts used in catalytic oxidation units are platinum or other metals. The catalysts are placed on an alumina pellet support or honeycomb support. The typical removal efficiency with this type of control is 90 percent.

Certain contaminants contained in the exhaust gas streams will chemically react or alloy with the catalyst and cause deactivation, including most heavy metal compounds. Sulfur is also considered a catalyst poison, but its effect is reversible.

5.3.2 Basic Oxygen Furnaces (BOF)

The BOF receives a charge composed of approximately 30 percent scrap and 70 percent molten iron and converts it to molten steel by utilizing a jet of high purity oxygen. The oxygen oxidizes the carbon and silicon in the molten iron, removes them, and provides heat for melting scrap.

Two primary systems for hooding and combustion of the BOF gases are currently used. The following control technologies are currently available and in use to control CO emissions from BOF vessels.

- Closed-hood combustion with exhaust stack flare
- Open-hood combustion with no additional controls

5.3.2.1 Closed-Hood Combustion w/Flare

A closed hood system suppresses combustion at the hood and collects the gases for combustion of CO at an exhaust stack flare. In a closed-hood system movable skirts seal the top of the furnace to limit air induction. Suppressed combustion hoods discourage air infiltration, with as low as 5 percent theoretical air. By suppressing combustion, the CO concentration is increased and the gases are more easily flared.

5.3.2.2 Open-Hood Combustion

Open combustion hoods allow excess air to be introduced in quantities up to 300 percent. With open hoods there is a gap between the hood and the furnace top into which air can be induced. In an open-hood system CO gases are combusted in the primary hood system with the addition of the excess air.

5.3.3 Ladle Dryer Preheater and Continuous Casters

There are no add-on CO control technologies currently in use in the steel industry for CO control at the ladle dryer preheater or continuous casters.

5.4 INFEASIBLE OPTIONS - CO

Low concentrations of CO are not effectively and efficiently controlled by emissions control devices[8]. Due to the low concentrations of CO gas in the exhaust stream of the blast furnace stoves, which are below the lower explosive limit (LEL) of 12.5 percent for CO, sustained

combustion (flaring) cannot occur[7] without the use of a supplemental fuel. Because the use of supplemental fuel at the flare would result in higher emissions of other pollutants and the formation of additional CO, this is an infeasible option.

The Granite City facility is already equipped with an open hood system on the BOFs where CO is combusted in the hood. Switching to a closed-hood system would require a large capital expense and would be economically infeasible. The residual CO from open-hood combustion is at a concentration level that is not technically feasible to treat further.

5.5 SELECTED BACT - CO

A review of BACT/LAER Clearinghouse, U.S. EPA Control Technology Group, and U.S. EPA Office of Air Quality and Planning literature was conducted to determine the current BACT status for sources within the steel industry. Based on this review and the previous evaluation of BACT options, the following BACT determinations for CO were made for sources impacted by the proposed production increases.

5.5.1 BACT - Blast Furnace Stoves

BACT literature indicates that blast furnace stoves at steel mills are not using add-on control equipment for CO emissions control. CO emissions can be adequately controlled by the use of good combustion practices. Therefore the BACT recommendation for control of CO emissions from the blast furnace stoves is the maintenance of good combustion practices.

5.5.1 BACT - Basic Oxygen Furnaces (BOF)

The open hood system used by Granite City Steel is a process control with the CO being combusted in the hood system. This type of process does not use add-on controls. After combustion in the open hood system, the CO average concentration is approximately 2500 ppm. This concentration is too low for additional CO control to be technically feasible[8]. Therefore, the existing open hood system is determined to be BACT for the BOFs.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

6.0
REFERENCES

1."Pollution Effects of Abnormal Operations in Iron and Steelmaking. Vol. I. U.S. Environmental Protection Agency. EPA- 600/2-78-118.

2. A.J. Buonicore and W.T. Davis. "Air Pollution Engineering Manual. "Van Nostrand Reinhold, New York, 1992.

3. A. Vervaert, U.S. EPA Office of Air Quality Planning and Standards, Control Technology Group, personal communication.

4. D. Schuerer, American Institute of Steel Industries, Technical Representative, Pittsburgh, Pa., personal communication.

5. E. Wojcheckowski, U.S. EPA Region V, Air and Radiation Section, personal communication.

6. Air Pollution Technology Institute, Course 427 "Combustion Evaluation", manual. EPA 450/2-80-063.

7. Office of Air Quality Planning and Standards, Control Cost Manual. EPA 450/3-90-006.

8. A. Marshall, John Zink Company, personal communication.

"Basic Oxygen Process Furnaces". U.S. Environmental Protection Agency. EPA 340/1-77-02.

Air Pollution Technology Institute, Course 415, "Control Of Gaseous Emissions, " manual. EPA 450/2-81-005.

Iron and Steel Plant Inspection Workshop. Volumes I and II. Pedco Environmental, Inc., 1983.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

DRAFT REPORT

Emission Netting Analysis for Proposed Production Increase

Prepared for:

Granite City Division of National Steel Corporation Granite City, Illinois

Prepared by:

Woodward-Clyde
2318 Millpark Drive
St. Louis, Missouri

4E08109
October, 1994

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

THIRD DRAFT

1.0
EXECUTIVE SUMMARY

The Granite City Division of National Steel Corporation intends to increase production at their Blast Furnaces, Basic Oxygen Furnaces, and Continuous Casters. The proposed production level is set out in the following table.

PRODUCTION AREA	PROPOSED PRODUCTION (NTPD)
BLAST FURNACE	9,100
BOF SHOP	10,300
CASTERS	10,300

There will be changes in regulated air pollutants accompanying this increase in production. Production related emission increases and contemporaneous emission changes were calculated in accordance with Illinois Environmental Protection Agency (IEPA) regulations for Construction and Modification of Major Stationary Sources (Part 203).

A baseline period for this analysis was chosen to be the period August 1992 through July 1994. Emission changes (related to the production increase and contemporaneous changes) were calculated for:

- Carbon Monoxide (CO)
- Nitrogen Oxides (NO_X)
- Sulfur Dioxide (SO_2)
- Particulate Matter less than 10 Microns (PM_{10})
- Particulate Matter (TSP)
- Volatile Organic Material (VOM)
- Lead (Pb)

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

The following conclusions were reached regarding the magnitude of the net emission changes related to the production increase and contemporaneous emissions changes:

POLLUTANT	NET EMISSION CHANGE
Carbon Monoxide	Significant
Nitrogen Oxides	Not Significant
Sulfur Dioxide	Significant
Total Suspended Particulate Matter	Not Significant
Particulate Matter less than 10 Microns	Not Significant
Volatile Organic Material	Not Significant
Lead	Not Significant

On the basis of these results, only carbon monoxide (CO) and sulfur dioxide (SO_2) will be considered further in the New Source Review process. Information contained in this report concerning the net emission changes for the significant pollutants are presented for information only since these pollutants will be considered in the review process.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

2.0 INTRODUCTION

The Granite City Division of National Steel Corporation intends to increase production at their blast furnaces, basic oxygen furnaces, and continuous casters. These increases in production require that air quality permitting issues be considered.

The first step in the air quality permitting process is a "netting" evaluation. This evaluation is used to determine whether an air quality permit and subsequent New Source Review is needed. The analysis considers the increase in emissions that will accompany the proposed project. The increase is measured against a base period which is typically taken as the actual annual emissions averaged over the 24 most recent months. Other base periods can be established if they can be shown to be more representative of normal source operations.

The base period used for this analysis is August 1, 1992 through July 31, 1994. This period was selected because it represents the most recent available 24 month period consistent with IEPA Regulation 203.104. While this period has been used for this analysis, it should be noted that there was significant downtime related to furnace repairs in 1992 which has the effect of depressing base period production.

Changes in emissions expected as a result of the proposed increase in production were in most cases scaled from the base period average actual annual emission rate based on fuel usage and production rates consistent with the proposed production increase. A factor was developed by dividing the proposed production levels by the base period production levels as shown in the following table. (Appendix A contains additional information on the base period production and fuel use. Figure 1 shows production trends for the mill.)

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

PRODUCTION AREA	AUGUST 1992 - JULY 1994 PRODUCTION (NTPD)	PROPOSED PRODUCTION (NTPD)	RATIO
BLAST FURNACE	5,643	9,100	1.613
BOF SHOP	6,612	10,300	1.558
CASTERS	6,612	10,300	1.558

In certain instances where there is an allowable emission limitation, that limitation was used as the basis of calculating the potential emissions levels associated with the proposed production limit increases.

The netting analysis also considers contemporaneous emission changes, both increases and decreases. Contemporaneous changes are defined as changes that have occurred over the past five years.

The analysis is carried out individually for each pollutant that will be effected by the proposed change in source operations. In this case, emissions of Sulfur Dioxide (SO_2), Particulate Matter (TSP and PM_{10}), Nitrogen Oxides (NO_X), Volatile Organic Material (VOM), Lead (Pb), and Carbon Monoxide (CO) were evaluated.

For each pollutant for which the source is major, the net emission change is compared against significance levels specified in new source review guidelines. If the net changes in emissions that result from the planned project plus contemporaneous changes for any single pollutant exceed the applicable significance level, the project is treated as a major modification of the source. The significance levels applicable for this project are:

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Pollutant	Significance Level (tons per year)
Carbon Monoxide	100
Nitrogen Oxides	40
Sulfur Dioxide	40
Total Suspended Particulate	25
Particulate Matter < 10 microns	15
Volatile Organic Material	40
Lead	0.6

The procedures, assumptions, and results are discussed for each pollutant considered.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

3.0
CARBON MONOXIDE

CO emissions that would be affected by the proposed production increase include the following:

- Blast Furnace Stoves
- Boilers 1-12
- BOF Vessels
- Continuous Casters
- By-Products Flare
- Ladle Dryer & Preheater

Table 1 presents the estimated increases in CO emissions associated with the production increase. The total increase in CO emissions is 6,514 tons per year.

Based on information provided by Granite City Steel, there have been two projects within the five year contemporaneous time frame which resulted in changes to CO emissions. Appendix B presents information on the emission changing projects.

Projects considered in calculating the net emission change are listed in the table below.

PROJECT	DATE	EMISSION CHANGE (tpy)
Shutdown of Blooming Mill	April 1, 1991	-22.1
Shutdown of Batch Annealing	December, 1991	-1.2
Net Decrease		**-23.3**
Proposed Production Increase	To Be Determined	+6,513.7
Net Emission Change		**+6,490.4**

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

On the basis of these calculations, the proposed production increase would result in a net CO emission increase in excess of the significance level (100 tpy). Thus the production increase would be classified as a major modification and Prevention of Significant Deterioration review requirements would apply for this pollutant.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

4.0
NITROGEN OXIDES

Nitrogen Oxides emission sources that would be affected by the proposed production increase include the following:

- Blast Furnace Stoves
- Boilers 1-12
- BOF Vessels
- Caster Molds
- Continuous Casters
- By-Products Flare
- Ladle Dryer & Preheater
- Blast Furnace Casthouse

Table 2 presents the estimated increases in NO_X emissions associated with the production increase. The total increase in NO_X emissions is estimated to be 256 tons per year.

Based on information provided by Granite City Steel, there have been two projects within the five year contemporaneous time frame which resulted in changes to NO_X emissions. Appendix B presents information on the emission changing projects.

Projects considered in calculating the net emission change are listed in the table below.

PROJECT	DATE	EMISSION CHANGE (tpy)
Shutdown of Blooming Mill	April 1, 1991	-217.8
Shutdown of Batch Annealing	December, 1991	-8.7
Net Decrease		**-226.5**
Proposed Production Increase	To Be Determined	+256.3
Net Emission Change		**+29.8**

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

On the basis of these calculations, the proposed production increase would result in a net NO_X emission change below the significance level (40 tpy). Thus the production increase would not require Prevention of Significant Deterioration (for NO_2) or Nonattainment New Source Review (for O_3).

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

5.0
SULFUR DIOXIDE

SO_2 emissions that would be affected by the proposed production increase include the following:

- Blast Furnace Stoves
- Boilers 1-12
- BOF Vessels
- Blast Furnace Casthouse
- Continuous Casters
- By-Products Flare
- Ladle Dryer & Preheater

Table 3 presents the estimated increases in SO_2 emissions associated with the production increase. The expected increase in SO_2 emissions is 481 tons per year.

Based on information provided by Granite City Steel, there have been two projects within the five year contemporaneous time frame which resulted in changes to SO_2 emissions. Appendix B presents information on the emission changing projects.

Projects considered in calculating the net emission change are listed in the table below.

PROJECT	DATE	EMISSION CHANGE (tpy)
Shutdown of Blooming Mill	April 1, 1991	-0.34
Shutdown of Batch Annealing	December, 1991	-0.04
Net Decrease		**-0.4**
Proposed Production Increase	To Be Determined	+481.8
Net Emissions Change		**+481.4**

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

On the basis of these calculations, the proposed production increase would result in a net SO_2 emission increase in excess of the significance level. Thus the production increase would be classified as a major modification and Prevention of Significant Deterioration requirements would apply for this pollutant.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

6.0
PARTICULATE MATTER

Particulate Matter (PM_{10} and TSP) emissions that would be affected by the proposed production increase include the following:

- Blast Furnace Stoves
- Boilers 1-12
- By-Products Flare
- BOF Vessels
- Continuous Casters
- Ladle Dryer & Preheater
- Blast Furnace Process Emission Points
- BOF Shop Process Emission Points
- Continuous Caster Process Emission Points
- Fugitive Emissions from Roads and Materials Handlings

Particulate matter emission increases are affected by the types and amounts of fuel used in each process unit that will be affected by the production increase.

Appendix C presents information regarding fugitive emissions increases from roads and materials handling areas. Figures 3 through _ show the road network used in this analysis.

The baseline set of information used is from a 1988 fugitive emission inventory. Based on that information, emissions were scaled to a base period (August, 1992 to July 1994) estimate using the increase in production (16.9%) and then reductions were calculated to reflect road paved or to be paved for credit, and additional proposed controls to paved and unpaved roads.

The specific fugitive dust control program that is proposed in addition to paving includes:

- three times a month spraying of unpaved roads (except when not required because of naturally wet or frozen conditions); and
- daily sweeping of paved roads shown on Figure 3, Figure _,.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Table 4 and Table 5 present the estimated changes in PM_{10} and TSP emissions associated with the production increases and fugitive dust controls to roads. The total increase in PM_{10} and TSP emissions is 8 and 26 tons per year, respectively. In both cases, the decrease in emissions are due to reductions in unpaved road fugitive dust emissions, paving of some previously unpaved roads, and sweeping of paved roads.

Based on information provided by Granite City Steel, there have been five projects (in addition to control of fugitive emissions from roads) within the five year contemporaneous time frame which resulted in changes to PM_{10} emissions. Appendix B presents information on the emission changing projects.

Projects considered in calculating the net PM_{10} emission change are listed in the table below.

PROJECT	DATE	PM_{10} EMISSION CHANGE (tpy)
Remove Blast Furnace Slag Spout Hood	January, 1990	+4.9
# 2 Caster Production	December 1, 1990	+11.7
Ingot Teeming Shutdown	April 1, 1991	-22.4
Shutdown of Blooming Mill	April 1, 1991	-3.4
Shutdown of Batch Annealing	December, 1991	-0.2
Net Decrease		**-9.4**
Proposed Production Increase	To Be Determined	+7.9
Net Emissions Change		**-1.5**

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Projects considered in calculating the net TSP emission change are listed in the table below.

PROJECT	DATE	TSP EMISSION CHANGE (tpy)
Remove Blast Furnace Slag Spout Hood	January, 1990	+4.9
# 2 Caster Production	December 1, 1990	+11.7
Ingot Teeming Shutdown	April 1, 1991	-22.4
Shutdown of Blooming Mill	April 1, 1991	-3.4
Shutdown of Batch Annealing	December, 1991	-0.2
Net Decrease		**-9.4**
Proposed Production Increase	To Be Determined	+25.7
Net Emissions Change		**+16.3**

On the basis of these calculations, the proposed production increases and additional dust controls will result in a net decrease in PM_{10} and net increase in TSP particulate matter emissions. Because the TSP increase is less than the 25 tons per year significance threshold, the production increase will not trigger Nonattainment New Source Review for PM_{10} or TSP.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

7.0
VOLATILE ORGANIC MATERIAL

The Blast Furnace Casthouse is the primary source of Volatile Organic Material (VOM) emissions increase that would result from the proposed production increase.

Table 6 presents the estimated increases in VOM emissions associated with the production increase. The total increase in VOM emissions is estimated at 67.7 tons per year. The increased emissions due to production increases were estimated by increasing 1993 emissions proportionally.

Based on information provided by Granite City Steel, there have been three projects within the five year contemporaneous time frame which resulted in changes to VOM emissions. Appendix B presents information on the emission changing projects.

Projects considered in calculating the net VOM emission change are listed in the table below.

PROJECT	DATE	EMISSION REDUCTION (tpy)
Installation NESHAP Controls Coke By-Product	July, 1991	-31.6
Shutdown of Blooming Mill	April 1, 1991	-0.9
Shutdown of Batch Annealing	December, 1991	-0.3
Net Decrease		**-32.9**
Proposed Production Increase	To Be Determined	+67.7
Net Emissions Change		**+34.8**

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

On the basis of these calculations, the proposed production increase would result in a net increase in VOM emissions below the applicable significance level of 40 tons per year. Thus the production increase would not require a Nonattainment New Source Review for this pollutant.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

8.0
LEAD

Table 7 presents the estimated increases in lead emissions associated with the production increase. The total increase in lead emissions is estimated at 0.48 tons per year. The increased emissions due to production increases were estimated by increasing 1993 emissions proportionally.

On the basis of these calculations, the production increase results in increased lead emissions less than the 0.6 tons per year significance threshold. Therefore, a PSD Review for this pollutant is not required.

TABLES

TABLE 1
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - CO

Scenario: Blast Furnace @ 9,100 NTPD
BOF @ 10,300 NTPD

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	13.7	lb/MMcf	22,774	MMcf	156.00	included in line 17	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	13.7	lb/MMcf	22,203	MMcf	152.09	included in line 17	-	-	-
3	0008	01	By-Products Flare - BFG	13.7	lb/MMcf	26,132	MMcf	179.00	included in line 17	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	13.7	lb/MMcf	37,501	MMcf	256.88	included in line 17	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	40	lb/MMcf	361	MMcf	7.22	included in line 16	-	-	-
6	0044	01	Boiler #11 - BFG	13.7	lb/MMcf	5,323	MMcf	36.46	included in line 17	-	-	-
7	0044	91	Boiler #11 - NG	40	lb/MMcf	226	MMcf	4.52	included in line 16	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	5.0	lb/Mgal	15.00	Mgal	0.04	included in line 18	-	-	-
9	0048	01	Boiler #12 - BFG	13.7	lb/MMcf	7,106	MMcf	48.68	included in line 17	-	-	-
10	0048	91	Boiler #12 - NG	40	lb/MMcf	218	MMcf	4.36	included in line 16	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	5.0	lb/Mgal	1.00	Mgal	0.00	included in line 18	-	-	-
12	0033	01	BOF 2 Vessels	8.993	lb/ton proc.	2,413,406	ton proc.	10,851.88	3,759,500	ton proc.	16,904.59	
13	0038	01	BOF Preheaters/Dryers - NG	40	lb/MMcf	283	MMcf	5.66	included in line 16	-	-	-
14	0071 & 0119	01	Continuous Casters #1 & #2 - NG	40	lb/MMcf	57	MMcf	1.14	included in line 16	-	-	-
15			Natural Gas	40	lb/MMcf	-	-	-	1,145	MMcf	22.90	-
16			Blast Furnace Gas	13.7	lb/MMcf	-	-	-	188,212	MMcf	1,289.25	-
17			Fuel Oil	5.0	lb/Mgal	-	-	-	365	Mgal	0.91	-
	TOTALS:							**11,703.94**			**18,217.66**	**6,513.72**
			Contemperaneous Changes									(23.30)
			Net Change									***6,490.42***

TABLE 2
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - NOx

Scenario: Blast Furnace @ 9,100 NTPD
BOF @ 10,300 NTPD

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	5.28	lb/MMcf	22,774	MMcf	60.12	Included in Line 20	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	5.28	lb/MMcf	22,203	MMcf	58.62	Included in Line 20	-	-	-
3	0008	01	By-Products Flare - BFG	5.28	lb/MMcf	26,132	MMcf	68.99	Included in Line 20	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	5.28	lb/MMcf	37,501	MMcf	99.00	Included in Line 20	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	306	lb/MMcf	361	MMcf	55.23	Included in Line 19	-	-	-
6	0044	01	Boiler #11 - BFG	5.28	lb/MMcf	5,323	MMcf	14.05	Included in Line 20	-	-	-
7	0044	91	Boiler #11 - NG	306	lb/MMcf	226	MMcf	34.58	Included in Line 19	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	55	lb/Mgal	15.00	Mgal	0.41	Included in Line 21	-	-	-
9	0048	01	Boiler #12 - BFG	5.28	lb/MMcf	7,106	MMcf	18.76	Included in Line 20	-	-	-
10	0048	91	Boiler #12 - NG	306	lb/MMcf	218	MMcf	33.35	Included in Line 19	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	55	lb/Mgal	1.00	Mgal	0.03	Included in Line 21	-	-	-
12	0033	01	BOF 2 Vessels	0.0389	lb/ton proc.	2,413,406	tons proc.	46.94	3,759,500	ton proc.	73.12	-
13	0038	01	BOF Preheaters/Dryers - NG	306	lb/MMcf	283	MMcf	43.30	Included in Line 19	-	-	-
14	0007 & 0012	01	"A" & "B" Blast Furnace - Casthouse	0.01440	lb/ton proc.	2,059,557	tons proc.	14.83	3,321,500	tons proc.	23.91	-
15	0005 & 0010	01	"A" & "B" Blast Furnace - Uncaptured Roof Emiss.	0.00072	lb/ton proc.	2,059,557	tons proc.	0.74	3,321,500	tons proc.	1.20	-
16	0070 &0120	01	Caster Mold - Casters #1 & #2	0.05	lb/ton prod.	2,413,406	tons prod.	60.34	3,759,500	ton prod.	93.99	-
17	0071 & 0119	01	Continuous Casters #1 & #2 - NG	306	lb/MMcf	57	MMcf	8.72	Included in Line 19	-	-	-
18			Natural Gas	306	lb/MMcf	-	-	-	1,145	MMcf	175.19	-
19			Blast Furnace Gas	5.28	lb/MMcf	-	-	-	188,212	MMcf	496.88	-
20			Fuel Oil	55	lb/Mgal	-	-	-	365	Mgal	10.04	-
	TOTALS:							**618.01**			**874.32**	**256.31**
			Contemperaneous Changes									(226.54)
			Net Change									***29.77***

TABLE 3
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - SO2

Scenario: Blast Furnace @ 9,100 NTPD
BOF @ 10,300 NTPD

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy	COMMENTS
1	0004	01	"A" Blast Furnace Stoves - BFG	6.65	lb/MMcf	22,774	MMcf	75.72	Included in line 19	-	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	6.65	lb/MMcf	22,203	MMcf	73.82	Included in line 19	-	-	-	-
3	0008	01	By-Products Flare - BFG	6.65	lb/MMcf	26,132	MMcf	86.89	Included in line 19	-	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	6.65	lb/MMcf	37,501	MMcf	124.69	Included in line 19	-	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	0.6	lb/MMcf	361	MMcf	0.11	Included in line 18	-	-	-	-
6	0044	01	Boiler #11 - BFG	6.65	lb/MMcf	5,323	MMcf	17.70	Included in line 19	-	-	-	-
7	0044	91	Boiler #11 - NG	0.6	lb/MMcf	226	MMcf	0.07	Included in line 18	-	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	141.3	lb/Mgal	15.00	Mgal	1.06	Included in line 20	-	-	-	-
9	0048	01	Boiler #12 - BFG	6.65	lb/MMcf	7,106	MMcf	23.63	Included in line 19	-	-	-	-
10	0048	91	Boiler #12 - NG	0.6	lb/MMcf	218	MMcf	0.07	Included in line 18	-	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	141.3	lb/Mgal	1.00	Mgal	0.07	Included in line 20	-	-	-	-
12	0038	01	BOF Preheaters/Dryers - NG	0.6	lb/MMcf	283	MMcf	0.08	Included in line 18	-	-	-	-
13	0007 & 0012	01	"A & B" Blast Furnace - Casthouse	0.2006	lb/ton proc.	2,059,557	tons proc.	206.57	3,321,500	tons proc.	422.00	-	Limit
14	0005 & 0010	01	"A & B" Blast Furnace - Uncap. roof	0.0104	lb/ton proc.	2,059,557	tons proc.	10.71	3,321,500	tons proc.	21.94	-	Limit
15	----	--	Iron Spout Baghouse	0.0066	lb/ton proc.	2,059,557	tons proc.	6.80	3,321,500	tons proc.	13.89	-	Li[illegible]
16	0071 & 0119	01	Continuous Casters #1 & #2 - NG	0.6	lb/MMcf	57	MMcf	0.02	Included in line 18	-	-	-	
17			Natural Gas	0.6	lb/MMcf	-	MMcf	-	1,145	lb/MMcf	0.34	-	
18			Blast Furnace Gas	6.65	lb/MMcf	-	MMcf	-	188,212	lb/MMcf	625.80	-	
19			Fuel Oil	141.3	lb/Mgal	-	Mgal	-	365	lb/Mgal	25.79	-	
	TOTALS:							628.01			1,109.77	481.76	
			Contemperaneous Changes									(0.40)	
			Net Change									***481.36***	

TABLE 4
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - PM-10

Scenario: Blast Furnance @ 9,100 NTPD
BOF @ 10,300 NTPD

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy	COMMENTS
1	0004	01	"A" Blast Furnace Stoves - BFG	2.9	lb/MMcf	22,774	MMcf	33.02	Included in line 39	-	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	2.9	lb/MMcf	22,203	MMcf	32.19	Included in line 39	-	-	-	-
3	0008	01	By-Products Flare - BFG	2.9	lb/MMcf	26,132	MMcf	37.89	Included in line 39	-	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	2.9	lb/MMcf	37,501	MMcf	54.38	Included in line 39	-	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	5.1	lb/MMcf	361	MMcf	0.92	Included in line 38	-	-	-	-
6	0044	01	Boiler #11 - BFG	2.9	lb/MMcf	5,323	MMcf	7.72	Included in line 39	-	-	-	-
7	0044	91	Boiler #11 - NG	5.1	lb/MMcf	226	MMcf	0.58	Included in line 38	-	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	9.72	lb/Mgal	15.00	Mgal	0.07	Included in line 40	-	-	-	-
9	0048	01	Boiler #12 - BFG	2.9	lb/MMcf	7,106	MMcf	10.30	Included in line 39	-	-	-	-
10	0048	91	Boiler #12 - NG	5.1	lb/MMcf	218	MMcf	0.56	Included in line 38	-	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	9.72	lb/Mgal	1.00	Mgal	0.00	Included in line 48	-	-	-	-
12	0033	01	BOF 2 Vessels	0.103	lb/ton proc.	2,413,406	tons proc.	124.29	3,759,500	ton proc.	300.03	175.74	limit
13	0038	01	BOF Preheaters/Dryers - NG	5.1	lb/MMcf	283	MMcf	0.72	Included in line 38	-	-	-	-
14	0005 & 0010	01	"A" & "B" Blast Furnace - Uncap. Fugitives	0.0155	lb/ton proc.	2,059,557	tons proc.	15.96	3,321,500	tons proc.	25.74	9.78	-
15	0006 & 0011	01	"A" & "B" Blast Furnace - Charging	0.04675	lb/ton proc.	2,059,557	tons proc.	48.14	3,321,500	tons proc.	77.64	29.50	-
16	0007 & 0012	01	"A" & "B" Blast Furnace - Baghouse Stack	0.0217	lb/ton proc.	2,053,521	tons proc.	22.28	3,321,500	tons proc.	139.14	116.86	limit
17	0034	01	Roof Monitor - Charge thru Tap	0.124	lb/ton proc.	2,413,406	tons proc.	149.63	3,759,500	tons proc.	233.09	83.46	-
18	0035	01	Hot Metal Reladling - Xfer Pit	0.185	lb/ton proc.	2,413,406	tons proc.	1.12	3,759,500	tons proc.	1.43	0.31	Com. w/0107
19	0037	01	Flux Conv. & Xfer Pts., Bin Floor - BOF	0.039	lb/ton proc.	2,413,406	tons proc.	0.32	3,759,500	tons proc.	3.75	3.43	limit
20	0040	01	Hot Metal Chging Ladle Slag Skimmer	0.0170	lb/ton proc.	2,413,406	tons proc.	0.21	3,759,500	tons proc.	9.95	9.74	limit

TABLE 4
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - PM-10

Scenario: Blast Furnance @ 9,100 NTPD
BOF @ 10,300 NTPD

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy	COMMENTS
21	0070 & 0120	01	Caster Mold - Casters #1 & #2	0.006	lb/ton prod.	2,413,406	tons prod.	7.24	3,759,500	ton prod.	11.28	4.04	-
22	0071 & 0119	01	Cont. Casters #1 & #2 - Spray Chamber	0.00852	lb/ton proc.	2,413,406	tons prod.	2.06	3,759,500	ton prod.	3.20	1.15	-
23	0071 & 0119	01	Continuous Casters #1 & #2 - NG	5.1	lb/MMcf	57	MMcf	0.15	Included in line 38	-	-	-	-
24	0072 & 0118	01	Slab Cutoff - Casters #1 & #2	0.0071	lb/ton proc.	2,413,406	tons prod.	8.57	3,759,500	ton prod.	13.35	4.78	-
25	0103, 0104 & 0121	01	Argon Stirring #1 & #2, Material Handling Tripper	0.014	lb/ton proc.	2,413,406	tons prod.	16.89	3,759,500	ton prod.	16.60	-0.29	limit
26	0105 & 0106	01	Deslagging Station & Material HS	0.0043	lb/ton proc.	2,413,406	tons prod.	5.19	3,759,500	ton prod.	8.23	3.04	limit
27			BOF Hopper Baghouse			2,413,406	tons proc.	0.00	3,759,500	tons proc.	0.75	0.75	limit
28	0107	01	Desulf. Station (inside BOF shop)	1.09	lb/ton proc.	2,413,406	tons prod.	6.58	3,759,500	ton prod.	73.70	67.12	Com. w/0035
29	0113	01	Blast Furnace Slag Pits	0.0075468	lb/ton slag	420,194	tons slag	1.59	529,444	ton prod.	2.00	0.41	-
30	9003	01	Iron Pellet Screen	0.0023766	lb/ton proc.	2,413,406	tons proc.	2.87	3,759,500	tons proc.	4.47	1.60	-
31		01	Iron Spout Baghouse	0.00352	lb/ton proc.	2,413,406	tons proc.	4.25	3,759,500	tons proc.	32.80	28.55	limit
32			Fugitive Unpaved Roads					771.06		-	59.32	(711.74)	-
33			Fugitive Paved Roads					178.35		-	249.38	71.03	-
34			Material Handling					18.88		-	28.47	9.59	-
35			Unpaved Parking Lots					-		-	-	-	-
36			Paved Parking Lots					-		-	-	-	-
37			Natural Gas	5.1	lb/MMcf	-	MMcf	-	1,145	-	2.92	-	-
38			Blast Furance Gas	2.9	lb/MMcf	-	MMcf	-	188,212	-	272.91	-	-
39			Fuel Oil	9.72	lb/Mgal	-	Mgal	-	365	-	1.77	-	-
	TOTALS:							**1,563.96**			**1,571.91**	**7.95**	
			Contemperaneous Changes									(9.40)	
			Net Change									***(1.45)***	

TABLE 5
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - TSP

Scenario: Blast Furance @ 9,100 NTPD
BOF @ 10,300 NTPD

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy	COMMENTS
1	0004	01	"A" Blast Furnace Stoves - BFG	2.9	lb/MMcf	22,774	MMcf	33.02	included in line 43	-	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	2.9	lb/MMcf	22,203	MMcf	32.19	included in line 43	-	-	-	-
3	0008	01	By-Products Flare - BFG	2.9	lb/MMcf	26,132	MMcf	37.89	included in line 43	-	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	2.9	lb/MMcf	37,501	MMcf	54.38	included in line 43	-	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	5.1	lb/MMcf	361	MMcf	0.92	included in line 42	-	-	-	-
6	0044	01	Boiler #11 - BFG	2.9	lb/MMcf	5,323	MMcf	7.72	included in line 43	-	-	-	-
7	0044	91	Boiler #11 - NG	5.1	lb/MMcf	226	MMcf	0.58	included in line 42	-	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	10.8	lb/Mgal	15.00	Mgal	0.08	included in line 44	-	-	-	-
9	0048	01	Boiler #12 - BFG	2.9	lb/MMcf	7,106	MMcf	10.30	included in line 43	-	-	-	-
10	0048	91	Boiler #12 - NG	5.1	lb/MMcf	218	MMcf	0.56	included in line 42	-	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	10.8	lb/Mgal	1.00	Mgal	0.01	included in line 44	-	-	-	-
12	0033	01	BOF 2 Vessels Stack	0.103	lb/ton proc.	2,413,406	tons proc.	124.29	3,759,500	ton proc.	300.03	175.74	limit
13	0038	01	BOF Preheaters/Dryers - NG	5.1	lb/MMcf	283	MMcf	0.72	included in line 42	-	-	-	-
14	0005	01	"A" Blast Furnace - Uncap. Fugitives	0.0155	lb/ton proc.	1,029,779	tons proc.	7.98	1,660,750	tons proc.	12.87	4.89	-
15	0006	01	"A" Blast Furnace - Charging	0.04675	lb/ton proc.	1,029,779	tons proc.	24.07	1,660,750	tons proc.	38.82	14.75	-
16	0007	01	"A" Blast Furnace - Baghouse Stack	0.0217	lb/ton proc.	1,029,779	tons proc.	11.17	1,660,750	tons proc.	69.57	58.40	limit
17	0010	01	"B" Blast Furnace - Uncap. Fugitives	0.0155	lb/ton proc.	1,029,779	tons proc.	7.98	1,660,750	tons proc.	12.87	4.89	-
18	0011	01	"B" Blast Furnace - Charging	0.04675	lb/ton proc.	1,029,779	tons proc.	24.07	1,660,750	tons proc.	38.82	14.75	-
19	0012	01	"B" Blast Furnace - Baghouse Stack	0.0217	lb/ton proc.	1,029,779	tons proc.	11.17	1,660,750	tons proc.	69.57	58.40	limit
20	0034	01	Roof Monitor - Charge thru Tap	0.124	lb/ton proc.	2,413,406	tons proc.	149.63	3,759,500	tons proc.	233.09	83.46	-
21	0035	01	Hot Metal Reladling - Xfer Pit	0.185	lb/ton proc.	2,413,406	tons proc.	1.12	3,759,500	tons proc.	1.74	0.62	Com. w/0107

TABLE 5
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - TSP

Scenario: Blast Furance @ 9,100 NTPD
BOF @ 10,300 NTPD

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy	COMMENTS
22	0037	01	Flux Conv. & Xfer Pts., Bin Floor - BOF	0.039	lb/ton proc.	2,413,406	tons proc.	0.32	3,759,500	tons proc.	3.75	3.43	limit
23	0040	01	Hot Metal Chging Ladle Slag Skimmer	0.0170	lb/ton proc.	2,413,406	tons proc.	0.21	3,759,500	tons proc.	9.95	9.74	limit
24	0070 & 0120	01	Caster Mold - Casters #1 & #2	0.006	lb/ton prod.	2,413,406	tons prod.	7.24	3,759,500	ton prod.	11.28	4.04	-
25	0071 & 0119	01	Cont. Casters #1 & #2 - Spray Chamber	0.00852	lb/ton proc.	2,413,406	tons prod.	2.06	3,759,500	ton prod.	3.20	1.15	-
26	0071 & 0119	01	Continuous Casters #1 & #2 - NG	5.1	lb/MMcf	57	MMcf	0.15	included in line 42	-	-	-	-
27	0072 & 0118	01	Slab Cutoff - Casters #1 & #2	0.0071	lb/ton proc.	2,413,406	tons prod.	8.57	3,759,500	ton prod.	13.35	4.78	-
28	0103 & 0121 & 104	01	Argon Stirring #1 & #2, Material Handling Tripper	0.014	lb/ton proc.	2,413,406	tons prod.	16.89	3,759,500	ton prod.	16.60	(0.29)	-
29	0105 & 0106	01	Deslagging Station & Material HS	0.0043	lb/ton proc.	2,413,406	tons prod.	5.19	3,759,500	ton prod.	8.23	3.04	limit
30			BOF Hopper Baghouse	-	-	2,413,406	tons prod.	0.00032	3,759,500	ton prod.	0.75	0.75	limit
31	0107	01	Desulf. Station (inside BOF shop)	1.09	lb/ton proc.	2,413,406	tons prod.	6.58	3,759,500	ton prod.	73.70	67.12	Com. w/0035
32	0113	01	Blast Furnace Slag Pits	0.0075468	lb/ton slag	420,194	tons slag	1.59	529,444	ton prod.	2.00	0.41	-
33	9003	01	Iron Pellet Screen	0.0023766	lb/ton proc.	2,675,991	tons proc.	3.18	3,759,500	tons proc.	4.47	1.29	-
34		01	Iron Spout Baghouse	0.00352	lb/ton proc.	2,413,406	tons proc.	4.25	3,759,500	tons proc.	50.47	46.22	limit
35			Fugitive Unpaved Roads	-	-	-	-	771.06	-	-	59.32	(711.74)	-
36			Fugitive Paved Roads	-	-	-	-	178.35	-	-	249.38	71.03	-
37			Material Handling	-	-	-	-	18.88	-	-	28.47	9.59	-
38			Unpaved Parking Lots	-	-	-	-	-	-	-	-	-	-
39			Paved Parking Lots	-	-	-	-	-	-	-	-	-	-
40			Natural Gas	5.1	lb/MMcf	-	MMcf	-	1,145	MMcf	2.92	-	-
41			Blast Furnace Gas	2.9	lb/MMcf	-	MMcf	-	188,212	MMcf	272.91	-	-
42			Fuel Oil	10.8	lb/Mgal	-	Mgal	-	365	Mgal	1.97	-	-
	TOTALS:							1,564.35			1,590.09	25.74	
			Contemperaneous Changes									(9.40)	
			Net Change									***16.34***	

TABLE 6
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - VOM

Scenario: Blast Furnace @ 9,100 NTPD
BOF @ 10,300 NTPD

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	0.0	lb/MMcf	22,774	MMcf	0.00	Included in line 18	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	0.0	lb/MMcf	22,203	MMcf	0.00	Included in line 18	-	-	-
3	0008	01	By-Products Flare - BFG	0.0	lb/MMcf	26,132	MMcf	0.00	Included in line 18	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	0.0	lb/MMcf	37,501	MMcf	0.00	Included in line 18	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	2.8	lb/MMcf	361	MMcf	0.51	Included in line 17	-	-	-
6	0044	01	Boiler #11 - BFG	0.0	lb/MMcf	5,323	MMcf	0.00	Included in line 18	-	-	-
7	0044	91	Boiler #11 - NG	1.4	lb/MMcf	226	MMcf	0.16	Included in line 17	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	0.28	lb/Mgal	15.00	Mgal	0.00	Included in line 19	-	-	-
9	0048	01	Boiler #12 - BFG	0.0	lb/MMcf	7,106	MMcf	0.00	Included in line 18	-	-	-
10	0048	91	Boiler #12 - NG	1.4	lb/MMcf	218	MMcf	0.15	Included in line 17	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	0.28	lb/Mgal	1.00	Mgal	0.00	Included in line 19	-	-	-
12	0033	01	BOF Preheaters/Dryers - NG	2.8	lb/MMcf	283	MMcf	0.40	Included in line 17	-	-	-
13	0007 & 001	01	"A & B" Blast Furnace - Casthouse	0.1016	lb/ton proc.	2,059,557	tons proc.	104.67	3,321,500	tons proc.	168.80	-
14	0005 & 001	01	"A & B" Blast Furnace - Uncap. roof	0.0050	lb/ton proc.	2,059,557	tons proc.	5.19	3,321,500	tons proc.	8.37	-
15	0071 & 011	01	Continuous Casters #1 & #2 - NG	2.8	lb/MMcf	57	MMcf	0.08	Included in line 17	-	-	-
16			Natural Gas	2.8	lb/MMcf	-	MMcf	-	1,145	MMcf	1.60	-
17			Blast Furnace Gas	0.0	lb/MMcf	-	MMcf	-	188,212	MMcf	0.00	-
18			Fuel Oil	0.28	lb/Mgal	-	Mgal	-	365	lb/Mgal	0.05	-
	TOTALS:							**111.15**			**178.82**	**67.67**
			Contemperaneous Changes									(32.86)
			Net Change									***34.81***

TABLE 7
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - Pb

Scenario: Blast Furnace @ 9,100 NTPD
BOF @ 10,300 NTPD

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION TPY	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0044	03	Boiler #11 - Fuel Oil	0.01600000	lb/Mgal	15.00	Mgal	0.0001	included in line 19	-	-	-
2	0048	03	Boiler #12 - Fuel Oil	0.01600000	lb/Mgal	1.00	Mgal	0.0000	included in line 19	-	-	-
3	0005	01	"A" Blast Furnace - Uncap. Fugitives	0.00039000	lb/hr	8760	hours	0.0017	-	tons proc.	0.00275464	-
4	0006	01	"A" Blast Furnace - Charging	0.00055000	lb/hr	8760	hours	0.0024	-	tons proc.	0.00388475	-
5	0007	01	"A" Blast Furnace - Baghouse Stack	0.00022000	lb/hr	8760	hours	0.0010	-	tons proc.	0.00155390	-
6	0010	01	"B" Blast Furnace - Uncap. Fugitives	0.00036700	lb/hr	8760	hours	0.0016	-	tons proc.	0.00259219	-
7	0011	01	"B" Blast Furnace - Charging	0.00053700	lb/hr	8360	hours	0.0022	-	tons proc.	0.00361974	-
8	0012	01	"B" Blast Furnace - Baghouse Stack	0.00021400	lb/hr	8360	hours	0.0009	-	tons proc.	0.00144250	-
9	0033	01	BOF 2 Vessels Stack	0.17000000	lb/hr	8760	hours	0.7446	-	tons prod.	1.15993788	-
10	0034	01	Roof Monitor - Charge thru Tap	0.01290000	lb/hr	8760	hours	0.0565	-	tons prod.	0.08801882	-
11	0035	01	Hot Metal Reladling - Xfer Pit	0.00002320	lb/hr	8760	hours	0.0001	-	tons prod.	0.00015830	-
12	0037	01	Flux Conv. & Xfer Pts., Bin Floor - BOF	0.00000062	lb/hr	8760	hours	0.0000	-	tons prod.	0.00000426	-
13	0040	01	Hot Metal Chging Ladle Slag Skimmer	0.00002250	lb/hr	8760	hours	0.0001	-	tons prod.	0.00015352	-
14	0050	01	Coal Crushing & Pulverizing	0.00000002	lb/hr	8760	hours	0.0000	-	tons proc.	0.00000015	-
15	0103	01	Argon Stirring #1 & #2	0.00020200	lb/hr	8760	hours	0.0009	-	tons prod.	0.00137828	-
16	0105	01	Deslagging Station	0.00240000	lb/hr	8760	hours	0.0105	-	tons prod.	0.01637559	-
17	0107	01	Desulf. Station (inside BOF shop)	0.01330000	lb/hr	4385	hours	0.0292	-	tons prod.	0.04542584	-
18	0120	01	Caster Mold - Casters	0.00113000	lb/hr	7930	hours	0.0045	-	tons prod.	0.00697965	-
19			Boilers -Fuel Oil	0.01600000	lb/Mgals	-	-	-	365	Mgals	0.00292000	-
	TOTAL							0.856			1.337	0.481
			Contemperaneous Changes									0.000
			Net Change									***0.481***

FIGURES

APPENDIX A

BASE PERIOD FUEL USE

	BFG (MMBtu)					BFG (MMcf)	COG (MMBtu)					COG (MMcf)
Source	Aug - Dec '92	1993	Jan - Jul '94	Total	Average	Average	Aug - Dec '92	1993	Jan - Jul '94	Total	Average	Average
"A" Stoves	547,311	1,861,751	1,234,705	3,643,767	1,821,884	22,774	73,190	251,046	172,660	496,896	248,448	444
"B" Stoves	752,802	1,792,114	1,007,535	3,552,451	1,776,226	22,203	93,305	357,653	74,321	525,279	262,640	470
Boilers 1-10	1,125,491	3,288,275	1,586,436	6,000,202	3,000,101	37,501	500,108	1,111,542	660,587	2,272,237	1,136,119	2,032
Boiler 11	164,301	417,788	269,591	851,680	425,840	5,323	221,787	430,802	184,075	836,664	418,332	748
Boiler 12	319,314	582,520	235,193	1,137,027	568,514	7,106	57,137	426,493	289,507	773,137	386,569	692
B.F. Flare	650,135	2,124,204	1,406,819	4,181,158	2,090,579	26,132				0	0	0
BOF Preheaters/Dryers							26,526	26,331	34,526	87,383	43,692	78
#1 Slab Furnace							72,142	272,810	175,444	520,396	260,198	465
#2 Slab Furnace							111,806	240,234	119,349	471,389	235,695	422
#3 Slab Furnace							83,279	145,449	143,448	372,176	186,088	333
COG Flare							197,732	137,960	45,441	381,133	190,567	341
COG Flare Pilot							14,076	33,580	19,504	67,160	33,580	60
"A" Underfire							402,697	959,933	571,806	1,934,436	967,218	1,730
"B" Underfire							394,715	944,387	568,056	1,907,158	953,579	1,706
Slab Furnaces 1 - 4												
Casters												
Totals				19,366,285	9,683,143	121,039				10,645,444	5,322,722	9,522
	#6 Oil (MMBtu)					# 6 Oil (Mgals)	NG (MMBtu)					NG (MMcf)
Source	Aug - Dec '92	1993	Jan - Jul '94	Total	Average	Average	Aug - Dec '92	1993	Jan - Jul '94	Total	Average	Average
"A" Stoves												
"B" Stoves												
Boilers 1-10							102,015	195,510	437,409	734,934	367,467	361
Boiler 11	0	1,013	3,638	4,651	2,326	15	43,915	240,390	175,846	460,151	230,076	226
Boiler 12	0	300	0	300	150	1	97,964	240,760	106,361	445,085	222,543	218
B.F. Flare										0	0	0
BOF Preheaters/Dryers							123,962	298,959	154,814	577,735	288,868	283
#1 Slab Furnace										0	0	0
#2 Slab Furnace										0	0	0
#3 Slab Furnace										0	0	0
COG Flare										0	0	0
COG Flare Pilot										0	0	0
"A" Underfire										0	0	0
"B" Underfire										0	0	0
Slab Furnaces 1 - 4							1,605,354	4,122,086	2,164,109	7,891,549	3,945,775	3,872
Casters							13,843	62,344	38,990	115,177	57,589	57
Totals				4,951	2475.5	16				10,224,631	5,112,316	5,017

Blast Furnace and BOF Shop Production
Base Period for Netting Analysis

BOF PRODUCTION (net tons/month)						
month	*1992*	*1993*	*1994*	*Total (24 months)*	*Avg. (12 months)*	*Average (NTPD)*
1		202,208	182,626			
2		183,411	201,262			
3		205,652	226,972			
4		200,932	211,520			
5		213,685	218,556			
6		209,603	211,124			
7		216,556	213,900			
8	213,186	217,920				
9	136,526	211,498				
10	151,808	218,585				
11	207,000	210,646				
12	156,635	205,000				
total	865,155	2,495,696	1,465,960	4,826,811	2,413,406	6,612

BLAST FURNACE PRODUCTION (net tons/month)						
month	1992	1993	1994			
1		170,141	157,484			
2		154,107	175,540			
3		173,453	196,360			
4		173,707	182,527			
5		178,714	187,766			
6		175,806	184,430			
7		183,744	186,723			
8	182,629	187,742				
9	114,551	179,321				
10	125,780	185,734				
11	175,665	178,574				
12	129,677	178,938				
total	728,302	2,119,981	1,270,830	4,119,113	2,059,557	5,643

Granite City Division of National Steel Corporation
Blast Furnace and BOF Production

BOF PRODUCTION (net tons/month)									
month	1986	1987	1988	1989	1990	1991	1992	1993	1994
1	173,972	111,383	190,588	112,096	207,516	176,208	205,846	202,208	182,626
2	120,008	95,872	166,852	109,648	184,568	157,456	196,156	183,411	201,262
3	162,006	189,720	137,144	180,017	211,206	163,633	205,846	205,652	226,972
4	176,100	182,040	185,160	178,410	205,182	184,658	198,229	200,932	211,520
5	173,507	181,102	201,965	195,672	212,644	202,159	205,258	213,685	218,556
6	174,540	184,380	186,960	188,820	199,833	195,417	184,015	209,603	211,124
7	174,716	188,449	193,409	201,438	208,108	170,827	202,551	216,556	213,900
8	170,872	183,334	187,426	125,767	208,627	207,474	213,186	217,920	
9	160,680	183,570	185,160	205,350	183,596	198,852	136,526	211,498	
10	157,914	183,086	195,858	202,213	204,291	194,996	151,808	218,585	
11	175,260	191,670	184,800	185,430	203,250	199,712	207,000	210,646	
12	132,556	188,201	153,760	176,390	192,767	203,843	156,635	205,000	
total	1,952,131	2,062,807	2,169,082	2,061,251	2,421,588	2,255,235	2,263,056	2,495,696	

BLAST FURNACE PRODUCTION (net tons/month)									
month	1986	1987	1988	1989	1990	1991	1992	1993	1994
1	143,437	89,931	153,171	93,682	164,925	150,713	173,739	170,141	157,484
2	98,392	77,756	135,772	91,616	148,404	133,608	162,818	154,107	175,540
3	132,711	151,559	113,491	150,474	169,449	143,364	173,613	173,453	196,360
4	143,340	91,380	148,890	147,690	167,318	161,388	168,325	173,707	182,527
5	139,345	150,970	161,169	159,898	173,396	174,700	174,661	178,714	187,766
6	140,610	155,220	153,840	154,800	162,136	166,374	157,507	175,806	184,430
7	141,577	154,535	156,302	163,928	169,738	149,959	174,651	183,744	186,723
8	139,407	152,210	150,784	104,656	170,399	178,011	182,629	187,742	
9	134,490	150,480	156,090	165,780	148,870	172,407	114,551	179,321	
10	132,494	151,621	156,984	160,518	167,405	168,123	125,780	185,734	
11	135,900	154,350	150,210	150,780	167,573	170,330	175,665	178,574	
12	107,012	152,737	124,434	150,319	160,251	173,513	129,677	178,938	
total	1,588,715	1,632,749	1,761,137	1,694,141	1,969,864	1,942,490	1,913,616	2,119,981	

APPENDIX B

APPENDIX B

EMISSION CHANGING PROJECTS SINCE 1986 (TPY)

Project	Effective Date	PM_{10}	SO_2	NO_x	CO	VOM
Removal Blast Furnace Slag Spout Hood	January 1990	+4.9				
#2 Caster Production	December 1990	+11.7				
Ingot Teeming Shutdown	April 1991	-22.4				
Installation of NESHAP Controls Coke By-Product	July 1991					-31.63
Shutdown of Blooming Mill	April 1991	-3.38	-0.34	-217.82	-22.12	-0.92
Shutdown of Batch Annealing	December 1991	-0.18	-0.04	-8.72	-1.19	-0.31
Net Change		-9.36	-0.38	-226.54	-23.42	-32.86

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

REMOVAL OF BLAST FURNACE SLAG SPOUT HOOD - JANUARY 1990

Based on May 8, 1969 submittal for modification of operating permit for "A" and "B" Blast Furnaces. +4.9 TPY

#2 CASTER PRODUCTION - DECEMBER 1990

Summary of Project Emission Changes (tons/yr)[1] (Assuming all steel produced is continuous cast)

Argon Stirring and Baghouse	4.85
Tundish with Shrouds	--
Powder Addition	7.49
Slab Casting	2.01
Slab Cut-off	9.03
Slab Ripping and Baghouse	2.58
	26.0 tons/yr PM_{10}
Caster #1 Actual Emissions	14.3 tons/yr PM_{10}
Caster #2 Actual Emissions	26.0 - 14.3 = 11.7 tons/yr PM_{10}

INGOT TEEMING SHUTDOWN - APRIL 1991

670,000 tons/yr * 0.067 lbs/ton = 22.4 tons/yr PM_{10} reduction

[1]Reference - March 16, 1988 IEPA "Project Summary for Proposed Issuance of an Air Pollution Control Construction Permit for Continuous Caster"

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

INSTALLATION OF NESHAP CONTROLS AT COKE BY-PRODUCT PLANT

VOC Emissions Reduction at Coke By-Product Plant after Installation of NESHAPS Controls

It was reported, in Attachment 2 of the October 8, 1991 submittal of additional information in application for modification of Operating Permits for the Granite City Division Emission Reduction Plant Production Increase Project, that the installation of benzene emission controls (NESHAPS) at the Coke By-Product Recovery Plant would provide a reduction of 31.6 TPY VOC other than benzene. The following is a demonstration of the derivation of that VOC emission reduction.

All calculations are based on 1990 coke production of 577,473 tons.

Emission factors are taken from the publication EPA-450/3-83-016a, "Benzene Emissions from Coke By-Product Recovery Plants - Background Information for Proposed Standards." The NESHAPS emission factors contained in this publication are for benzene only. The emissions of other light oil (L.O.) constituents were calculated by taking the ratio of the mole fraction of each L.O. constituent (liquid) times the vapor pressure of that constituent to the mole fraction of benzene (liquid) times the vapor pressure of benzene, then multiplying that ration by the calculated benzene emissions. It is assumed that all emissions are vapors and that the vapors are in equilibrium with the liquid light oil.

Sample calculation:

For the direct water cooling tower, benzene emissions are calculated as follows:

$$(577{,}473 \text{ tons coke}) \times \frac{2000 \text{ lb.}}{\text{ton}} \times \frac{454 \text{g}}{\text{lb.}} \times \frac{1 \text{ Mg}}{10^6 \text{g}} = 524{,}346 \text{ Mg coke}$$

$$\frac{524{,}346 \text{ Mg coke}}{\text{yr.}} \times \frac{270 \text{g}}{\text{Mg}} \times \frac{1 \text{ lb.}}{454 \text{g}} = 311{,}836 \text{ lb./year}$$

where 270g/Mg = uncontrolled benzene emission factor from Table 3 - 7, attached.

From the Light Oil Constituents table, attached,

Benzene: $y(P^*) = .71(96) = 68.16$

where .71 = benzene mole fraction
and 96 = benzene vapor pressure

Similarly,

Toluene: $y(P^*) = .159(30) = 4.77$

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Hence, the toluene emissions, with no controls, from the direct water cooling tower are

$$\frac{4.77}{68.16} \text{ (311,836 lb/yr.)} = 21{,}823 \text{ lb. toluene/year}$$

Toluene emissions after installation of NESHAPS controls with 100% efficiency are

21,823 lb. toluene (100 - 100) = 0 lb. toluene/yr.

Emission of benzene, toluene, xylene, ethylbenzene and styrene are calculated, as above, for the various emission sources at the By-Product Plant and presented in the table Emissions of Light Oil Constituents after Installation of NESHAPS Controls at the Coke Oven By-Products Plant, attached.

The non-benzene emissions controlled by the NESHAPS project are then calculated, for each light oil constituent considered, by subtracting the total emissions after controls were applied at all sources from the total emissions prior to application of controls at all sources. These calculations are presented in the table entitled Non-Benzene Emissions Controlled by NESHAPS Project, attached.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Non-Benzene Emissions Controlled by NESHAPS Project

	Total Uncontrolled Emissions	-	Total Uncontrolled Emissions after NESHAPS Controls Installed	=				=	
Toluene	59,584	-	997	=	58,587 lbs.	x	$\frac{1T}{2000}$	=	29.3 tons/yr.
Xylene	2,871	-	48	=	2,823 lbs.	x	$\frac{1T}{2000}$	=	1.4 tons/yr.
Ethylbenzene	959	-	10	=	949 lbs.	x	$\frac{1T}{2000}$	=	0.5 tons/yr.
Styrene	868	-	9	=	859 lbs.	x	$\frac{1T}{2000}$	=	0.4 tons/yr.
									31.6 tons/yr.

SEP 13 '94 04:29PM GCS ENVIRONMENTAL

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Emissions of Light Oil Constituents after Installation of NESHAPS Controls at the By-Product Plant

By-Product Source	Uncontrolled Benzene Factor (g Mg)	NESHAPS Control	NESHAPS Control Effiency %	Benzene (lb./yr.) A*	Benzene (lb./yr.) B**	Toluene (lb./yr.) A	Toluene (lb./yr.) B	Xylene (lb./yr.) A	Xylene (lb./yr.) B	Ethylbenzene (lb./yr.) A	Ethylbenzene (lb./yr.) B	Styrene (lb./yr.) A	Styrene (lb./yr.) B
Direct Water Cooling Tower	270	Tar Spray Final Cooler	100	311,836	0	21,823	0	1,050	0	351	0	317	0
Light Oil Condenser Vent	89	Gas Blanket	98	102,790	2,056	7,193	144	346	7	116	2	105	2
Napthlene Separator	87	Tar Spray	100	100,680	0	7,032	0	339	0	113	0	102	0
Napthalene Processing	20	Tar Spray	100	23,099	0	1,617	0	78	0	26	0	23	0
Tar-intercepting Sump	95	Gas Blanket	98	109,720	2,194	7,678	154	370	7	124	3	112	2
Tar Dewatering	21	Steam Blanket	98	24,254	485	1,697	34	82	2	27	1	25	1
Tar Decanter	77	Steam Blanket	98	88,931	1,779	6,224	125	300	6	100	2	90	2
Tar Storage	12	Steam Blanket	98	13,859	277	970	19	47	1	16	0	14	0
Light Oil Sump	15	Gas Blanket	98	17,324	347	1,212	24	58	1	20	0	18	0
Light Oil Storage	5.8	Gas Blanket	98	6,699	134	469	9	23	1	8	0	7	0
BTX Storage (ILO)	5.8	Gas Blanket	98	6,699	134	469	9	23	1	8	0	7	0
Leaks	14	Manual Detection	88	16,169	1,940	1,132	136	55	7	18	2	16	2
Flushing Liquor Circulation Tank	9	Steam Blanket	98	10,395	208	727	15	35	1	11	0	11	0
Excess Ammonia Liquor Tank	9	Steam Blanket	98	10,395	208	727	15	35	1	11	0	11	0
Wash Oil Decanter	3.8	Uncontrolled	0	4,389	4,389	307	307	15	15	5	0	5	0
Wash Oil Circulating Tank	3.8	Gas Blanket	98	4,389	88	307	6	15	0	5	0	5	0
				851,428	14,239	59,584	997	2,871	48	959	10	868	0

*Uncontrolled emissions

**Emissions after NESHAPS controls installed

SEP 13 '94 04:29PM GCS ENVIRONMENTAL P.11

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

LIGHT OIL CONSTITUENTS

Chemical	Weight fraction (X)	MW	X / MW	Mole fraction (y)	P° at 25°C
enzene	.5925	78.11	.0076	.710	96 mm Hg
oluene	.1598	92.13	.0017	.159	30
ylene (mixed)	.0336	106.16	.0003	.028	8.2
ylbenzene	.0100	106.16	.00009	.008	9.6
rene	.0136	104.14	.0001	.009	7.7
hthalene	.005	128.16	.00004	.004	<1
bon disulfide	.003	76.14	.00004	.004	366
marin	.0367	118.13	.00031	.029	100
lohexane	.0009	84.16	.00001	.001	98
lohexene	.0276	82.14	.00034	.032	100
lopentadiene	.0064	66.10	.00009	.008	600
lene	.0029	70.13	.00004	.004	654
tene	.0014	72.15	.00002	.002	533
ophene	.0024	84.13	.00003	.003	79
,5-trimethylbenzene	.0028	120.20	.00002	.002	7.0
,3-trimethylbenzene	.0130	120.20	.0001	.002	6.8

$\Sigma \frac{X}{MW} = .01071$

* Benzene, toluene, and xylene weight fractions were the average of two analysis OM of light oil samples: Environmetrics on March 1, 1991, and by Doug Stracke of Granite City Steel on March 24, 1985.

Average molecules weight of light oil = EyM = 84.47
Average vapor pressure of light oil = EyP = 89.67

SEP 13 '94 04:30PM GCS ENVIRONMENTAL

SEP 13 '94 04:30PM GCS ENVIRONMENTAL
Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-07**

Office of Air Quality Planning and Standards
Research Triangle Park NC 27711
EPA-450/3-83-016a
May 1984

Air

EPA

RECEIVED
JUL 12 1984
DEQO

Benzene Emissions from Coke By-Product Recovery Plants - Background Information for Proposed Standards

Draft EIS

NESHAP

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077**

TABLE 3-7. UNCONTROLLED BENZENE EMISSION FACTORS FOR COKE BY-PRODUCT PLANTS

Source	Emission factor (g benzene/Mg coke)	Industry emissions (Mg/yr)[a]
Cooling tower	270	6,340
Direct-water	70	1,090
Tar-bottom	89	4,080
Light-oil condenser vent	87	2,040
Naphthalene separation	20	470
Naphthalene processing	95	5,360
Tar-intercepting sump	21	1,090
Tar dewatering	77	4,350
Tar decanter	12	680
Tar storage	15	780
Light-oil sump	5.8	300
Light-oil storage	5.8	80
BTX storage	5.8	80
Benzene storage	9	510
Flushing-liquor circulation tank	9	510
Excess-ammonia liquor tank	3.8	180
Wash-oil decanter	3.8	180
Wash-oil circulation tank	a	600
Pump seals	a	400
Valves	a	270
Pressure-relief devices	a	30
Exhausters	a	50
Sample connections	a	20
Open-ended lines	a	29,000
Total (rounded)		

[a] Emissions were estimated on the basis of number of potentially leaking units. Emission factors are listed in Table 3-6.

SHUTDOWN OF BLOOMING MILL - APRIL 1991

Coke oven gas consumed at Soaking Pits, 1,076,926 MMBtu in 1990

The coke oven gas which was consumed at the Blooming Mill Soaking Pits (firing rate 408 MMBtu/hr/furnace) is to be used at the Hot Strip Slab Furnaces (1-3) (firing rate 321.8 MMBtu/hr/furnace) and Slab Furnace 4 (firing rate 495 MMBtu/hr).

The emission reductions for the displaced use of natural gas on the slab reheat furnaces is based on the AIRS 1990 emission factor for natural gas sources greater than 100 MMBtu/hr and the "ACT for NO_x Emissions from Iron and Steel Mills".

1990

Coke Oven Gas Soaking Pits - General (< 10 MMBtu/hr)

44,134 * 0.003 * 1/2000 = 0.066 tpy PM_{10} emission reduction
44,134 * 0.0006 * 1/2000 = 0.013 tpy SO_2 emission reduction
44,134 * 0.10 * 1/2000 = 2.21 tpy NO_x emission reduction
44,134 * 0.0053 * 1/2000 = 0.12 tpy VOM emission reduction
44,134 * 0.02 * 1/2000 = 0.44 tpy CO emission reduction

Natural Gas Blooming Mill (< 10 MMBTU/hr)

18,083 * 0.003 * 1/2000 = 0.027 tpy PM_{10} emission reduction
18,083 * 0.0006 * 1/2000 = 0.005 tpy SO_2 emission reduction
18,083 * 0.10 * 1/2000 = 0.90 tpy NO_x emission reduction
18,083 * 0.0053 * 1/2000 = 0.05 tpy VOM emission reduction
18,083 * 0.02 * 1/2000 = 0.18 tpy CO emission reduction

Coke Oven Gas Soaking Pits

1,076,926 * 0.005 * 1/2000 = 2.69 tpy PM_{10} emission reduction
1,076,926 * 0.0006 * 1/2000 = 0.32 tpy SO_2 emission reduction
1,076,926 * 0.399 * 1/2000 = 214.71 tpy NO_x emission reduction
1,076,926 * 0.0014 * 1/2000 = 0.75 tpy VOM emission reduction
1,076,926 * 0.04 * 1/2000 = 21.54 tpy CO emission reduction

APPENDIX C

Granite City Steel Company
PM-10 Netting Analyses (Unpaved Roads)

Road	Segment	Current						Production Ratio	Proposed and Contemporaneous Reductions				Net Change in Emissions**	
		Uncontrolled Emissions				Controlled Emissions			Uncontrolled Emissions		Controlled Emissions*			
		lb/day	lb/day (1)	TPY	TPY (1)	lb/day	TPY		lb/day	TPY	lb/day	TPY	lb/day	TPY
South Plant	B	78.05	78.05	9.91	9.91	39.03	4.96	1.00	78.05	9.91	7.81	0.99	(31.22)	(3.96)
	C	59.03	59.03	7.46	7.46	29.52	3.73	1.00	59.03	7.46	5.90	0.75	(23.61)	(2.98)
Steelworks	E	69.36	69.36	8.79	8.79	34.68	4.40	1.00	69.36	8.79	6.94	0.88	(27.74)	(3.52)
	F***	1,175.07	1,373.66	148.15	173.19	686.83	86.59	Paved	0.00	0.00	0.00	0.00	(686.83)	(86.59)
	G***	31.36	36.66	3.96	4.63	36.66	4.63	Paved	0.00	0.00	0.00	0.00	(36.66)	(4.63)
	H	89.06	89.06	11.24	11.24	89.06	11.24	1.00	89.06	11.24	8.91	1.12	(80.15)	(10.12)
	J	64.03	64.03	8.10	8.10	32.02	4.05	1.00	64.03	8.10	6.40	0.81	(25.61)	(3.24)
	L	1,274.92	1,490.38	161.37	188.64	1,490.38	188.64	1.56	2,322.01	293.90	232.20	29.39	(1,258.18)	(159.25)
	R***	20.31	23.74	2.57	3.00	11.87	1.50	Paved	0.00	0.00	0.00	0.00	(11.87)	(1.50)
BOF	N	219.34	256.41	27.75	32.44	256.41	32.44	1.56	399.48	50.54	39.95	5.05	(216.46)	(27.39)
	P	224.98	263.00	28.44	33.25	131.50	16.62	1.56	409.76	51.80	40.98	5.18	(90.53)	(11.44)
Furnace	V***	518.08	605.64	65.65	76.74	302.82	38.37	Paved	0.00	0.00	0.00	0.00	(302.82)	(38.37)
	W***	59.24	69.25	7.49	8.76	34.63	4.38	Paved	0.00	0.00	0.00	0.00	(34.63)	(4.38)
	X***	1,885.37	2,204.00	238.15	278.40	2,204.00	278.40	Paved	0.00	0.00	0.00	0.00	(2,204.00)	(278.40)
	Y	87.52	87.52	11.06	11.06	87.52	11.06	1.00	87.52	11.06	8.75	1.11	(78.77)	(9.95)
	Z****	345.76	404.19	43.70	51.09	202.10	25.54	1/2-Paved	325.38	41.12	32.54	4.11	(169.56)	(21.43)
Area	D-D	331.41	387.42	41.87	48.95	193.71	24.47	1.61	624.52	78.90	62.45	7.89	(131.26)	(16.58)
	E-E	13.38	15.64	1.69	1.98	7.82	0.99	1.61	25.21	3.18	2.52	0.32	(5.30)	(0.67)
	F-F	12.12	14.17	1.53	1.79	14.17	1.79	1.61	22.84	2.88	2.28	0.29	(11.88)	(1.50)
	CS(1)	107.34	125.48	13.57	15.86	125.48	15.86	Paved	0.00	0.00	0.00	0.00	(125.48)	(15.86)
	CS(2)	66.82	66.82	8.49	8.49	66.82	8.49	1.00	66.82	8.49	6.68	0.85	(60.14)	(7.64)
	G-G	46.43	46.43	5.81	5.81	23.22	2.91	1.00	46.43	5.81	4.64	0.58	(18.57)	(2.32)
	Total:	6,778.98	7,829.94	856.75	989.57	6,100.22	771.06		4,689.50	593.19	468.95	59.32	(5,631.27)	(711.74)

*** Proposed controlled emissions include a 90% reduction for dust control measures.**
**** Net Change represents the difference in the proposed controlled and the current controlled emissions.**
***** Segments are proposed (or recently) paved and emissions are accounted for in the Paved Roads table.**
****** Half of the segment is proposed for paving. Proposed emissions reflect only the remaining unpaved portion.**
(1) Adjusted to account for 16.9% increase in production between the 1988 inventory year and the August 1992 through July 1994 base period.

Granite City Steel Company
PM-10 Netting Analyses (Paved Roads)

Road	Segment	Current						Production Ratio	Proposed				Net Change in Emissions**	
		Uncontrolled Emissions				Controlled Emissions			Uncontrolled Emissions		Controlled Emissions*			
		lb/day	lb/day (1)	TPY	TPY (1)	lb/day	TPY		lb/day	TPY	lb/day	TPY	lb/day	TPY
South Plant	A	142.97	142.97	26.09	26.09	142.97	26.09	1.00	142.97	26.09	71.49	13.05	(71.49)	(13.05)
Steelworks	D	250.54	292.88	45.72	53.45	292.88	53.45	1.56	456.31	83.27	228.15	41.63	(64.73)	(11.81)
	F***	0.00	0.00	0.00	0.00	0.00	0.00	1.56	534.22	97.50	267.11	48.75	267.11	48.75
	G***	0.00	0.00	0.00	0.00	0.00	0.00	1.56	55.62	10.15	27.81	5.08	27.81	5.08
	K	34.13	39.90	6.23	7.28	39.90	7.28	1.56	62.16	11.35	31.08	5.67	(8.82)	(1.61)
	M	40.50	47.34	7.39	8.64	47.34	8.64	1.56	73.76	13.46	36.88	6.73	(10.46)	(1.91)
	R***	0.00	0.00	0.00	0.00	0.00	0.00	1.56	23.74	4.33	11.87	2.17	11.87	2.17
BOF	O	206.10	240.93	37.61	43.97	240.93	43.97	1.56	375.37	68.50	187.69	34.25	(53.25)	(9.72)
Furnace	V***	0.00	0.00	0.00	0.00	0.00	0.00	1.10	72.04	13.15	36.02	6.57	36.02	6.57
	W***	0.00	0.00	0.00	0.00	0.00	0.00	1.10	75.31	13.74	37.66	6.87	37.66	6.87
	X***	0.00	0.00	0.00	0.00	0.00	0.00	1.61	565.75	103.25	282.87	51.62	282.87	51.62
	Z****	0.00	0.00	0.00	0.00	0.00	0.00	1.61	65.96	12.04	32.98	6.02	32.98	6.02
North Plant	S	98.31	98.31	17.84	17.84	98.31	17.84	1.00	98.31	17.84	49.16	8.92	(49.16)	(8.92)
	T	115.56	115.56	21.09	21.09	115.56	21.09	1.00	115.56	21.09	57.78	10.55	(57.78)	(10.55)
Area	CS(1)***	0.00	0.00	0.00	0.00	0.00	0.00	1.00	16.47	3.01	8.24	1.50	8.24	1.50
	Total:	888.11	977.89	161.97	178.35	977.89	178.35		2,733.55	498.76	1,366.78	249.38	388.88	71.02

*** Proposed controlled emissions include a 50% reduction for road sweeping dust control measures.**
**** Net Change represents the difference in the proposed controlled and the current controlled emissions.**
***** Segments are currently unpaved and current emissions are accounted for in the Unpaved Roads table.**
****** Half of the segment is proposed for paving. Proposed emissions reflect only the paved portion.**
(1) Adjusted to account for 16.9% increase in production between the 1988 inventory year and the August 1992 through July 1994 base period.

Granite City Steel Company
PM-10 Netting Analyses (Materials Handling)

Material	Current Uncontrolled Emissions				Current Controlled Emissions		Production Ratio	Proposed Uncontrolled Emissions		Proposed Controlled Emissions		Net Change in Emissions*	
	lb/day	lb/day (1)	TPY	TPY (1)	lb/day	TPY		lb/day	TPY	lb/day	TPY	lb/day	TPY
Coal	7.99	9.34	1.45	1.70	9.34	1.70	1.00	9.34	1.70	9.34	1.70	0.00	0.00
Coke	34.89	40.79	6.37	7.45	40.79	7.45	1.56	63.55	11.60	63.55	11.60	22.76	4.16
Coke Breeze	0.06	0.07	0.01	0.01	0.07	0.01	1.56	0.11	0.02	0.11	0.02	0.04	0.01
Pellets	36.67	42.87	6.71	7.84	42.87	7.84	1.56	66.79	12.22	66.79	12.22	23.92	4.38
Limestone	8.82	10.31	1.61	1.88	10.31	1.88	1.56	16.06	2.93	16.06	2.93	5.75	1.05
	88.43	**103.37**	**16.15**	**18.88**	**103.37**	**18.88**		**155.85**	**28.47**	**155.85**	**28.47**	**52.47**	**9.59**

*** Net Change represents the difference in the proposed controlled and the current controlled emissions.**
(1) Adjusted to account for 16.9% increase in production between the 1988 inventory year and the August 1992 through July 1994 base period.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

State of Illinois
ENVIRONMENTAL PROTECTION AGENCY

Mary A. Gade, Director

2200 Churchill Road, Springfield, IL 62794-9276

217/524-4343

August 22, 1994

Michael Pelan
Woodward-Clyde Consultants
10975 El Monte
Suite 100
Overland Park, Kansas 66211

Dear Mr. Pelan:

Enclosed please find a diskette (5 1/4") containing a file (GCSSCRS0.INP) with the ISCST input information for Granite City Steel. The PSD inventory you requested will be forwarded to you at a later date. If you have further needs or questions, please feel free to contact me at (217)524-4788.

Sincerely,

Michael T. Reischel
Air Quality Planning Section
Bureau of Air

Enclosure
cc: Rob Kaleel

PELAN.MRE

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

State of Illinois
ENVIRONMENTAL PROTECTION AGENCY

Mary A. Gade, Director

2200 Churchill Road, Springfield, IL 62794-9276

217/524-4343

August 30, 1994

Michael Pelan
Woodward-Clyde Consultants
10975 El Monte
Suite 100
Overland Park, Kansas 66211

Dear Mr. Pelan:

Enclosed please find three diskettes (5 1/4") containing the files you requested. Please return the diskettes after you have copied the data. The diskettes contain the following data:

a) five meteorological data files (for 1982-86) that use St. Louis for surface data and Salem for upper air data

b) three receptor grid files of varying resolution and coverage. These grids were used for SIP related modeling.

It is our recommendation that the PSD modeling should use the above years (1982-1986) of meteorological data for consistency with the SIP modeling.

I have enclosed a cross reference listing of our source I.D. numbers with corresponding emission unit names for your convenience. If you have any questions regarding PSD inventory or sources please contact Mr. Chris Romaine of our Permits Section at (217)785-1715. If you have further needs or questions, please feel free to contact me at (217)524-4788.

Sincerely,

Michael T. Reischel
Air Quality Planning Section
Bureau of Air

Enclosure
cc: Rob Kaleel
Chris Romaine

PELAN.MRE

Printed on Recycled Paper

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

24-Aug-94

CURRENT SO2 EMISSIONS UNITS
FOR GRANITE CITY STEEL

I.D.	SOURCE DESCRIPTION
17000	Blast Furnace C.H. Baghouse
17005	Blast Furnace I.S. Baghouse
17010	B Blast Furnace Stoves
17020	Boiler House 1; 1-7
17030	A Blast Furnace Stoves
17040	Boiler 11 Blast Furnace
17050	Boiler 12 Blast Furnace
17060	Boiler House 1; 8-10
17070	Steam Boilers 1
17080	Steam Boilers 2
17090	Steam Boilers 3
17100	Steam Boilers 4
17110	Battery A underfiring
17120	Battery B underfiring
17130	Slab Furnace No. 1
17140	Slab Furnace No. 2
17150	Slab Furnace No. 3
17170-080	No. 6 Galvanizing Furnace
17180-240	Galvanizing Line 7A Furnace
17260	By-Product Flare
17340	Slab Furnace No. 4 (Reheat)
30010-020	No. 6 Galvanizing Pot
30030-160	Ladle Drying Preheaters
30170-190	Oven Charging - A Battery
30200-220	Oven Charging - B Battery

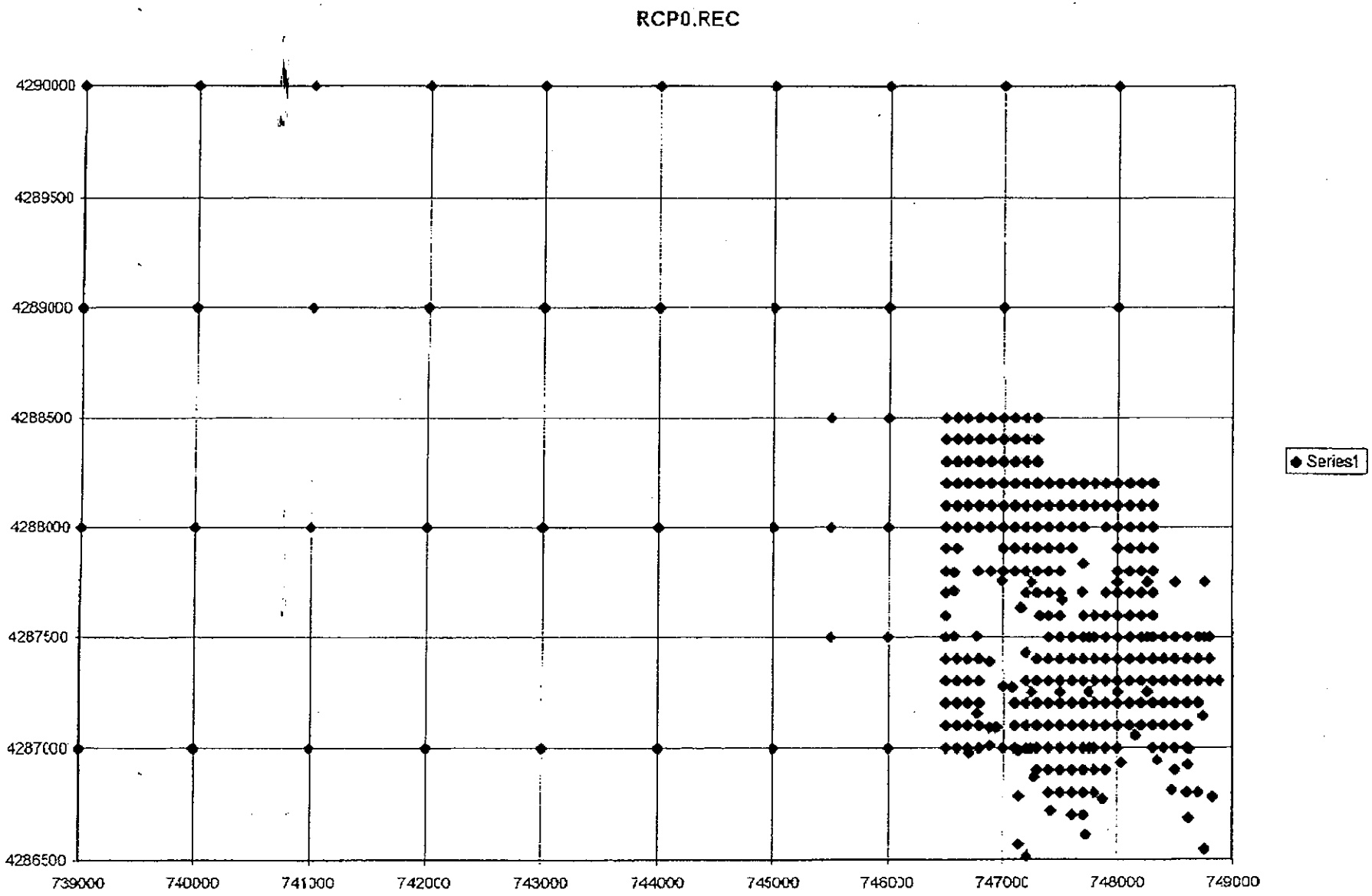
```
CO STARTING
CO TITLEONE GRANITE CITY STEEL SO2 SOURCES: GCSSCRS0.INP: 17AUG94
CO FINISHED
SO STARTING

** Source Location Cards:
**           SRCID SRCTYP        XS             YS             ZS

SO LOCATION 17000 POINT    749675.0000  4286481.0000         .0000
SO LOCATION 17005 POINT    749780.0000  4286540.0000         .0000
SO LOCATION 17010 POINT    749730.0000  4286485.0000         .0000
SO LOCATION 17020 POINT    749815.0000  4286590.0000         .0000
SO LOCATION 17030 POINT    749880.0000  4286560.0000         .0000
SO LOCATION 17040 POINT    749945.0000  4286640.0000         .0000
SO LOCATION 17050 POINT    749945.0000  4286640.0000         .0000
SO LOCATION 17060 POINT    749760.0000  4286660.0000         .0000
SO LOCATION 17070 POINT    748015.0000  4286860.0000         .0000
SO LOCATION 17080 POINT    748000.0000  4286810.0000         .0000
SO LOCATION 17090 POINT    748010.0000  4286800.0000         .0000
SO LOCATION 17100 POINT    748000.0000  4286790.0000         .0000
SO LOCATION 17110 POINT    750170.0000  4286730.0000         .0000
SO LOCATION 17120 POINT    750180.0000  4286730.0000         .0000
SO LOCATION 17130 POINT    747740.0000  4286570.0000         .0000
SO LOCATION 17140 POINT    747770.0000  4286570.0000         .0000
SO LOCATION 17150 POINT    747750.0000  4286550.0000         .0000
SO LOCATION 17170 POINT    748820.0000  4287010.0000         .0000
SO LOCATION 17180 POINT    748820.0000  4287010.0000         .0000
SO LOCATION 17190 POINT    748410.0000  4286810.0000         .0000
SO LOCATION 17200 POINT    748420.0000  4286810.0000         .0000
SO LOCATION 17210 POINT    748440.0000  4286800.0000         .0000
SO LOCATION 17220 POINT    748460.0000  4286780.0000         .0000
SO LOCATION 17230 POINT    748440.0000  4286800.0000         .0000
SO LOCATION 17240 POINT    748460.0000  4286780.0000         .0000
SO LOCATION 17260 POINT    750050.0000  4286770.0000         .0000
SO LOCATION 17340 POINT    747680.0000  4286530.0000         .0000
SO LOCATION 30010 VOLUME   748940.0000  4287100.0000         .0000
SO LOCATION 30020 VOLUME   748951.0000  4287109.0000         .0000
SO LOCATION 30030 VOLUME   748430.0000  4286320.0000         .0000
SO LOCATION 30040 VOLUME   748435.0000  4286324.0000         .0000
SO LOCATION 30050 VOLUME   748440.0000  4286328.0000         .0000
SO LOCATION 30060 VOLUME   748460.0000  4286330.0000         .0000
SO LOCATION 30070 VOLUME   748468.0000  4286336.0000         .0000
SO LOCATION 30080 VOLUME   748475.0000  4286343.0000         .0000
SO LOCATION 30090 VOLUME   748483.0000  4286349.0000         .0000
SO LOCATION 30100 VOLUME   748440.0000  4286300.0000         .0000
SO LOCATION 30110 VOLUME   748445.0000  4286304.0000         .0000
SO LOCATION 30120 VOLUME   748450.0000  4286308.0000         .0000
SO LOCATION 30130 VOLUME   748460.0000  4286325.0000         .0000
SO LOCATION 30140 VOLUME   748468.0000  4286331.0000         .0000
SO LOCATION 30150 VOLUME   748475.0000  4286338.0000         .0000
SO LOCATION 30160 VOLUME   748483.0000  4286344.0000         .0000
SO LOCATION 30170 VOLUME   750100.0000  4286760.0000         .0000
SO LOCATION 30180 VOLUME   750139.0000  4286777.0000         .0000
SO LOCATION 30190 VOLUME   750160.0000  4286794.0000         .0000
```

```
SO LOCATION 30200 VOLUME    750209.0000  4286823.0000          .0000
SO LOCATION 30210 VOLUME    750239.0000  4286840.0000          .0000
SO LOCATION 30220 VOLUME    750286.0000  4286857.0000          .0000
SO LOCATION 40001 VOLUME    749760.0000  4286573.0000          .0000
SO LOCATION 40002 VOLUME    749764.0000  4286575.0000          .0000
SO LOCATION 40003 VOLUME    749767.0000  4286578.0000          .0000
SO LOCATION 40004 VOLUME    749771.0000  4286581.0000          .0000
SO LOCATION 40005 VOLUME    749774.0000  4286584.0000          .0000
SO LOCATION 40006 VOLUME    749780.0000  4286587.0000          .0000

** Source Parameter Cards:
** POINT:    SRCID       QS              HS          TS          VS
      DS
** VOLUME:   SRCID       QS              HS        SYINIT      SZINIT
** AREA:     SRCID       QS              HS         XINIT

SO SRCPARAM 17000     8.862000         19.3200   339.0000    20.3300
    3.3500
SO SRCPARAM 17005     0.441000         16.7600   116.0000    20.7000
     .7600
SO SRCPARAM 17010     0.000000         68.5800   533.0000    18.5600
    2.7400
SO SRCPARAM 17020    52.920000         68.5800   460.0000     4.8500
    4.1100
SO SRCPARAM 17030     0.000000         66.1400   533.0000    26.8400
    2.1300
SO SRCPARAM 17040    28.350000         46.3300   510.0000    11.8800
    2.1300
SO SRCPARAM 17050    28.350000         46.3300   510.0000    10.6400
    2.1300
SO SRCPARAM 17060    22.680000         60.9600   460.0000     3.4400
    3.2000
SO SRCPARAM 17070    00.000000         32.9200   505.0000     7.0700
    2.1300
SO SRCPARAM 17080    00.000000         32.9200   505.0000     7.0700
    2.1300
SO SRCPARAM 17090    00.000000         29.8700   505.0000     7.0700
    2.1300
SO SRCPARAM 17100    00.000000         29.8700   505.0000     7.0700
    2.1300
SO SRCPARAM 17110    17.408000          9.1500   529.0000     3.3100
    2.7400
SO SRCPARAM 17120    17.297000          9.1500   529.0000     4.7900
    2.7400
SO SRCPARAM 17130    89.203000         33.5300   616.0000    18.9600
    2.0700
SO SRCPARAM 17140    39.947000         33.5300   616.0000    18.9600
    2.0700
SO SRCPARAM 17150     0.000000         33.5300   616.0000    18.9600
    2.0700
SO SRCPARAM 17170     0.000000         15.5400  1199.0000     4.3700
     .6000
SO SRCPARAM 17180     0.000000         15.5400  1199.0000     4.3700
     .6000
```

```
SO SRCPARAM 17190      0.000000        16.4600   505.0000     7.7900
    .5100
SO SRCPARAM 17200      0.000000        16.4600   505.0000     7.7900
    .5100
SO SRCPARAM 17210      0.000000        17.9800   505.0000     7.7900
    .5100
SO SRCPARAM 17220      0.000000        20.1200   505.0000     7.7900
    .5100
SO SRCPARAM 17230      0.000000        17.9800   505.0000     7.7900
    .5100
SO SRCPARAM 17240      0.000000        20.1200   505.0000     7.7900
    .5100
SO SRCPARAM 17260      0.000000        32.0000  1273.0000    20.0000
    3.8400
SO SRCPARAM 17340     52.255000        44.5000   644.0000     8.1500
    4.2000
SO SRCPARAM 30010      0.000000        38.1000     6.6700    17.7200
SO SRCPARAM 30020      0.000000        38.1000     6.6700    17.7200
SO SRCPARAM 30030      1.193280        31.7500     3.0600    14.7700
SO SRCPARAM 30040      1.193280        31.7500     3.0600    14.7700
SO SRCPARAM 30050      1.193280        31.7500     3.0600    14.7700
SO SRCPARAM 30060      2.091170        31.7500     4.6600    14.7700
SO SRCPARAM 30070      2.091170        31.7500     4.6600    14.7700
SO SRCPARAM 30080      2.091170        31.7500     4.6600    14.7700
SO SRCPARAM 30090      2.091170        31.7500     4.6600    14.7700
SO SRCPARAM 30100      1.193280        31.7500     3.0600    14.7700
SO SRCPARAM 30110      1.193280        31.7500     3.0600    14.7700
SO SRCPARAM 30120      1.193280        31.7500     3.0600    14.7700
SO SRCPARAM 30130      2.091170        31.7500     4.6600    14.7700
SO SRCPARAM 30140      2.091170        31.7500     4.6600    14.7700
SO SRCPARAM 30150      2.091170        31.7500     4.6600    14.7700
SO SRCPARAM 30160      2.091170        31.7500     4.6600    14.7700
SO SRCPARAM 30170    .40000000E-01      9.7600    15.9100     9.0700
SO SRCPARAM 30180    .40000000E-01      9.7600    15.9100     9.0700
SO SRCPARAM 30190    .40000000E-01      9.7600    15.9100     9.0700
SO SRCPARAM 30200    .40000000E-01      9.7600    15.9100     9.0700
SO SRCPARAM 30210    .40000000E-01      9.7600    15.9100     9.0700
SO SRCPARAM 30220    .40000000E-01      9.7600    15.9100     9.0700
SO SRCPARAM 40001    .30450000         10.9000     2.1300    10.1400
SO SRCPARAM 40002    .30450000         10.9000     2.1300    10.1400
SO SRCPARAM 40003    .30450000         10.9000     2.1300    10.1400
SO SRCPARAM 40004    .30450000         10.9000     2.1300    10.1400
SO SRCPARAM 40005    .30450000         10.9000     2.1300    10.1400
SO SRCPARAM 40006    .30450000         10.9000     2.1300    10.1400

SO BUILDHGT 17000 36*15.20
SO BUILDHGT 17005 36*15.20
SO BUILDHGT 17040 36*21.80
SO BUILDHGT 17050 36*21.80
SO BUILDHGT 17070 36*27.44
SO BUILDHGT 17080 36*27.44
SO BUILDHGT 17090 36*27.38
SO BUILDHGT 17100 36*27.38
SO BUILDHGT 17130 36*27.38
```

```
SO BUILDHGT 17140 36*27.38
SO BUILDHGT 17150 36*27.38
SO BUILDHGT 17170 36*30.79
SO BUILDHGT 17180 36*30.79
SO BUILDHGT 17190 36*62.94
SO BUILDHGT 17200 36*62.94
SO BUILDHGT 17210 36*62.94
SO BUILDHGT 17220 36*62.94
SO BUILDHGT 17230 36*62.94
SO BUILDHGT 17240 36*62.94
SO BUILDHGT 17340 36*27.38
SO BUILDWID 17000 36*47.73
SO BUILDWID 17005 36*47.73
SO BUILDWID 17040 36*31.76
SO BUILDWID 17050 36*31.76
SO BUILDWID 17070 36*51.01
SO BUILDWID 17080 36*51.01
SO BUILDWID 17090 36*50.99
SO BUILDWID 17100 36*50.99
SO BUILDWID 17130 36*50.99
SO BUILDWID 17140 36*50.99
SO BUILDWID 17150 36*50.99
SO BUILDWID 17170 36*32.97
SO BUILDWID 17180 36*32.97
SO BUILDWID 17190 36*230.56
SO BUILDWID 17200 36*230.56
SO BUILDWID 17210 36*230.56
SO BUILDWID 17220 36*230.56
SO BUILDWID 17230 36*230.56
SO BUILDWID 17240 36*230.56
SO BUILDWID 17340 36*50.98
SO SRCGROUP   ALL
SO FINISHED
```

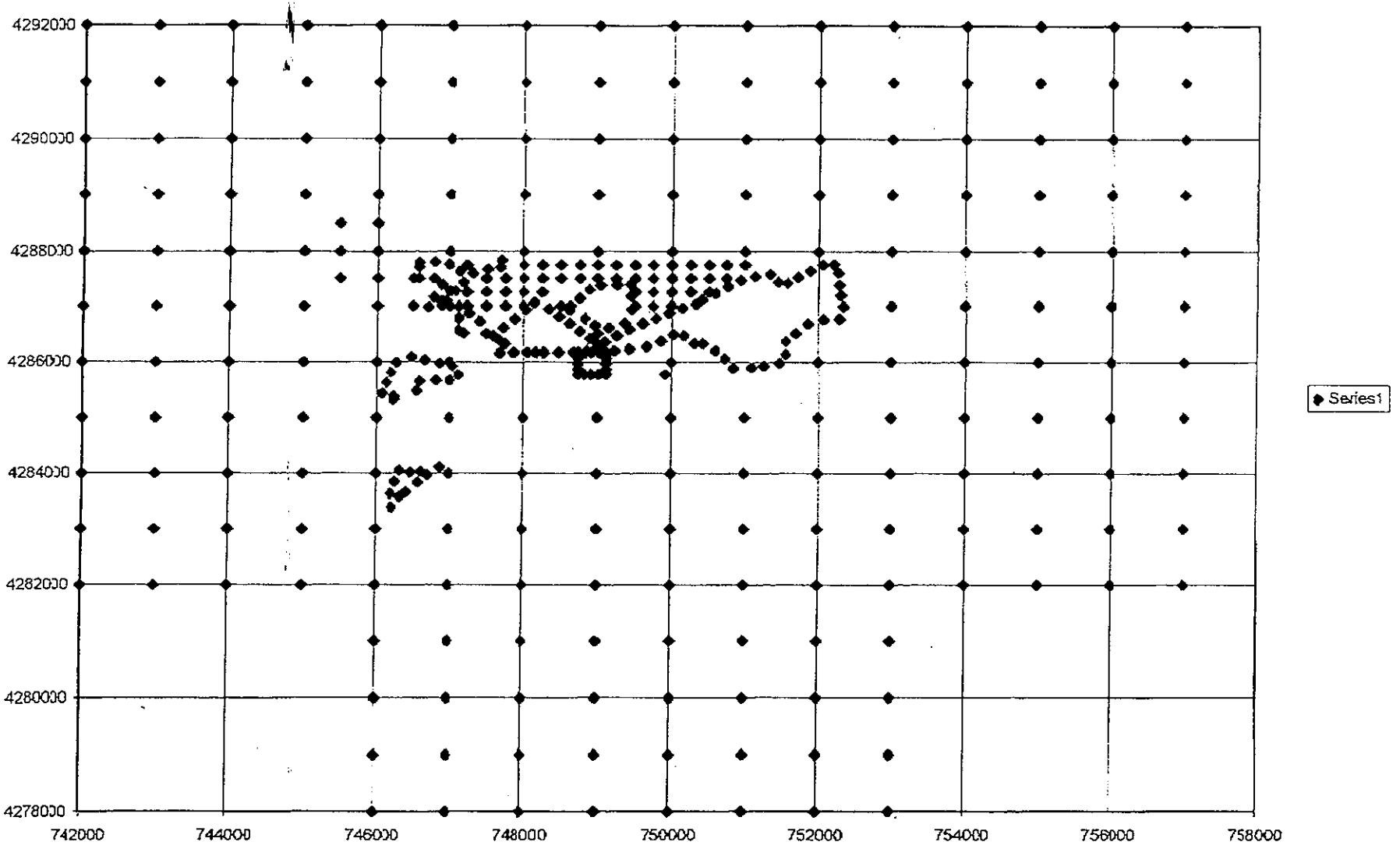
Sheet1 Chart 1



10-07-94 01:31PM FROM WOODWARD-CLYDE TO OVERLAND PARK P002/004

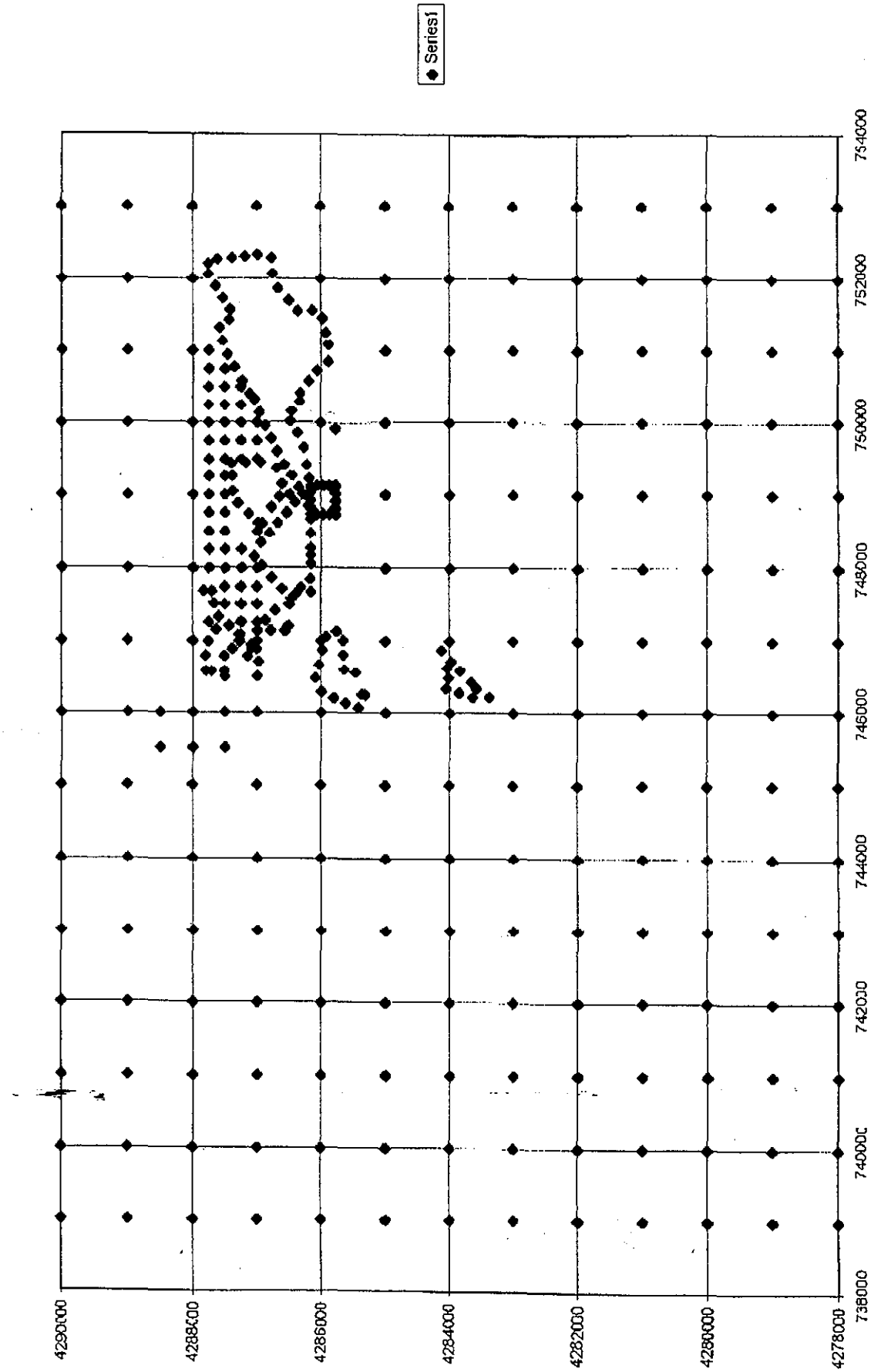
Sheet1 Chart 1

RCP2.REC



10-07-94 01:31PM FROM WOODWARD-CLYDE TO OVERLAND PARK P004/004

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077



Sheet1 Chart 1

RCP1.REC

GRANITE CITY STEEL
Chi/Q MODELING RESULTS

Source		Averaging Periods 1-hr	3-hr	8-hr	24-hr	Annual
Basic Oxygen Furnace						
	1982	8.32992	5.11954	4.04261	3.17553	0.40857
	1983	8.40577	5.14898	4.32258	3.57843	0.32592
	1984	8.37546	5.91221	4.05676	3.12822	0.36519
	1985	8.02242	6.30424	3.78267	2.85222	0.39603
	1986	9.47827	4.04066	4.04810	3.32816	0.36204
Cont. Caster 1						
	1982	41.72854	22.89801	16.26416	10.86266	1.94732
	1983	32.29171	20.36359	16.39947	9.57338	1.67305
	1984	31.71025	19.15633	13.23390	8.76975	1.85467
	1985	33.97346	18.51436	14.45577	11.38182	1.93941
	1986	36.22949	21.62249	17.93918	14.04322	2.28138
Cont. Caster 2						
	1982	65.68226	36.85776	18.89259	10.82353	1.75785
	1983	62.17685	36.08628	19.81877	10.11278	1.49192
	1984	62.87529	33.71236	18.43574	9.49753	1.39393
	1985	62.44077	28.05335	19.47174	7.98767	1.58275
	1986	64.46448	40.34770	25.79822	14.15720	1.96735
Blast Furnace Stove A						
	1982	2.03670	1.48685	0.90975	0.65324	0.08491
	1983	2.02455	1.41562	1.01511	0.68786	0.06888
	1984	2.01596	1.25256	0.93502	0.62503	0.06445
	1985	1.86379	1.26479	0.92416	0.70430	0.08434
	1986	2.05316	1.41788	0.91439	0.53281	0.07122
Blast Furnace Stove B						
	1982	1.83402	1.49177	1.01450	0.52660	0.07639
	1983	1.83477	1.27043	0.92317	0.57669	0.05900
	1984	1.82304	1.16380	0.75610	0.58302	0.05680
	1985	1.64615	1.11064	0.74498	0.55165	0.06810
	1986	1.86933	1.18687	0.84350	0.46336	0.06435
Boilers 1-7						
	1982	2.75429	1.77919	1.43887	1.01927	0.13301
	1983	3.02279	2.13943	1.44578	0.99959	0.10907
	1984	2.91744	2.29176	1.35573	1.00819	0.10460
	1985	2.73767	1.96698	1.40735	1.13495	0.13117
	1986	3.10811	1.78998	1.44748	0.81800	0.11280

GRANITE CITY STEEL
Chi/Q MODELING RESULTS

Source		Averaging Periods 1-hr	3-hr	8-hr	24-hr	Annual
Boilers 8-10						
	1982	5.35731	3.89625	2.98148	1.87469	0.22715
	1983	5.25407	3.35492	2.73839	1.87139	0.21162
	1984	5.23671	4.10504	2.71289	1.73712	0.19509
	1985	6.01839	3.62993	2.63138	1.85790	0.25693
	1986	5.88483	3.42206	2.55914	1.49832	0.22485
Boiler 11						
	1982	5.53215	4.64445	3.09394	2.07691	0.25464
	1983	5.35349	4.07117	3.12422	1.86106	0.19298
	1984	4.99910	3.80702	3.23865	1.97619	0.18844
	1985	5.20339	3.77086	2.85423	2.01661	0.22532
	1986	4.82790	4.16260	2.19490	1.85895	0.18418
Boiler 12						
	1982	5.57253	4.84367	3.35639	2.27339	0.27846
	1983	5.37638	4.37466	3.42029	1.97834	0.21558
	1984	5.16843	3.97674	3.38319	2.07676	0.21379
	1985	5.35126	4.10718	2.97037	2.12109	0.25231
	1986	5.54365	4.39041	3.14718	1.93025	0.21097
By-Products Flare						
	1982	1.71711	1.17731	0.71190	0.34155	0.03809
	1983	1.67022	1.23291	0.80794	0.30850	0.03246
	1984	1.47099	1.20900	0.77422	0.35805	0.03104
	1985	1.46473	1.07527	0.61864	0.31640	0.03901
	1986	1.68110	1.12976	0.77906	0.35777	0.03810
Basic Oxygen Furnace Ladle Preheater/Dryer						
	1982	152.91600	71.24404	40.29081	30.52122	1.92532
	1983	105.10160	81.90311	38.11738	17.85423	1.57519
	1984	103.18574	65.88528	59.53541	30.77378	1.92123
	1985	123.98038	59.26729	41.58367	22.27744	1.99249
	1986	119.31400	74.24021	57.29976	23.81347	2.22434
A&B Blast Furnace Casthouse						
	1982	--	18.07605	--	10.31622	1.26819
	1983	--	20.13827	--	10.53389	0.92814
	1984	--	17.93552	--	10.79339	0.90975
	1985	--	19.07195	--	12.13430	1.18526
	1986	--	16.54042	--	8.49202	0.87335

GRANITE CITY STEEL
Chi/Q MODELING RESULTS

Source		Averaging Periods 1-hr	3-hr	8-hr	24-hr	Annual
Iron Sprout Baghouse						
	1982	--	100.92982	--	36.82012	4.79483
	1983	--	94.94304	--	37.76471	4.77771
	1984	--	84.64680	--	42.73305	4.31194
	1985	--	87.12678	--	28.59888	5.01813
	1986	--	94.53537	--	31.99669	5.72802
A&B Blast Furnace Uncap. Roof						
	1982	--	149.78619	--	34.55944	6.27768
	1983	--	150.18353	--	49.11052	5.00250
	1984	--	122.64623	--	42.36183	4.49365
	1985	--	121.93640	--	40.57382	5.31191
	1986	--	166.83260	--	43.00364	6.32726
Slab Furnace #1						
	1982	17.93674	--	9.07911	--	--
	1983	17.83176	--	10.20481	--	--
	1984	17.93832	--	11.31362	--	--
	1985	17.36112	--	10.85532	--	--
	1986	20.27599	--	10.26824	--	--
Slab Furnace #2						
	1982	15.20269	--	9.91327	--	--
	1983	15.53579	--	10.97924	--	--
	1984	15.50592	--	9.75170	--	--
	1985	16.99075	--	10.56445	--	--
	1986	15.2304	--	9.91955	--	--
Slab Furnace #3						
	1982	17.94873	--	10.22973	--	--
	1983	18.03205	--	11.34276	--	--
	1984	18.12591	--	10.52488	--	--
	1985	19.46428	--	12.37725	--	--
	1986	28.60361	--	10.48824	--	--
Slab Furnace #4						
	1982	4.04542	--	1.98084	--	--
	1983	3.44341	--	2.21318	--	--
	1984	3.87351	--	2.38280	--	--
	1985	4.43493	--	2.18079	--	--
	1986	3.71547	--	2.18042	--	--

GRANITE CITY STEEL
Chi/Q MODELING RESULTS

Source	Averaging Periods 1-hr	3-hr	8-hr	24-hr	Annual
Battery "A" Underfire					
1982	19.72516	--	14.52922	--	--
1983	19.7897	--	13.64811	--	--
1984	19.58003	--	14.73932	--	--
1985	19.41563	--	13.09506	--	--
1986	19.10546	--	14.22764	--	--
Battery "B" Underfire					
1982	14.74961	--	11.25772	--	--
1983	14.63826	--	8.69756	--	--
1984	14.7154	--	9.30580	--	--
1985	14.70493	--	8.24305	--	--
1986	14.08924	--	10.66454	--	--

GRANITE CITY STEEL
MODELING FILES

File Name	Description
COBFSA8*	Blast Furnace Stove A, CO, Chi/Q
COBFSB8*	Blast Furnace Stove B, CO, Chi/Q
COCC18*	Continuous Caster 1, CO, Chi/Q
COCC28*	Continuous Caster 2, CO, Chi/Q
COBFF8*	Blast Furnace Flare, CO, Chi/Q
COBH178*	Boiler House 1 1-7, CO, Chi/Q
COBH818*	Boiler House 1 8-10, CO, Chi/Q
COB118*	Boiler 11, CO, Chi/Q
COB128*	Boiler 12, CO, Chi/Q
COBOFL8*	Basic Oxygen Furnace Ladle, CO, Chi/Q
COBOF8*	Basic Oxygen Furnace, CO, Chi/Q
GCSCO8*	A & B Blast Furnace Casthouse, Iron Spout Baghouse, A & B Blast Furnace Uncap Roof, CO, Chi/Q
GCSSO8*	A & B Blast Furnace Casthouse, Iron Spout Baghouse, A & B Blast Furnace Uncap Roof, SO_2, Chi/Q
GCS18*	Basic Oxygen Furnace, Continuous Caster 1, Continuous Caster 2, Blast Furnace Stove A, Blast Furnace Stove B, SO_2, Chi/Q
GCS28*	Boiler House 1 1-7, Boiler House 1 8-10, Boiler 11, Boiler 12, Flare, SO_2, Chi/Q

GCS38*	BOF Ladle, Boiler 1, Boiler 2, Boiler 3, Boiler 4, SO_2, Chi/Q
GCS48*	Flare, Boiler 1, Boiler 2, Boiler 3, Boiler 4, CO, Chi/Q
GCS58*	Flare, Boiler 1, Boiler 2, Boiler 3, Boiler 4, SO_2, Chi/Q
1GCSCO8*	Slab Furnaces 1-4, CO, Chi/Q
2GCSCO8*	Battery Underfiring A & B, CO, Chi/Q
1GCSSO8* 2GCSSO8* 3GCSSO8*	Most Recent SO_2 Scenarios, Actual Emission Rates

*1982 - 86 Five files per each source set for each of five years of met. data.

4GCSSO8*
5GCSSO8*
6GCSSO8*
7GCSSO8*

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Illinois Environmental Protection Agency
Division of Air Pollution Control
1340 N. Ninth Street
Springfield, Illinois
November 1995

PROJECT SUMMARY
FOR PROPOSED ISSUANCE OF
A CONSTRUCTION PERMIT
FOR GRANITE CITY DIVISION OF NATIONAL STEEL CORPORATION

Applicant:
Name: Granite City Division of National Steel Corporation
Address: 20th and State Streets, Granite City

Contact Person: Larry Siebenberger
Contact Person Phone: (618) 451-3456

Project:
Project: Increased iron and steel production
Project Location: Southeastern Granite City

Plant Name: Granite City Division of National Steel Corporation
Location Identification Number: 119813AAI
Application Number: 95010001

Significant Dates:
Application Received: January 3, 1995
Public Hearing
Scheduled For: 7:00 p.m., Thursday, December 20, 1995
Comment Period Ends: January 19, 1996

Hearing Location: Granite City Township Hall, 2060 Delmar in Granite City, Illinois

Illinois EPA contacts:
Permit Section - Name: Jim Ross
Address: ~~1340 N. Ninth Street~~
P.O. Box 19506
Springfield, Illinois 62794-9506
Telephone: 217/785-1878

Telecommunications Device for the Deaf: 217/782-2143

Field Operations Sections - Name: Jeff Benbenek
Address: 2009 Mall Street
Collinsville, Illinois 62234
Telephone: (618) 346-5120

Corrections FAXed to Ross
JB

INTRODUCTION:

Granite City Division (GCD) of National Steel Corporation is a steel mill located on about 1100 acres of land largely within the city limits of Granite City. GCD has conducted iron and steel making at this site since 1878. The final product at GCD is in the form of flat steel coils. GCD has requested that the Illinois Environmental Protection Agency (Agency) issue a construction permit to allow an increase in iron and steel production.

The Agency has reviewed the permit application and concluded that the project complies with applicable state and federal regulations governing air pollution. As a result, the Agency has prepared a draft of a construction permit which would allow the production increase.

The project is considered significant under the federal Prevention of Significant Deterioration (PSD) rules for carbon monoxide (CO) and sulfur dioxide (SO2). The net emissions change is not considered significant for particulate matter (PM), particulate matter less than or equal to 10 microns in size (PM-10), nitrogen oxides (NOx), volatile organic material (VOM), and lead.

DESCRIPTION OF OPERATIONS:

GCD operates an integrated steel mill. An integrated steel mill starts with iron ore, reduces this material to iron, and then converts this iron to steel. Equipment used includes blast furnaces, basic oxygen furnaces, and continuous casters.

Iron Production

The iron making process begins at two blast furnaces where iron ore, steel scrap, coke, limestone, fluxing agents, and large quantities of hot air react to produce molten iron (a.k.a. hot metal). A by-product "blast furnace gas" is collected at the top of the furnace and is used as a fuel, primarily in stoves to heat the air used in the furnace.

Steel Production

The molten iron is then transported to the basic oxygen furnace (BOF) shop for conversion to steel. After transfer to ladles, the sulfur content of the molten iron is reduced at a desulfurization station. Next, the iron is poured into one of two identical BOF vessels along with steel scrap, limestone and other flux forming materials. A large pipe known as a lance is then lowered down through a hole in the lid of the BOF to within a foot of the iron. Oxygen is then blown into the BOF through the lance, thus burning or oxidizing the carbon in the iron and converting the iron to steel. The liquid steel is then

transferred to the ladle metallurgy station where the properties of the steel may be adjusted by adding alloying materials prior to casting.

Casting

Two continuous casters are used to produce solid steel slabs from the liquid steel. The liquid steel is poured into the top of water-cooled caster molds where it is continuously shaped and cooled until the desired steel slab emerges from the bottom of the mold. The slabs are then cut to the desired length for further processing.

Ancillary Activities

GCD uses several large boilers to provide steam for use in the plant. Fuel is also combusted in the blast furnace stoves, slab reheat furnaces, and several smaller units such as ladle preheaters. For fuel, GCD utilizes the by-product blast furnace gas, as well as by-product coke oven gas, and natural gas and oil.

GCD also operates a coke plant, coke by-products recovery plant, and cold and hot steel rolling operations. No changes in these operations are expected.

DESCRIPTION OF PROPOSED PROJECT:

GCD is requesting an increase in the allowable production rate of iron at the blast furnaces and steel at the basic oxygen furnaces. Continuing improvements in the science of steel making (e.g., higher yield ores, longer life refractory furnace linings, and better timing of equipment maintenance) have enabled increased production from GCD's existing furnaces. Only minor physical changes are needed for the proposed increases (e.g., increased capacity of blast furnace stove blowers).

EMISSIONS:

The operations at GCD are sources of emissions and various control measures are used to minimize these emissions. In particular, the emissions of particulate matter at the blast furnace when tapping molten iron are controlled by a large baghouse, and a large electrostatic precipitator (ESP) is used to control the BOF vessel emissions.

Also of importance to this evaluation are other projects which have affected emissions and which have occurred over the last five years. These projects and the emission changes associated with them are summarized in Table 1.

TABLE 1- EMISSIONS SUMMARY (tons/year)

Other projects changing emissions since 1990	Date	PM/ PM-10	SO2	NOx	CO	VOM	Lead
Removal of blast furnace slag spout hood	1/90	+4.9					
Addition of #2 continuous caster	12/90	+11.7					
Shutdown of ingot teeming operations	4/91	-22.4					
Shutdown of blooming mill	4/91	-3.38	-0.34	-217.8	-22.1	-0.9	
Installation of NESHAP controls at Coke By-Products plant	7/91					-31.6	
Shutdown of batch annealing	12/91	-0.18	-0.04	-8.7	-1.2	-0.3	
Initiation of fugitive dust control program[1]	11/91 - present	-416					
Installation of #8 galvanizing line	96	+4.0/ +3.8	+2.0	+18.4	+10.2	+1.2	
Subtotal		-421.3/ -421.6	-0.18	-208.1	-13.1	-31.6	
Change in emissions from proposed production increase	96	-60.6/ +51.6	+475.8	+238.8	+5,685	+59.3	+0.54
Net change in emissions over the last 5 years		**-481.9/ -370.0**	**+470.3**	**+30.7**	**+5,672**	**+27.7**	**+0.54**
Net change in emissions over the last 5 years for purposes of NSR & PSD[2]		**-98.0/ +14.0**	**+470.3**	**+30.7**	**+5,672**	**+27.7**	**+0.54**

[1]Based on reduction in roadway emissions of 401 tons (428 - 27) and material handling of 15 tons (17 - 2).

[2]Cannot include some PM/PM-10 reductions from fugitive dust control since relied upon these reductions in the implementation plan used to demonstrate attainment with the NAAQS. Of the above 416 tons, 32 tons is considered creditable for PSD and NSR.

APPLICABLE EMISSION STANDARDS:

All emission sources in Illinois must comply with Illinois Pollution Control Board emission standards. The Board's emission standards represent the basic requirements for sources in Illinois.

Applicable emissions standards for PM and PM-10 for the blast furnaces, BOF vessels, continuous caster, and other operations are found in 35 Ill. Adm. Code Part 212, specifically in Subparts B, K and R.

Fuel combustion unit emission standards are found in 35 Ill. Adm. Code Parts 212, 214, 216, and 217.

After reviewing the technical material in the application, the Agency has determined that the operations at GCD should comply with all applicable standards.

ADDITIONAL REQUIREMENTS FOR MAJOR PROJECTS:

Regulations which address the affect of a project on the air quality are found in 35 Ill. Adm. Code Part 203 (NSR) and the federal rules for Prevention of Significant Deterioration (PSD) - 40 CFR 52.21.

Projects are required to meet additional requirements if the change in emissions is significant as shown below.

- Significant Levels for NSR and PSD:

PM-10	PM	NOx	SO2	CO	VOM	Lead
15	25	40	40	100	40	0.6

The increases in emissions of lead and VOM with increased production are not significant under NSR or PSD.

The increase in emissions of NOx are being accompanied by contemporaneous emission decreases provided by the shutdown of equipment and operations such that the net emissions change is not significant under NSR or PSD.

The increase in emissions of PM and PM-10 are being accompanied by contemporaneous emission decreases provided by the shutdown of equipment and operations, additional road dust control, and improvements to BOF emissions capture system such that the net emissions change is not significant under NSR or PSD.

The increases in emissions of SO2 and CO are significant under PSD. Accordingly, the project is considered a major modification and must comply with the requirements of PSD.

The requirements of PSD include a demonstration that best available control technology (BACT) will be used for SO2 and CO emissions at affected units, an analysis of air quality impacts, and an analysis of the impacts of the project on visibility, vegetation's and soils. The Agency has determined that these requirements have been met.

GCD has shown that work practices used for SO2 and CO constitute BACT as used by other steel mills for these pollutants. The air quality analysis included with the application shows that increased production will not cause a violation of the NAAQS for SO2 or CO. Increased production also will not significantly affect soils, vegetation, or visibility.

DISCUSSION OF PM-10 ATTAINMENT STATUS:

Of special concern for this project is the emissions of PM-10, since GCD is located in an area that is designated as nonattainment for PM-10 air quality. The Agency is currently working to reclassify the Granite City area from nonattainment with the National Ambient Air Quality Standard (NAAQS) to attainment. The modeling evaluation performed by the Agency shows that the area will continue to comply with the PM-10 air quality standards at the level of emissions associated with the requested increase in production. This is in part due to the stringent levels of control now required to control process emissions and fugitive emissions from roadways and material handling. These measures have resulted in substantial reductions in PM-10 emissions in the area, such that the last exceedance of the PM-10 air quality standard was monitored in 1990. It is also due to substantial improvements made by GCD to the BOF control system. In particular, GCD has added a fourth section to the BOF ESP at an approximate cost of $7,000,000. This provides additional capacity for the ESP to collect and control emissions from the BOF and reduce the amount of uncaptured PM-10 that would otherwise escape through the top of the BOF shop. As part of this permit, GCD will now be required to comply with a more stringent limit on uncaptured emissions, i.e., 20 percent opacity on a three minute average versus the current limit of 30% opacity on a six minute average.

Emissions modeling performed by the Agency shows that the PM-10 NAAQS will be met at the emission levels which could occur at the proposed rates of increased production. That is, modeling shows that the air quality will meet the national standard after this project.

In addition, GCD has also agreed to further control emissions through the sweeping of key Granite City public streets and through housekeeping and sweeping measures in the area below and surrounding the BOF ESP. These reductions are not included in the formal accounting of emissions, but will lower emissions levels in Granite City. Finally, GCD has recently started using a state of the art Enviro-Whirl™ road sweeper which should provide even better dust control from plant roads.

CONTENTS OF PERMIT:

The permit specifies required control practices to ensure that all applicable emission limits and requirements are met both initially and on a continuing basis. The permit also contains conditions on emissions, operations, production, recordkeeping, compliance procedures, testing, and reporting.

REQUEST FOR COMMENTS:

It is the Agency's preliminary determination that the proposed project meets all applicable State and Federal air pollution control requirements. Accordingly, the Agency is proposing to issue a permit for this project.

Comments are requested by the Agency on the proposed issuance of this permit and the proposed conditions of the draft permit. Comments must be addressed to the Illinois Environmental Protection Agency, Division of Air Pollution Control, Attention: Jim Ross, P.O. Box 19506, Springfield, Illinois 62794-9506.

G-PROJSU.DOC

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

State of Illinois
ENVIRONMENTAL PROTECTION AGENCY

Mary A. Gade, Director
217/782-2113

P. O. Box 19506, Springfield, IL 62794-9506

DRAFT 11/03/95

CONSTRUCTION PERMIT

PERMITTEE

Granite City Division
of National Steel Corporation
Attn: Joseph S. Kocot
20th & State Street
Granite City, IL 62040

Application No.: 95010001 I.D. No.: 119813AAI
Date Received: January 3, 1995
Subject: Production Increase
Date Issued:
Location: Southeastern Granite City

Permit is hereby granted to the above-designated Permittee for an increase in the allowable production rate of iron (from 2,372,500 to 3,165,000 net tons per year) and steel (from 2,774,000 to 3,580,000 net tons per year) as described in the above-referenced application. This permit is subject to standard conditions attached hereto and the following special conditions:

1. Prior to issuance of this permit, a draft of this permit has undergone a public notice and comment period, and a public hearing was held.

BLAST FURNACE OPERATIONS

2a. Total combined production of hot metal (a.k.a., iron) from blast furnaces A and B shall not exceed 9,849 net tons per day, averaged over any calendar month, and;

b. Total combined production of hot metal from blast furnaces A and B shall not exceed 3,165,000 net tons per year.

3a. Particulate emissions from the blast furnace casthouse baghouse and iron spout baghouse shall not exceed

0.010 gr/dscf, pursuant to 35 Ill. Adm. Code 212.445(b)(1).

b. The opacity of emissions from the blast furnace casthouse baghouse and the iron spout baghouse shall not exceed 10% on a 6 minute rolling average basis, pursuant to 35 Ill. Adm. Code 212.445(b)~~(1)~~(2)

4a. Emissions of particulate matter from any opening in the blast furnace casthouse shall not exceed 20% opacity on a 6-minute rolling average basis beginning from initiation of the opening of the tap hole up to the point where iron and slag stops flowing in the troughs, pursuant to 35 Ill. Adm. Code 212.445(a)(1).

5. Emissions from Blast Furnace operations shall not exceed the limits in attached Tables 1 and 5.

BASIC OXYGEN FURNACE SHOP

6a. Total combined production of liquid steel from the Basic Oxygen Furnaces (BOF's) shall not exceed 11,000 net tons per day, averaged over any calendar month, and;

b. Total combined production of liquid steel from the BOF's shall not exceed 3,580,000 net tons per year.

7a. The emissions of PM-10 from the BOF ESP stack for the total of all BOF processes (i.e., operations from the beginning of the charging process through the end of the tapping process) shall not exceed 0.225 lbs PM-10 per ton of steel produced, and;

b. The emissions of PM-10 from the BOF ESP stack for the total of all BOF processes (i.e., operations from the beginning of the charging process through the end of the tapping process) shall not exceed 60.0 lbs/hr. Notwithstanding the limitations set forth in special condition (a) above the emissions of PM-10 from the BOF ESP stack shall not exceed 60 lbs/hr for any one hour period.

8. Visible emissions from any opening in the BOF shop (e.g., roof monitor) shall not exceed 20% on a 3 minute rolling average basis.

9a. The Permittee shall determine the opacity from the ~~BOF roof monitor on at least a weekly basis.~~ openings in the BOF shop on at least a weekly basis.

Observations shall be conducted for at least an hour or the entire BOF cycle, whichever is greater.

b. The Permittee shall determine the opacity from the BOF ESP stack for at least one hour on any normal work day (i.e., Monday through Friday) that the continuous opacity monitor on the BOF ESP stack has an outage that exceeds two consecutive hours and is still down. The readings shall commence as soon as possible after the opacity monitor has been down for two consecutive hours. If meteorological conditions or lack of visibility preclude these observations from being conducted, then this shall be noted in the log book.

c. The opacity shall be determined in accordance with the observation procedures set out in 40 CFR Part 60, Appendix A, Method 9.

d. These determinations shall be recorded in a log book, which ~~includes~~ at a minimum shall include the date and time of observations, name and title of observer, individual opacity readings, calculated opacity so as to determine compliance with Section 212.123, and calculated opacity relative to 20% opacity on a three minute rolling average basis.

10. The Permittee shall follow the BOF operating procedures and requirements specified in attachment A. These requirements are designed to ensure proper operation of the BOF control system. These procedures shall be posted in the BOF pulpit (a.k.a., control room).

11. Flame suppression shall be used and maintained during the entire tapping process.

12a. The stack gas pulpit set point of the BOF ESP control system shall be set in accordance with the following, so as to establish sufficient particulate matter capture efficiency of the charging and primary hoods:

i. Set point requirements while only a single BOF vessel is in operation;

A. Minimum set point during charging process: 550,000 cfm;

B. Minimum set point during refining process: 650,000 cfm;

C. Minimum set point during tapping process: 200,000 cfm (until one minute after completing alloy addition);

ii. During dual operation of BOF vessels (a.k.a., overlapping BOF operation) the set point shall be set to establish the total draft necessary to control the corresponding portion of the process which is occurring on each vessel during the overlap. For example, minimum set point while charging at one vessel and tapping at the other would be equal to that necessary to establish a flow of 700,000 cfm (i.e., 550,000 + 150,000).

iii. Overlapping operations of the BOF vessels is allowed only as specified in operating permit application number 72080043.

iv. The BOF capture system shall be operated at the above minimum set points until and unless the Agency approves a lower minimum setpoint based on a demonstration that a better level of particulate matter control will occur, except for purposes of emissions testing as related to the set point.

b. The Permittee shall calibrate, operate, and maintain a continuous strip chart recorder of the stack gas flow rate as measured by the stack gas flow meter during ESP use.

c. The Permittee shall record for each steel production cycle the various stack gas flow rates for each process (i.e., for each charge, each refine, each tap) of each steel production cycle. That is, the Permittee shall be able to distinguish the measured flow rate of stack gas during each production cycle.

d. The stack gas flow meter shall be calibrated on at least a quarterly basis.

13a. Within 270 days of the date issued of this permit, the Permittee shall install, calibrate, operate, and maintain a monitoring device that continually measures and records for each process (i.e., for each charge, each refine, each tap) of each steel production cycle the various exhaust ventilation rates or levels of exhaust ventilation through the main downcommer duct of the ESP emissions capture and transport system.

b. The monitoring system shall be designed to be used as a mechanism to ensure sufficient draft is maintained in the emissions capture hoods and transport ducts so as to maximize emissions capture and transport and minimize uncaptured emissions and emission leaks.

c. The monitoring system shall be operated, tested and maintained to ensure accurate and useful data.

d. The Agency may allow an equivalent system or method instead of the above monitoring system provided the Permittee demonstrates, and the Agency approves, that such system or method will ensure sufficient draft is maintained in the emissions capture hoods and transport ducts so as to maximize emissions capture and transport and minimize uncaptured emissions and emission leaks in an equivalent manner, and that such system or method can be installed and operated within the time period required for the monitoring system as stated in this permit.

14a. The Permittee shall visually inspect BOF vessel enclosures, at least monthly all visible hooding, and ducts used to capture and transport emissions for the BOF ESP control system.

b. A log shall maintained of these inspections which includes observations of the physical appearance of the capture system and any noted deficiencies (e.g., the presence of any holes in ductwork or hoods, flow constrictions caused by dents or accumulated dust in ductwork, and fan erosion).

c. Any leaks or areas otherwise noted to be in need of repair, shall be repaired as soon as practicable.

15a. The Permittee shall operate, maintain, and repair the BOF ESP in a manner that assures compliance with the conditions of this permit.

b. An adequate inventory of spare parts for the BOF ESP shall be maintained.

16. Written operating procedures for the BOF ESP shall be maintained and updated describing proper normal process and equipment operating parameters, monitoring and instrumentation for measuring control equipment operating parameters, control equipment inspection and maintenance practices, and the availability of spare parts from inventory, local suppliers and other sources.

17. The Permittee shall keep operating records, a maintenance log, and inspection log for the BOF ESP and associated control systems which includes the following:

i. Operating time of the BOF;

ii. Operating time of the capture systems and performance parameters, including air flow and fan amperage through each fan motor, gas temperature at inlet to ESP, and steam injection rate, damper settings.

iii. Operating time of the ESP and performance parameters, including voltages and amperages of each ~~section~~, transformer/rectifier set number of sections in use;

iv. All routine and nonroutine maintenance performed, including dates and duration of outages, inspection schedule and findings, leaks detected, repair actions, and replacements.

Fan, do not They do not have currently the capability to monitor air flow for each fan !!

18. Emissions from the BOF Shop shall not exceed the limits in attached Tables 2 and 5.

Note: For purposes of this permit, a BOF cycle is defined as the period from the beginning of the charging process through the end of the tapping process. The cycle is comprised of three main processes which are charging, refining, and tapping.

CONTINUOUS CASTING OPERATIONS

19. The continuous casting operations shall comply with 35 Ill. Adm. Code 212.450, and 212.458(b)(8).

20. Emissions from the continuous casting operations shall not exceed the limits in Tables 3 and 5.

FUEL COMBUSTION

21. Total fuel usage for blast furnace stoves (A and B), boilerhouse boilers (1-10), blast furnace boilers (11 and 12), ladle drying preheaters and blast furnace gas flares shall not exceed the following limits:

i. Natural Gas usage: 190 million ft3 per month and 1,145 million ft3 per year;

ii. Blast Furnace Gas (BFG) usage: 30,800 million ft3 per month and 185,030 million ft3 per year;

iii. Fuel Oil usage: 60 thousand gallons per month and 365 thousand gallons per year.

22. Emissions from the fuel combustion units listed above shall not exceed the limits in Tables 4 and 5.

ON-SITE FUGITIVE DUST CONTROL

(Refer to Attachment B for a table which summarizes the required on-site fugitive dust roadway control measures and maps indicating the referred to road segments)

23. The Permittee shall immediately initiate and maintain the on-site fugitive dust control measures specified in this permit.

24a. The Permittee shall sweep or flush at least every day the paved access area below the BOF ESP where ESP dust collection bags are used, stored and transported.

b. The Permittee shall implement a housekeeping program for the non-roadway areas below and around the BOF ESP. This program shall, at a minimum, contain the following:

i. The ground and other accessible areas where dust may gather shall be swept or cleaned at least every day;

ii. Cleaning shall be performed in such a manner as to minimize the escape of dust into the atmosphere;

iii. Dust collection bags shall be inspected at least daily for rips, tears, or insecure connection to the discharge chutes of the ESP hoppers;

iv. Dust collection bags shall be inspected after removal from, and connection to, the discharge chutes of the ESP hoppers;

v. Ripped or torn bags shall be taken out of service and transported as soon as practicable in a covered truck so as to eliminate dust spillage on in-plant and out-of-plant roadways.

25. Fugitive emissions of particulate matter from any roadway or parking area shall not exceed an opacity of 5%, pursuant to 35 Ill. Adm. code 212.316(e)(1).

26a. UNPAVED ROADS: On unpaved roads that are part of normal traffic patterns as identified in attachment B (including roads B, C, E, N, F-F, and CS(2)) the Permittee shall apply a chemical dust suppressant at least three times a month, with the following exceptions:

i. Road segment G-G, which shall be sprayed at least quarterly;

ii. Road segments P, V, Z, D-D, E-E, and H, which shall be sprayed at least 4 times per month until paving is completed. Paving shall be completed on these roads no later than July 31, 1996;

iii. Road segment L, which shall be sprayed at least 4 times per month.

b. All other unpaved roads shall be treated as necessary.

c. Applications of suppressant may be less frequent than specified above if weather conditions, i.e., precipitation or temperature, interfere with the schedule for spraying, provided each such instance shall be recorded in accordance with the daily records for on-site fugitive dust control required by this permit.

27a. PAVED ROADWAYS AND AREAS: Paved roadways and areas shall be maintained in good condition.

b. On paved roadways and other areas, the Permittee shall sweep or flush as follows:

i. Road segments D, K, M, F, G, J, R, and O shall be swept or flushed at least daily;

ii. Road segments P, V, W, X, Z, D-D, E-E, and CS(1) shall be swept or flushed at least five days per week;

iii. Road segments S and T shall be swept or flushed at least every other day;

iv. Road segments A and H shall be swept or flushed at least once per month;

v. All gate areas leading from the Steelworks area shall be swept or flushed at least daily;

vi. All gate areas leading from the Ironmaking area shall be swept or flushed at least five times per week.

28. The above on-site dust control measures shall be conducted to maximize their effectiveness by performing said measures when the roads or areas are not normally obstructed by parked vehicles and by preferentially using filter sweeping (e.g., Enviro-Whirl sweeper) for the gate areas, the roads and areas surrounding the BOF and BOF ESP, and other key areas.

29. The Permittee shall maintain daily records relative to the on-site fugitive dust control program which includes the following information as a minimum:

i. The date (and time for the gate areas) each road or area was treated;

ii. The manner in which the road or area was treated (i.e., filter sweep, conventional sweep, suppressant spray or flush);

iii. Detailed information for use of dust suppressant, including but not limited to the application rate, dilution ratio, type of suppressant used, and the number of gallons of suppressant applied;

iv. Observations, if any, concerning the condition of the roadway, e.g., presence of parked vehicles, detection of potholes;

v. The amount of precipitation and temperature recorded for each day, and if determination was made to suspend application of suppressant, include name and title of person who made determination to suspend application and explanation;

vi. Any and all suspensions or deviations from the designated control procedures, with date, description, and explanation for suspension of application.

OFF-SITE FUGITIVE DUST CONTROL

30. The Permittee or the Permittee's Agent shall sweep or flush the following Granite City street road areas:

i. At least weekly, the quarter mile segment of ~~16th~~ Madison Avenue ~~street~~ in front of the 16th street gate (i.e., 1/8 of a mile in either direction);

ii. At least weekly, segment of 20th street between Lee and Quincy roads;

iii. At least monthly, segment of 20th street between Madison and Route 203 (a.k.a. Edwardsville Road).

PM-10 CONTINGENCY MEASURES

31. The Permittee shall comply with the additional control measures (e.g., PM-10 contingency plan) required by 35 Ill Adm. Code Part 212 Subpart U.

COMPLIANCE DETERMINATIONS

32a. Compliance with the daily limits of this permit shall be determined from a monthly total of the relevant daily data divided by the number of days in the month.

b. Compliance with the monthly limits of this permit (e.g., fuel usage) shall be determined by direct comparison of monthly data to the applicable limit.

c. Compliance with the annual limits of this permit shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total), except that compliance with annual iron and steel production limits shall be determined based on a calendar year.

33a. Compliance with opacity limits and measurements of opacity shall be made by opacity readings taken in accordance with the observation procedures set out in 40 CFR Part 60, Appendix A, Method 9.

b. The Permittee shall have at least two employees or agents experienced in making opacity readings to the extent that it is reasonably possible to do so, who

Jim, didn't we decide to require that these employees be certified (based on comments at the hearing)?

shall be able to make the opacity readings required by this permit.

34a. Blast furnace hot metal production shall be measured at the BOF hot metal transfer station, and adjusted by documented slag and iron losses.

b. BOF liquid steel production shall be initially measured by a scale equipped crane and adjusted based upon documented steel production analysis of the continuous casters.

c. BFG usage shall be calculated based on 0.0497 mmft3 BFG generated per net ton of hot metal produced.

d. Natural gas usage shall be determined by metered volumes.

e. Fuel oil usage shall be determined by tank height differentials.

RECORD KEEPING

35. The Permittee shall keep records of the following items and such other items which may be appropriate to allow the Agency to review compliance:

i. Blast Furnace hot metal production (total combined daily, monthly and annual in tons), including documentation on iron and slag losses;

ii. BOF liquid steel production (total combined daily, monthly and annual in tons), including documentation on adjustments made due to production analysis and losses;

iii. Fuel usage as follows; Usage of natural gas and BFG (total combined million ft3 per month and year, each) and fuel oil (total combined gallons/month and year) for the blast furnace stoves (A and B), boilerhouse boilers (1-10), blast furnace boilers (11 and 12), ladle drying preheaters and blast furnace gas flares.

36. All records and logs required by this permit shall be retained at a readily accessible location at the source for at least three years from the date of entry and shall be made available for inspection and copying by the Agency and USEPA upon request. Any records retained in a computer shall be capable of

being retrieved and printed on paper during normal source office hours so as to be able to respond to an Agency request for records during the course of a source inspection.

STARTUP AND TESTING

37. The special conditions of this permit supplement the special conditions of any existing operating permits for this source, and supersede such conditions in cases where a conflict exists.

38. Operation at the increased production rates specified in this permit is allowed for 270 days from the date issued under this construction permit.

39a. The following tests shall be performed to demonstrate compliance with the conditions of this permit within 270 days from the date issued of this permit:

A. Blast Furnace testing: The emissions of particulate matter, volatile organic material, sulfur dioxide, nitrogen oxides, and the opacity from the blast furnace casthouse stack shall be measured. These tests shall be designed to verify compliance with 35 Ill. Adm. Code 212.445 and the requirements of this permit;

B. Hot Metal Desulfurization testing: The emissions of particulate matter from the desulfurization baghouse shall be measured. These tests shall be designed to verify compliance with the requirements of this permit; and 35 IAC 212.446(b)(2)

C. BOF testing: The emissions of particulate matter, carbon monoxide, and lead from the BOF ESP stack, and the opacity from both the BOF ESP stack and BOF Shop shall be measured. These tests shall be designed to verify compliance with 35 Ill. Adm. Code 212.446, 212.458 and the requirements of this permit;

D. Fuel Combustion Units testing: The emissions of particulate matter from a representative boiler while burning blast furnace gas shall be measured. This test shall be designed to verify compliance with the requirements of this permit and the emission factor used (i.e., 2.9 lbs particulate emitted per mmcf BFG burned);

E. BFG generation testing: The amount of blast furnace gas generated (mmft3) per ton of hot metal produced shall be determined. The Agency may waive this requirement for testing providing the Permittee submit a sufficient explanation of how BFG generation is determined with justification that such determination is appropriate for purposes of compliance determinations with this permit.

b. These tests shall be performed by an approved independent testing service during conditions which are representative of maximum emissions and at the maximum production rates allowed, or as close to such rates as reasonable if the Permittee demonstrates to the Agency prior to testing that testing at such production rates within the time constraints of an Agency request to test is not practicable.

ci. The following methods and procedures shall be used for the testing, unless another method is approved by the Agency: Refer to 40 CFR 60, Appendix A for USEPA test methods;

Location of sample points	USEPA Method 1
Gas flow and velocity	USEPA Method 2
Particulate Matter	USEPA Method 5
Sulfur Dioxide	USEPA Method 6
Nitrogen Oxides	USEPA Method 7
Opacity	USEPA Method 9
Carbon Monoxide	USEPA Method 10
Lead	USEPA Method 12

ii. All particulate measured shall be considered PM-10 unless emissions are tested by an appropriate USEPA test method for measurement of PM-10, as specified in 35 Ill. Adm. Code 212.110(e).

d. At least 60 days prior to the actual date of testing of the BOF, a written test plan shall be submitted to the Agency for review and approval. This plan shall be describe the specific procedures for testing the BOF, including as a minimum:

i. The persons who will be performing sampling and analysis and their experience with similar tests;

ii. The specific conditions under which testing will be performed including a discussion of why these conditions will be representative of maximum

emissions and the means by which operating parameters for the source and the emissions capture and control system will be determined;

iii. The specific determinations of emissions and operation which are intended to be made, including sampling and monitoring locations;

iv. The test methods which will be used, with the specific analysis methods;

v. Any proposed use of an alternative test method, with detailed justification;

vii. The format and content of the Source Test Report.

e. The Agency shall be notified before these tests to enable the Agency to observe these tests. Notification for the expected date of testing shall be submitted a minimum of thirty (30) days prior to the expected date. Notification of the actual and expected time of testing shall be submitted a minimum of five (5) working days prior to the actual date of the test. The Agency may at its discretion accept notifications with shorter advance notice provided that the Agency will not accept such notifications if it interferes with the Agency's ability to observe testing.

f. The Final Report of these tests shall include as a minimum:

i. A tabular summary of results which includes:
- process weight rate and/or fuel usage rate
- production rate
- allowable emission limit
- measured emission rate
- determined emission factor
- compliance demonstrated - Yes/No
- other pertinent information (~~i.e.~~ eg. for the BOF, pulpit set point for each process of the BOF cycle - charging, refining, and tapping);

ii. Description of test methods and procedures used, including description of sampling train, analysis equipment, and test schedule;

iii. Detailed description of test conditions, including,
- pertinent process information (e.g. fuel or raw material consumption)

- control equipment information, i.e. equipment condition and operating parameters during testing;

iv. Data and calculations, including copies of all raw data sheets and records of laboratory analyses, sample calculations, and data on equipment calibration;

g. Copies of the Final Report for these tests shall be submitted to the Agency within 14 days after the test results are compiled and finalized and in no case later than upon the submittal of the operating permit application for this production increase.

h. Submittals of information shall be made as follows:

i. Notice of Test - one copy to Source Emission Test Specialist, one copy to Regional Office, and one copy to Permit Section;

ii. Final Report - one copy to Source Emission Test Specialist, one copy to Regional Office, and one copy to Permit Section.

Pertinent Addresses are:

Illinois Environmental Protection Agency
Division of Air Pollution Control
Attn: Source Emission Test Specialist
Intercontinental Center
1701 1st Avenue
Maywood, Illinois 60153

Illinois Environmental Protection Agency
Division of Air Pollution Control
Regional Office
2009 Mall Street
Collinsville, Illinois 62234

Illinois Environmental Protection Agency
Division of Air Pollution Control
Attn: Permit Section
P.O. Box 19506
Springfield, Illinois 62794-9506

REPORTING

40. If there is an exceedance of the requirements of this permit as determined by the records required by this permit, the Permittee shall submit a report to the Agency's Compliance Unit in Springfield, Illinois within 30 days after the exceedance. The report shall include the emissions released in accordance with the record keeping requirements, a copy of the relevant records, and a description of the exceedance or violation, cause of the exceedance, and efforts to reduce emissions and future occurrences. This report shall be sent to:

Illinois EPA
Bureau of Air
Compliance Unit
P.O. Box 19276
Springfield, IL 62794-9276

41. The Permittee shall submit the following additional information from the prior calendar year with the Annual Emissions Report, due May 1st of each year:

i. Iron and steel production (tons/month and tons/yr, each);

ii. Natural gas and BFG usage (mmft3/month and mmft3/yr, each);

iii. Fuel oil usage (thousand gallons/month and thousand gallons/yr, for each type of oil).

APPLICABILITY OF MAJOR SOURCE RULES

42a. As a consequence of the above conditions, this permit is issued based upon the following changes in emissions, as further described in Table 6, accompanying increased production as allowed by this permit:

i. The increases in emissions of lead and VOM are not significant under 35 Ill. Adm. Code Part 203 or 40 CFR 52.21 - Prevention of Significant Deterioration;

ii. The increase in emissions of NOx are being accompanied by contemporaneous emission decreases provided by the shutdown of equipment and operations such that the net emissions change is not significant under 35 Ill. Adm. Code Part 203 or 40 CFR 52.21 - Prevention of Significant Deterioration.

iii. The increase in emissions of PM and PM-10 are being accompanied by contemporaneous emission decreases provided by additional road dust control and BOF capture and control such that the net emissions change is not significant under 35 Ill. Adm. Code Part 203 or 40 CFR 52.21 - Prevention of Significant Deterioration.

Also, the Permittee has agreed to provide further additional dust control consisting of the sweeping of Granite City public streets and housekeeping measures in the area below and surrounding the BOF ESP. Attachment C is a listing of the emission reductions provided by these control measures.

b. The increases in emissions of SO2 and CO are significant under 40 CFR 52.21 - Prevention of Significant Deterioration (PSD). Accordingly, the project is considered a major modification and must comply with the requirements of PSD. These requirements include a demonstration of best available control requirements for affected SO2 and CO emission units, an analysis of air quality impacts, an analysis of the impacts of the project on visibility, vegetation's and soils, and the application and proposed permit must undergo a public participation. The Agency has determined that these additional requirements have been met.

c. The changes in emissions pertinent to this project are summarized as follows:

Units = tons/year

- Emission increases which could occur from the project:

PM-10	PM	NOx	SO2	CO	VOM	Lead
51.6	(-60.6)	238.8	475.8	5,685	59.3	0.54

- Creditable contemporaneous actual emission decreases:

PM-10	PM	NOx	SO2	CO	VOM	Lead
58.0	58.0	226.5	0.38	23.31	32.8	0.0

- Other contemporaneous emission increases:

PM-10	PM	NOx	SO2	CO	VOM	Lead
20.4	20.6	18.4	0.2	10.2	1.2	0.0

- Net emission changes:

PM-10	PM	NOx	SO2	CO	VOM	Lead
+14.0	-98.0	+30.7	+475.6	+5,672	+27.7	+0.54

- Significant Levels:

PM-10	PM	NOx	SO2	CO	VOM	Lead
15	25	40	40	100	40	0.6

Explanatory Note:
PM = particulate matter = particulate;
PM-10 = particulate matter less than or equal to 10 micrometers in size;
SO2 = sulfur dioxide;
NOx = nitrogen oxides;
VOM = volatile organic material;
CO = carbon monoxide;
mm = million;
gr/dscf = grains per dry standard cubic foot;
acfm = actual cubic feet per minute;
mmcf = million cubic feet;
Mgal = thousands of gallons.

If you have any questions on this permit, please call Jim Ross at 217/782-2113.

Donald E. Sutton, P.E.
Manager, Permit Section
Division of Air Pollution Control

DES.JRR.G-PERM.DOC

cc. IEPA, FOS Region 3

Permit Application #95010001

TABLE 1

BLAST FURNACE OPERATIONS

Maximum Hot Metal Production = 3,165,000 net tons per year

1. Casthouse Baghouse (furnace tapping)- captured emissions ducted to baghouse, uncaptured emissions emitted through roof, other openings, etc.

Pollutant	Emission Factor (lbs/ton)	Maximum Emissions (tons/yr)
PM	0.0703	111.19
PM-10	0.0703	111.19
SO2	0.2006	422.0
NOx	0.0144	22.79
VOM	0.0946	149.68

2. Blast Furnace - uncaptured fugitives

Pollutant	Emission Factor (lbs/ton)	Maximum Emissions (tons/yr)
PM	0.0155	24.53
PM-10	0.0155	24.53
SO2	0.0104	16.46
NOx	0.0007	1.14
VOM	0.0047	7.42

3. Blast Furnace Charging
Maximum pellets charged = 4,308,581 tons/yr

Pollutant	Emission Factor (lbs/ton)	Maximum Emissions (tons/yr)
PM	0.0024	5.17
PM-10	0.0024	5.17

4. Slag Pits

Pollutant	Emission Factor (lbs/ton)	Maximum Emissions (tons/yr)
PM	0.00417	6.60
PM-10	0.00417	6.60
SO2	0.0100	15.83

Permit Application #95010001

TABLE 1 (cont.)

5. Iron Spout Baghouse- captured emissions controlled by iron spout baghouse.

Pollutant	Emission Factor (lbs/ton)	Maximum Emissions (tons/yr)
PM	0.02548	40.32
PM-10	0.02548	40.32
SO2	0.0073	13.89

6. Iron Pellet Screen
Maximum pellets charged = 4,308,581 tons/yr

Pollutant	Emission Factor (lbs/ton)	Maximum Emissions (tons/yr)
PM	0.00279	6.01
PM-10	0.00279	6.01

Permit Application #95010001

TABLE 2

BOF SHOP

Maximum Liquid Steel Production = 3,580,000 net tons per year

1. BOF ESP Stack (charge, refine, tap)

Pollutant	Emission Factor (lbs/ton)	Maximum Emissions (tons/yr)
PM	0.16	262.80
PM-10	0.16	262.80
NOx	0.0389	69.63
VOM	0.0060	10.74
CO	8.993	16,097.47
Lead	0.1934 lbs/hr	1.26 tons/yr

2. BOF Roof Monitor

Pollutant	Emission Factor (lbs/ton)	Maximum Emissions (tons/yr)
PM	0.0987	176.71
PM-10	0.06614	118.40
Lead	0.0129 lbs/hr	0.08 tons/yr

3. Desulfurization and Reladling - Hot Metal Transfer

Pollutant	Emission Factor (lbs/ton)	Maximum Emissions (tons/yr)
PM	0.03721	58.88
PM-10	0.03721	58.88
VOM	0.0010	1.58
Lead	0.0133 lbs/hr	0.09 tons/yr

Permit Application #95010001

TABLE 2 (cont.)

4. BOF Additive System (i.e., fluxes) with Baghouse, a.k.a., BOF hopper baghouse

Pollutant	Emission Factor (lbs/ton)	Maximum Emissions (tons/yr)
PM	0.00032	0.57
PM-10	0.00032	0.57

5. Flux conveyor & transfer pits, bin floor

Pollutant	Emission Factor (lbs/ton)	Maximum Emissions (tons/yr)
PM	0.0016	2.86
PM-10	0.0016	2.86

6. Hot metal charging ladle slag skimmer

Pollutant	Emission Factor (lbs/ton)	Maximum Emissions (tons/yr)
PM	0.0050	7.94
PM-10	0.0050	7.94

Permit Application #95010001

TABLE 3

CONTINUOUS CASTING OPERATIONS

Maximum Liquid Steel Throughput = 3,580,000 net tons per year

1. Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy)

Pollutant	Emission Factor (lbs/ton)	Maximum Emissions (tons/yr)
PM	0.00715	12.80
PM-10	0.00715	12.80

2. Deslagging Station and Material HS.

Pollutant	Emission Factor (lbs/ton)	Maximum Emissions (tons/yr)
PM	0.00355	6.35
PM-10	0.00355	6.35

3. Caster Molds - Casting

Pollutant	Emission Factor (lbs/ton)	Maximum Emissions (tons/yr)
PM	0.006	10.74
PM-10	0.006	10.74
NOx	0.050	89.50

4. Casters Spray Chambers

Pollutant	Emission Factor (lbs/ton)	Maximum Emissions (tons/yr)
PM	0.00852	15.25
PM-10	0.00852	15.25

5. Slab Cut-off

Pollutant	Emission Factor (lbs/ton)	Maximum Emissions (tons/yr)
PM	0.0071	12.71
PM-10	0.0071	12.71

Permit Application #95010001

TABLE 3 (cont.)

6. Slab Ripping

Pollutant	Emission Factor (lbs/ton)	Maximum Emissions (tons/yr)
PM	0.00722	12.92
PM-10	0.00722	12.92

Permit Application #95010001

TABLE 4

CERTAIN FUEL COMBUSTION UNITS

1. 10 boilers (#'s 1 - 10)
2. 2 boilers (#'s 11 - 12)
3. Blast Furnace Stoves A & B.
4. BFG Flares
5. Ladle Drying Preheaters (5 heaters).

Total combined fuel usage from affected units (i.e., Boilers, BF stoves, BF Flares, ladle drying preheaters)

	Maximum Usage (mmft3/yr)
Natural Gas (total)	1,145
BFG	185,030

Fuel Oil 365 thousand gallons/yr

1. Natural Gas

Pollutant	Emission Factor (lbs/mmcf)	Maximum Emissions (tons/yr)
PM	5.1	2.92
PM-10	5.1	2.92
SO2	0.6	0.34
NOx	306	175.19
VOM	2.8	1.60
CO	40	22.90

2. BFG

Pollutant	Emission Factor (lbs/mmcf)	Maximum Emissions (tons/yr)
PM	2.9	268..29
PM-10	2.9	268.29
SO2	6.65	6,115.22
NOx	5.28	488.48
CO	13.7	1,267.46

Permit Application #95010001

TABLE 4 (cont.)

3. Fuel Oil

Pollutant	Emission Factor (lbs/Mgal)	Maximum Emissions (tons/yr)	
PM	9.72	1.77	
PM-10	9.72	1.77	
SO2	141.3	25.79	
NOx	55	10.04	
VOM	0.28	0.05	
CO	5.0	0.91	
Lead	0.336	0.61	(waste oil)

Permit Application #95010001

TABLE 5

LIMITS ON EMISSIONS FROM MAJOR PROCESSES AND ACTIVITIES

units = tons/year

	PM	PM-10	SO2	NOx	VOM	CO	Lead
Blast Furnace Operations	198	198	468	24	157	-	-
BOF Shop	510	451	-	70	11	16,097	1.43
Continuous Casting Operations	71	71	-	90	-	-	-
Certain Fuel Combustion Units[a]	273	273	6,141	674	2	1,291	0.61
Roadways	27	27	-	-	-	-	-
Material Handling	2	2	-	-	-	-	-

	PM	PM-10	SO2	NOx	VOM	CO	Lead
TOTAL	1,081	1,022	6,609	858	170	17,388	2.04

[a]Blast furnace stoves (A and B), boilerhouse boilers (1-10), blast furnace boilers (11 and 12), ladle drying preheaters and blast furnace gas flares.

Permit Application #95010001

TABLE 6

EMISSIONS SUMMARY

Units = tons/year

- Emission increases which could occur from the project:

PM-10	PM	NOx	SO2	CO	VOM	Lead
51.6	(-60.6)	238.8	475.8	5,685	59.3	0.54

- Creditable contemporaneous actual emission decreases:

PM-10	PM	NOx	SO2	CO	VOM	Lead
58.0	58.0	226.5	0.38	23.31	32.8	0.0

- Other contemporaneous emission increases:

PM-10	PM	NOx	SO2	CO	VOM	Lead
20.4	20.6	18.4	0.2	10.2	1.2	0.0

- Net emission changes:

PM-10	PM	NOx	SO2	CO	VOM	Lead
+14.0	-98.0	+30.7	+475.6	+5,672	+27.7	+0.54

- Significant Levels:

PM-10	PM	NOx	SO2	CO	VOM	Lead
15	25	40	40	100	40	0.6

Permit Application #95010001

ATTACHMENT A

PROCEDURES TO ENSURE PROPER OPERATION
OF BOF ESP CONTROL SYSTEM

1. The emissions control operator shall:

a. Check on a regular basis and report to the emissions control foreman or melter:

i. Any ESP fields down;

ii. Any ESP fields in which the meter readings are showing no current or a fault;

b. Check on a regular basis that doors on all hopper screws are closed;

c. Inspect on a regular basis the fans and motors for unusual sounds and/or visual problems. Any abnormalities will be immediately reported to the melter or maintenance foreman for investigation.

2. The melter shall:

a. Check on a regular basis and report to the emissions control foreman or the area electrician any fields which the pulpit precipitator field short indicators shows as having a short and is able to reset;

b. Check on a regular basis and report to the emissions control foreman or the maintenance foreman any draft or fan problems;

c Check the ESP stack opacity monitor on a regular basis and initiate the following in the event that the stack opacity level, as determined by the opacity monitor, exceeds 30% opacity on a six minute average:

i. Check the pulpit indicators for proper operation of the steam and spray water system. Report any problems to emission control foreman or maintenance foreman;

ii. Check the stack gas pulpit set point for proper setting;

iii. Call the emissions control operator who shall perform the following steps;

Permit Application #95010001

ATTACHMENT A (cont.)

A. Check the AVC operation and power level. Report any problems to electrical maintenance foreman or area electrician;

B. Check to ensure that doors on all hopper screws are closed;

d. Check oxygen blow rates and adjust, if necessary;

e. Check hot metal chemistry;

f. A log shall be maintained of the above checks and any actions taken as a result.

3. The emission control foreman shall:

a. Check on a regular basis the opacity monitor exceedances and trends. The control specialist shall be contacted to correct any problems;

b. Check on a regular basis the draft rate set points;

c. Check on a regular basis primary and secondary damper settings;

d. Check on a regular basis ESP operation, including the following:

A. Fields down;

B. Fields indicating shorts and unable to reset;

C. Hopper screw doors are closed;

e. Check on a regular basis blow rates;

f. Check on a regular basis spray water system operation;

g. Check on a regular basis steam injection rate;

h. Contact the area manager regarding electrical maintenance and to schedule the ESP repair work;

Permit Application #95010001

ATTACHMENT A (cont.)

i. Contact the area manger for mechanical maintenance to schedule the isolation of the ESP channel by closing the inlet and outlet gates of that chamber and opening the top hatches for entry into the chamber;

j. Notify the emissions control operator and melter when isolation work begins;

k. A log shall be maintained of the above checks and any actions taken as a result.

4. The crane operator shall use the following procedures, as appropriate, to minimize emissions and maximize emissions capture by the hoods:

a. Use controlled pouring of the hot metal into the BOF vessel;

b. Use careful positioning of the hot metal ladle with respect to the hood face and furnace mouth;

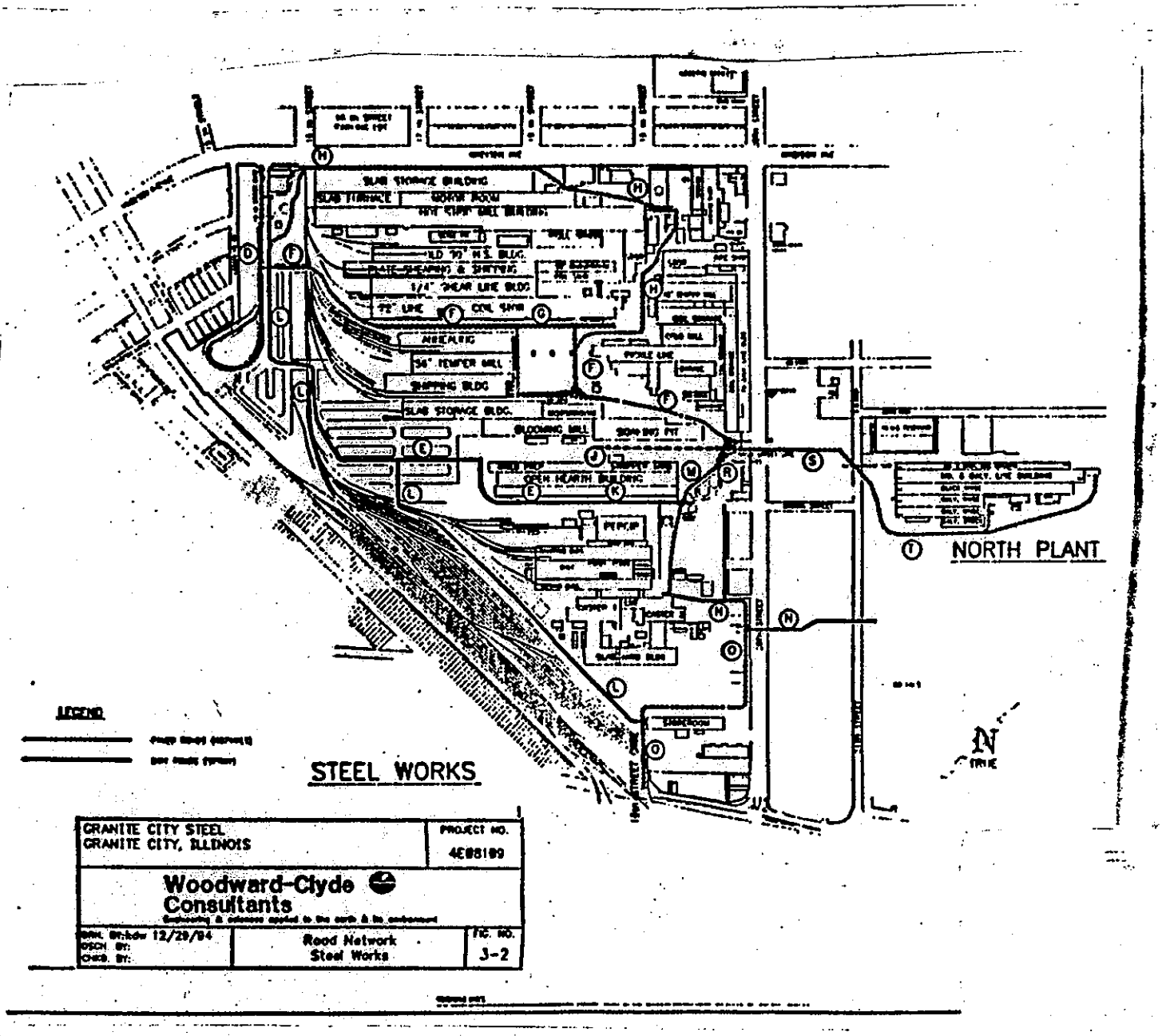
c. Use the most beneficial furnace tilt angle;

d. These procedures shall be posted in the crane operator booth.

Permit Application #95010001

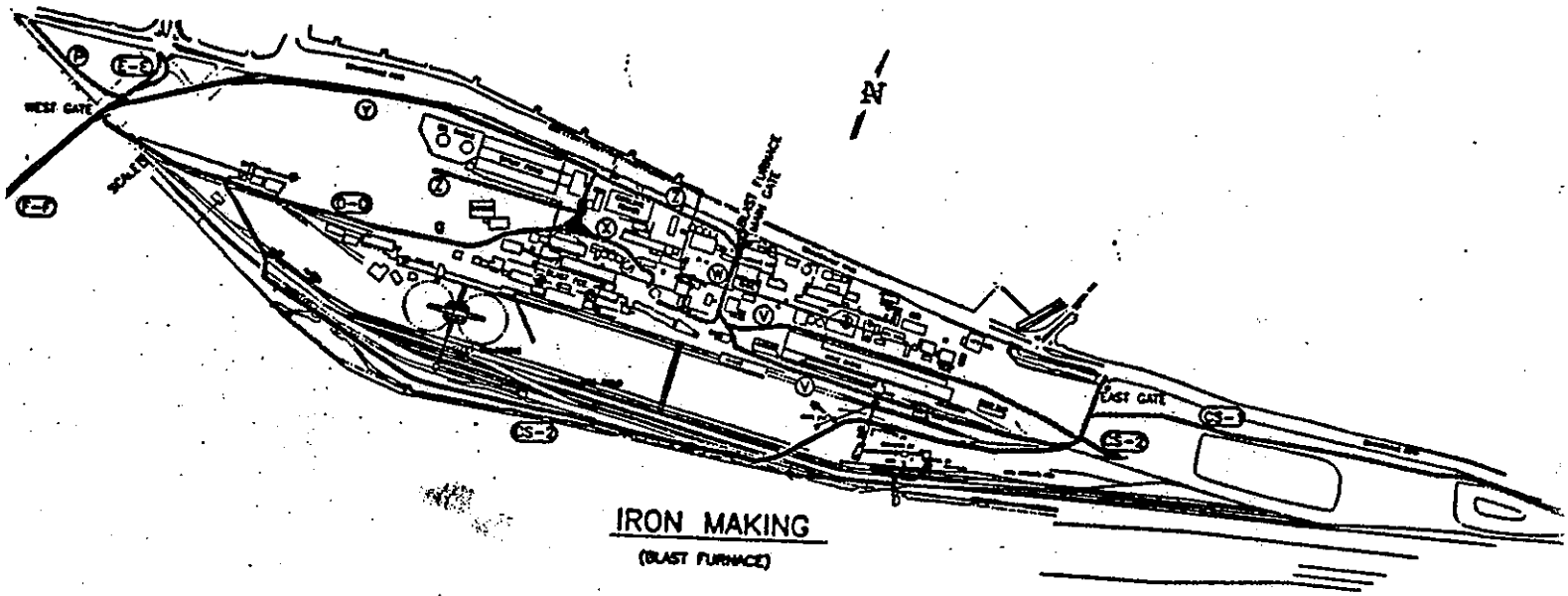
ATTACHMENT B

ON-SITE FUGITIVE DUST ROADWAY CONTROL MEASURES AND MAPS SHOWING THE ROAD SEGMENTS



Permit Application #95010001

ATTACHMENT B (cont.)

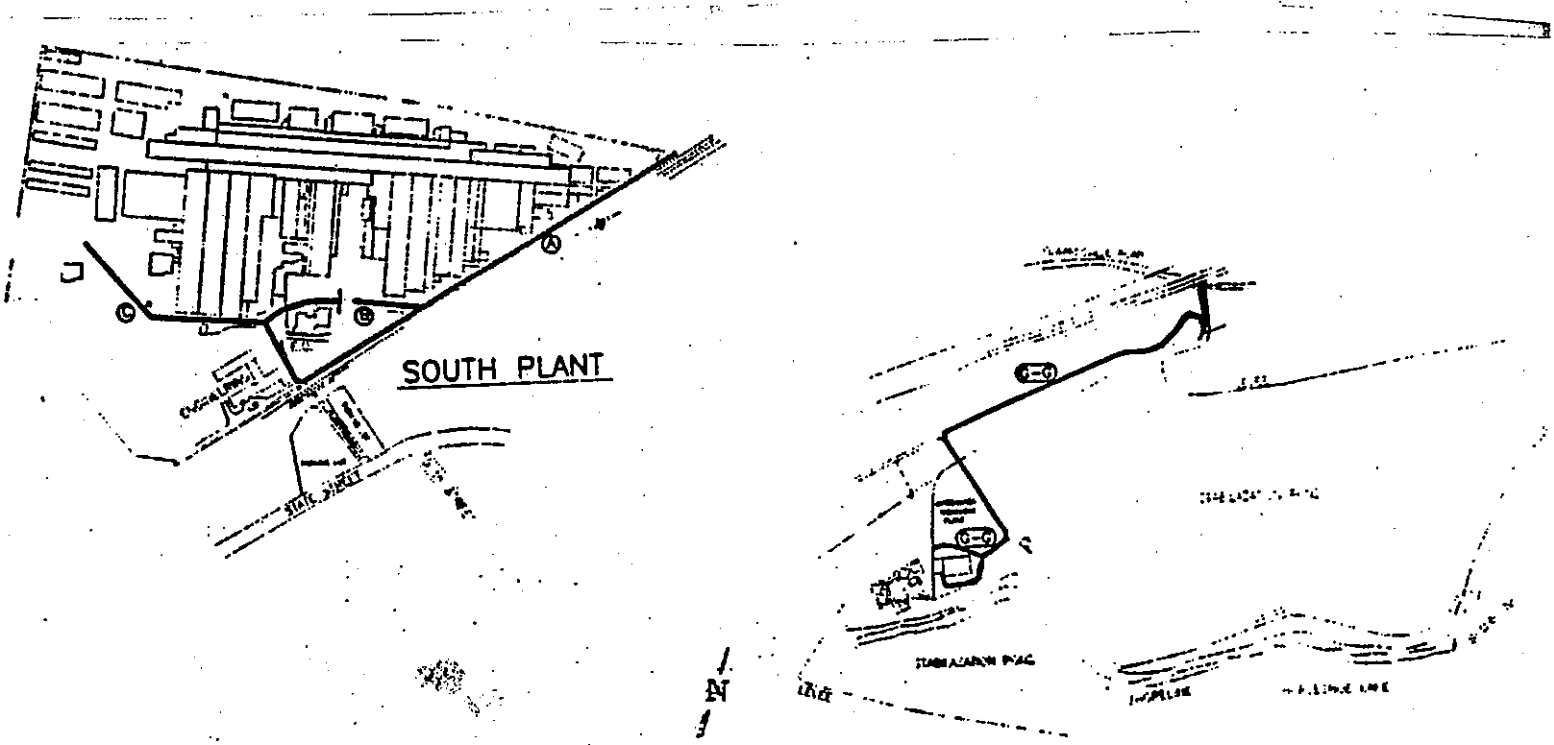


LEGEND

GRANITE CITY STEEL GRANITE CITY, ILLINOIS	PROJECT NO. 4E05189
Woodward-Clyde Consultants	
DRWL. BY: kdw 12/29/94 DSGN. BY: CHKD. BY:	Road Network Iron Making Area
	FIG. NO. 3-3

Permit Application #95010001

ATTACHMENT B (cont.)



GRANITE CITY STEEL GRANITE CITY, ILLINOIS	PROJECT NO. 4E88199
Woodward-Clyde Consultants	
DRN. BY: kdw 12/29/94 DSGN. BY: CHKD BY:	Road Network South Plant & WWTP
	FIG. NO. 3-4

Permit Application #95010001

ATTACHMENT C

CONTEMPORANEOUS REDUCTIONS IN THE EMISSIONS OF PM-10

- Historic roadway emissions of 428 tons/yr, minus Future potential roadway emissions of 27 tons/yr, equals a resulting reduction in roadway emissions of 401 tons/yr

- Historic material handling emissions of 17 tons/yr minus Future potential material handling emissions of 2 tons/yr, equals a resulting reduction in material handling emissions of 15 tons/yr.

- Emission reductions resulting from the sweeping of city streets = 52 tons/yr*

- Emission reductions resulting from sweeping and housekeeping of areas below and around BOF ESP = 12 tons/yr*

Total reductions in the emissions of PM-10 as a result of the additional dust control measures required by Illinois' SIP and the special conditions of this permit = 480 tons/yr

*These are considered reasonable estimates of reductions and are subject to change upon further investigation of the actual reductions which will occur as a result of the control measures required by this permit.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF AIR POLLUTION CONTROL
2200 CHURCHILL ROAD
SPRINGFIELD, ILLINOIS 62706

STANDARD CONDITIONS FOR OPERATING PERMITS

July 1, 1985

The Illinois Environmental Protection Act (Illinois Revised Statutes, Chapter 111-1/2, Section 1039) grants the Environmental Protection Agency authority to impose conditions on permits which it issues.

The following conditions are applicable unless superseded by special permit condition(s).

1. The issuance of this permit does not release the permittee from compliance with state and federal regulations which are part of the Illinois State Implementation Plan, as well as with other applicable statutes and regulations of the United States or the State of Illinois or with applicable local laws, ordinances and regulations.

2. The Agency has issued this permit based upon the information submitted by the permittee in the permit application. Any misinformation, false statement or mispresentation in the application shall be grounds for revocation under 35 Ill. Adm. Code 201.207.

3. a. The permittee shall not authorize, cause, direct or allow any modification, as defined in 35 Ill. Adm. Code 201.102, of equipment, operations or practices which are reflected in the permit application as submitted unless a new application or request for revision of the existing permit is filed with the Agency and unless a new permit or revision of the existing permit(s) is issued for such modification.

   b. This permit only covers emission sources and control equipment while physically present at the indicated plant location(s). Unless the permit specifically provides for equipment relocation, this permit is void for an item of equipment on the day it is removed from the permitted location(s) or if all equipment is removed, notwithstanding the expiration date specified on the permit.

4. The permittee shall allow any duly authorized agent of the Agency, upon the presentation of credentials, at reasonable times:

   a. to enter the permittee's property where actual or potential effluent, emission or noise sources are located or where any activity is to be conducted pursuant to this permit,

   b. to have access to and to copy any records required to be kept under the terms and conditions of this permit,

   c. to inspect, including during any hours of operation of equipment constructed or operated under this permit, such equipment and any equipment required to be kept, used, operated, calibrated and maintained under this permit,

   d. to obtain and remove samples of any discharge or emission of pollutants, and

   e. to enter and utilize any photographic, recording, testing, monitoring or other equipment for the purpose of preserving, testing, monitoring or recording any activity, discharge or emission authorized by this permit.

5. The issuance of this permit:

   a. shall not be considered as in any manner affecting the title of the premises upon which the permitted facilities are located,

   b. does not release the permittee from any liability for damage to person or property caused by or resulting from the construction, maintenance, or operation of the facilities,

c. does not take into consideration or attest to the structural stability of any unit or part of the project, and

d. in no manner implies or suggests that the Agency (or its officers, agents or employees) assumes any liability, directly or indirectly, for any loss due to damage, installation, maintenance, or operation of the proposed equipment or facility.

6. The facilities covered by this permit shall be operated in such a manner that the disposal of air contaminants collected by the equipment shall not cause a violation of the Environmental Protection Act or regulations promulgated thereunder.

7. The permittee shall maintain all equipment covered under this permit in such a manner that the performance of such equipment shall not cause a violation of the Environmental Protection Act or regulations promulgated thereunder.

8. The permittee shall maintain a maintenance record on the premises for each item of air pollution control equipment. This record shall be made available to any agent of the Environmental Protection Agency at any time during normal working hours and/or operating hours. As a minimum, this record shall show the dates of performance and nature of preventative maintenance activities.

9. No person shall cause or allow continued operation during malfunction, breakdown or startup of any emission source or related air pollution control equipment if such operation would cause a violation of an applicable emission standard or permit limitation. Should a malfunction, breakdown or startup occur which results in emissions in excess of any applicable standard or permit limitation, the permittee shall:

   a. immediately report the incident to the Agency's Regional Field Operations Section Office by telephone, telegraph, or other method as constitutes the fastest available alternative, and shall comply with all reasonable directives of the Agency with respect to the incident;

   b. maintain the following records for a period of no less than two (2) years:

      i. date and duration of malfunction, breakdown or startup,

      ii. full and detailed explanation of the cause,

      iii. contaminants emitted and an estimate of quantity of emissions,

      iv. measures taken to minimize the amount of emissions during the malfunction, breakdown or startup, and

      v. measures taken to reduce future occurrences and frequency of incidents.

10. If the permit application contains a compliance program and project completion schedule, the permittee shall submit a project completion status report within thirty (30) days of any date specified in the compliance program and project completion schedule or at six month intervals, whichever is more frequent.

11. The Permittee shall submit an Annual Emission Report as required by 35 Ill. Adm. Code. 201.302 and 35 Ill. Adm. code Part 254.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-172**
OBSOLETE

State of Illinois
ENVIRONMENTAL PROTECTION AGENCY

Mary A. Gade, Director
217/782-2113

P. O. Box 19506, Springfield, IL 62794-9506

OPERATING PERMIT

PERMITTEE

Granite City Division
of National Steel Corporation
Attn: Joseph S. Kocot
20th and State Street
Granite City, Illinois 62040

Application No.: 95010001
Applicant's Designation:
Subject: Production Increase
Date Issued: June 6, 1997
Location: Southeastern Granite City

I.D. No.: 119813AAI
Date Received: February 18, 1997

Expiration Date: June 6, 2002

Permit is hereby granted to the above-designated Permittee for an increase in the allowable production rate of iron (from 2,372,500 to 3,165,000 net tons per year) and steel (from 2,774,000 to 3,580,000 net tons per year) as described in the above-referenced application. This permit is subject to standard conditions attached hereto and the following special conditions:

1. Prior to issuance of this permit, a draft of this permit has undergone a public notice and comment period, and a public hearing was held.

BLAST FURNACE OPERATIONS

2a. Total combined production of hot metal (a.k.a., iron) from blast furnaces A and B shall not exceed 9,849 net tons per day, averaged over any calendar month, and;

b. Total combined production of hot metal from blast furnaces A and B shall not exceed 3,165,000 net tons per year.

3a. Particulate emissions from the blast furnace casthouse baghouse and iron spout baghouse shall not exceed 0.010 gr/dscf, pursuant to 35 Ill. Adm. Code 212.445(b)(1).

b. The opacity of emissions from the blast furnace casthouse baghouse and the iron spout baghouse shall not exceed 10% on a 6 minute rolling average basis, pursuant to 35 Ill. Adm. Code 212.445(b)(1).

4a. Emissions of particulate matter from any opening in the blast furnace casthouse shall not exceed 20% opacity on a 6-minute rolling average basis beginning from initiation of the opening of the tap hole up to the point where iron and slag stops flowing in the troughs, pursuant to 35 Ill. Adm. Code 212.445(a)(2).

5. Emissions from Blast Furnace operations shall not exceed the limits in attached Tables 1 and 5.

Printed on Recycled Paper

BASIC OXYGEN FURNACE SHOP

6a. Total combined production of liquid steel from the Basic Oxygen Furnaces (BOF's) shall not exceed 11,000 net tons per day, averaged over any calendar month, and;

b. Total combined production of liquid steel from the BOF's shall not exceed 3,580,000 net tons per year.

7. The emissions of PM-10 from the BOF ESP stack for the total of all BOF processes (i.e., operations from the beginning of the charging process through the end of the tapping process) shall not exceed 60.0 lbs/hr and 0.225 lbs per ton of steel in process, pursuant to 35 Ill. Adm. Code 212.458(b)(23).

8. Visible emissions from any opening in the BOF shop (e.g., roof monitor) shall not exceed 20% on a 3 minute rolling average basis.

9a. The Permittee shall determine the opacity from the openings BOF shop on at least a weekly basis. Observations shall be conducted for at least an hour or the entire BOF cycle, whichever is greater.

b. The Permittee shall determine the opacity from the BOF ESP stack for at least one hour on any normal work day (i.e., Monday through Friday) that the continuous opacity monitor on the BOF ESP stack has an outage that exceeds two consecutive hours and is still down. The readings shall commence as soon as possible after the opacity monitor has been down for two consecutive hours. If meteorological conditions or lack of visibility preclude these observations from being conducted, then this shall be noted in the log book.

c. The opacity shall be determined in accordance with the observation procedures set out in 40 CFR Part 60, Appendix A, Method 9 including the requirement that readings be taken by a certified observer.

d. These determinations shall be recorded in a log book, which at a minimum shall include the date and time of observations, name and title of observer, individual opacity readings, calculated opacity so as to determine compliance with Section 212.123, and calculated opacity relative to 20% opacity on a three minute rolling average basis.

10. The Permittee shall follow the BOF operating procedures and requirements specified in attachment A. These requirements are designed to ensure proper operation of the BOF control system. These procedures shall be posted in the BOF pulpit (a.k.a., control room).

11. Flame suppression shall be used and maintained during the entire tapping process.

12a. The stack gas pulpit set point of the BOF ESP control system shall be set in accordance with the following, so as to establish sufficient particulate matter capture efficiency of the charging and primary hoods:

i. Set point requirements while only a single BOF vessel is in operation;

A. Minimum set point during charging process: 550,000 cfm;

B. Minimum set point during refining process: 650,000 cfm;

C. Minimum set point during tapping process: 200,000 cfm (until one minute after completing alloy addition);

b. i. During dual operation of BOF vessels (a.k.a., overlapping BOF operation) the minimum set point shall be 700,000 cfm.

iii. Overlapping operations of the BOF vessels is allowed under the following conditions:

A. The hot metal charge of the second vessel shall be initiated and completed during the time between completion of the blow and start of tap on the first vessel while sufficient draft at the ESP capture system is established and maintained for both vessels.

B. The charge and/or blow on one vessel shall not begin until sufficient draft has been established at the associated ESP capture system (a.k.a., doghouse) and the alloy addition at the vessel tapping has been completed for a least 1 minute.

C. Sufficient draft at the ESP capture system of the vessel being tapped shall be maintained for at least 1 minute after alloy addition has been completed. After such period, the capture system draft may be transferred over to the other vessel in order to satisfy condition (A) above.

D. Only overlapping of the hot metal charge of the second vessel after the end of blow and prior to onset of tap of the first vessel

and

overlapping of tapping of the first vessel, after alloy addition, and the hot metal charge and/or blow on the second vessel are allowed.

E. Condition B and C above shall be part of the Standard Operating Procedure (SOP) of the BOF vessels.

c. The BOF capture system shall be operated at the above minimum set points until and unless the Agency approves a lower minimum set point based on a demonstration that a better level of particulate matter control will occur, except for purposes of emissions testing as related to the set point.

d. The Permittee shall calibrate, operate, and maintain a continuous strip chart recorder of the ESP stack gas flow rate as measured by the stack gas flow meter during ESP use.

e. The Permittee shall record for each steel production cycle the various stack gas flow rates for each process (i.e., for each charge, each refine, each tap) of each steel production cycle. That is, the Permittee shall be able to distinguish the measured flow rate of stack gas during each production cycle.

f. The stack gas flow meter shall be calibrated on at least a quarterly basis.

13a. The Permittee shall operate and maintain the waste gas suction monitor system that continually measures and records for each process (i.e., for each charge, each refine, each tap) of each steel production cycle the static pressure in the main downcommer duct of the ESP emissions capture and transport system.

b. The waste gas suction monitoring system shall be used as a mechanism to ensure sufficient draft is maintained in the emissions capture hoods and transport ducts so as to maximize emissions capture and transport and minimize uncaptured emissions and emission leaks.

c. The monitoring system shall be operated and maintained to ensure accurate and useful data.

d. The Permittee shall continuously record the static pressure in the main downcommer duct of the ESP emissions capture and transport system.

14a. The Permittee shall visually inspect at least monthly all visible BOF vessel enclosures, hooding and ducts used to capture and transport emissions for the BOF ESP control system.

b. A log shall maintained of these inspections which includes observations of the physical appearance of the capture system and any noted deficiencies (e.g., the presence of any holes in ductwork or hoods, flow constrictions caused by dents or accumulated dust in ductwork, and fan erosion).

c. Any leaks or areas otherwise noted to be in need of repair, shall be repaired as soon as practicable.

15a. The Permittee shall operate, maintain, and repair the BOF ESP in a manner that assures compliance with the conditions of this permit.

b. An adequate inventory of spare parts for the BOF ESP shall be maintained.

16. Written operating procedures for the BOF ESP shall be maintained and updated describing proper normal process and equipment operating parameters, monitoring and instrumentation for measuring control equipment operating parameters, control equipment inspection and maintenance practices, and the availability of spare parts from inventory, local suppliers and other sources.

17. The Permittee shall keep operating records, a maintenance log, and inspection log for the BOF ESP and associated control systems which includes the following:

a. Operating time of the BOF;

b. Operating time of the capture systems and performance parameters, including air flow and fan amperage through the fan motors, gas temperature at inlet to ESP, damper settings, and steam injection rate;

c. Operating time of the ESP and performance parameters, including voltage and amperage of each transformer/rectifier set, number of sections in use;

d. All routine and nonroutine maintenance performed, including dates and duration of outages, inspection schedule and findings, leaks detected, repair actions, and replacements.

18. Emissions from the BOF Shop shall not exceed the limits in attached Tables 2 and 5.

Note: For purposes of this permit, a BOF cycle is defined as the period from the beginning of the charging process through the end of the tapping process. The cycle is comprised of three main processes which are charging, refining, and tapping.

CONTINUOUS CASTING OPERATIONS

19. The continuous casting operations shall comply with 35 Ill. Adm. Code 212.450 and 212.458(b)(8).

20. Emissions from the continuous casting operations shall not exceed the limits in Tables 3 and 5.

FUEL COMBUSTION

21. Total fuel usage for blast furnace stoves (A and B), boiler house boilers (1-10), blast furnace boilers (11 and 12), ladle drying preheaters and blast furnace gas flares shall not exceed the following limits:

a. Natural Gas usage: 190 million ft^3 per month and 1,145 million ft^3 per year;

b. Blast Furnace Gas (BFG) usage: 30,800 million ft^3 per month and 185,030 million ft^3 per year;

c. Fuel Oil usage: 60 thousand gallons per month and 365 thousand gallons per year.

22. Emissions from the fuel combustion units listed above shall not exceed the limits in Tables 4 and 5.

ON-SITE FUGITIVE DUST CONTROL

(Refer to Attachment B for a table which summarizes the required on-site fugitive dust roadway control measures and maps indicating the referred to road segments)

23. The Permittee shall immediately initiate and maintain the on-site fugitive dust control measures specified in this permit so as eliminate dust spillage on in-plant and out-of-plant roadways.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

24a. The Permittee shall sweep or flush at least every day the paved access area below the BOF ESP where ESP dust collection bags are used, stored and transported.

b. The Permittee shall implement a housekeeping program for the non-roadway areas below and around the BOF ESP. This program shall, at a minimum, contain the following:

i. The ground and other accessible areas where dust may gather shall be swept or cleaned at least every day; on log sheet daily form report

ii. Cleaning shall be performed in such a manner as to minimize the escape of dust into the atmosphere;

iii. Dust collection bags shall be inspected at least daily for rips, tears, or insecure connection to the discharge chutes of the ESP hoppers; ch. when put on ch. when taken off operator

iv. Dust collection bags shall be inspected after removal from, and connection to, the discharge chutes of the ESP hoppers;

v. Ripped or torn bags shall be taken out of service and transported as soon as practicable in a covered truck.

25. Fugitive emissions of particulate matter from any roadway or parking area shall not exceed an opacity of 5%, pursuant to 35 Ill. Adm. code 212.316(e)(1).

26a. UNPAVED ROADS: On unpaved roads that are part of normal traffic patterns as identified in attachment B (including roads B, C, E, N, F-F, and CS(2)) the Permittee shall apply a chemical dust suppressant at least three times a month, with the following exceptions:

i. Road segment G-G, which shall be sprayed at least quarterly;

ii. Road segments P, V, Z, D-D, E-E, and H, which shall be sprayed at least 4 times per month until paving is completed. Paving shall be completed on these roads no later than July 31, 1996;

iii. Road segment L, which shall be sprayed at least 4 times per month.

b. All other unpaved roads shall be treated as necessary.

c. Applications of suppressant may be less frequent than specified above if weather conditions, i.e., precipitation or temperature, interfere with the schedule for spraying, provided each such instance shall be recorded in accordance with the daily records for on-site fugitive dust control required by this permit.

27a. PAVED ROADWAYS AND AREAS: Paved roadways and areas shall be maintained in good condition.

b. On paved roadways and other areas, the Permittee shall sweep or flush as follows:

i. Road segments D, K, M, F, G, J, R, and O shall be swept or flushed at least daily;

ii. Road segments P, V, W, X, Z, D-D, E-E, and CS(1) shall be swept or flushed at least five days per week;

iii. Road segments S and T shall be swept or flushed at least every other day;

iv. Road segments A and H shall be swept or flushed at least once per month;

v. All gate areas leading from the Steelworks area shall be swept or flushed at least daily;

vi. All gate areas leading from the iron making area shall be swept or flushed at least five times per week.

28. The above on-site dust control measures shall be conducted to maximize their effectiveness by performing said measures when the roads or areas are not normally obstructed by parked vehicles and by preferentially using filter sweeping (e.g., Enviro-Whirl sweeper) for the gate areas, the roads and areas surrounding the BOF and BOF ESP, and other key areas.

29. The Permittee shall maintain daily records relative to the on-site fugitive dust control program which includes the following information as a minimum:

a. The date (and time for the gate areas) each road or area was treated;

b. The manner in which the road or area was treated (i.e., filter sweep, conventional sweep, suppressant spray or flush);

c. Detailed information for use of dust suppressant, including but not limited to the application rate, dilution ratio, type of suppressant used, and the number of gallons of suppressant applied;

d. Observations, if any, concerning the condition of the roadway, e.g., presence of parked vehicles, detection of potholes;

e. The amount of precipitation and temperature recorded for each day, and if determination was made to suspend application of suppressant, include name and title of person who made determination to suspend application and explanation;

f. Any and all suspensions or deviations from the designated control procedures, with date, description, and explanation for suspension of application.

OFF-SITE FUGITIVE DUST CONTROL

30. The Permittee or the Permittee's Agent shall sweep or flush the following Granite City street road areas:

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

a. At least weekly, the quarter mile segment of Madison Avenue in front of the 16th street gate (i.e., 1/8 of a mile in either direction);

b. At least weekly, segment of 20th street between Lee and Quincy roads;

c. At least monthly, segment of 20th street between Madison and Route 203 (a.k.a. Edwardsville Road).

PM-10 CONTINGENCY MEASURES

31. The Permittee shall comply with the additional control measures (e.g., PM-10 contingency plan) required by 35 Ill Adm. Code Part 212 Subpart U.

COMPLIANCE DETERMINATIONS

32a. Compliance with the daily limits of this permit shall be determined from a monthly total of the relevant daily data divided by the number of days in the month.

b. Compliance with the monthly limits of this permit (e.g., fuel usage) shall be determined by direct comparison of monthly data to the applicable limit.

c. i. Compliance with the annual limits of this permit shall be determined based on a calendar year.

ii. A. Compliance with the production limits in conditions 2(b) and 6(b) shall also be determined on a month by month basis by showing that the actual production of iron and steel from the plant did not exceed the scheduled rate of production for a month given in the most recent production schedule provided to the Agency that shows compliance with the following requirements.

B. If no production schedule is submitted to the Agency by the Permittee for a particular year, the scheduled monthly production of iron and steel shall be set at one twelfth of the annual production limits in conditions 2(b) and 6(b).

C. 1. The Permittee may submit a schedule for iron and steel production for each month of the calendar year. Such schedule shall provide the scheduled monthly iron and steel production for each month and the total of such scheduled production shall not exceed the annual production limits in conditions 2(b) and 6(b). This schedule shall be submitted each year no later than December 15th of the preceding year.

2. During the course of the year, the Permittee may submit a revised production schedule which accounts for actual production levels which were below that scheduled for the previous months,

provided that in no case shall the scheduled production for prior months in such a revised schedule be lowered to less than actual production levels or raised. Such revised schedule shall be submitted to the Agency no later than 15 days after the first day of the month for which scheduled production has been raised. Such schedule shall be accompanied by data on actual production in preceding months.

33a. Compliance with opacity limits and measurements of opacity shall be made by opacity readings taken in accordance with the observation procedures set out in 40 CFR Part 60, Appendix A, Method 9.

b. The Permittee shall have at least two employees or agents experienced in making opacity readings to the extent that it is reasonably possible to do so, who shall be able to make the opacity readings required by this permit.

34a. Blast furnace hot metal production shall be measured at the BOF hot metal transfer station, and adjusted by documented slag and iron losses.

b. BOF liquid steel production shall be initially measured by a scale equipped crane and adjusted based upon documented steel production analysis of the continuous casters.

c. BFG usage shall be calculated based on the total BFG produced per net ton hot metal (NTHM) derived by the following formula and adjusted per analysis of documented BFG consumptions:

$$mmft^3\ BFG\ per\ month = \frac{(4.585277\ NTHM/day + 498.191)}{80} \times \begin{pmatrix} Number\ of \\ days\ in \\ that\ month. \end{pmatrix}$$

d. Natural gas usage shall be determined by metered volumes.

e. Fuel oil usage shall be determined by tank height differentials.

RECORD KEEPING

35. The Permittee shall keep records of the following items and such other items which may be appropriate to allow the Agency to review compliance:

a. Blast Furnace hot metal production (total combined daily, monthly and annual in tons), including documentation on iron and slag losses;

b. BOF liquid steel production (total combined daily, monthly and annual in tons), including documentation on adjustments made due to production analysis and losses;

c. Fuel usage as follows; Usage of natural gas and BFG (total combined million ft^3 per month and year, each) and fuel oil (total combined gallons/month and year) for the blast furnace

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

stoves (A and B), boiler house boilers (1-10), blast furnace boilers (11 and 12), ladle drying preheaters and blast furnace gas flares.

36. All records and logs required by this permit shall be retained at a readily accessible location at the source for at least three years from the date of entry and shall be made available for inspection and copying by the Agency and USEPA upon request. Any records retained in a computer shall be capable of being retrieved and printed on paper during normal source office hours so as to be able to respond to an Agency request for records during the course of a source inspection.

TESTING

37. The special conditions of this permit supplement the special conditions of any existing operating permits for this source, and supersede such conditions in cases where a conflict exists.

38a. The following tests shall be performed by no later than August 6, 1997 to demonstrate compliance with the conditions of this permit.

i. Fuel Combustion Units testing: The emissions of particulate matter from boiler #12 while burning blast furnace gas shall be measured. This test shall be designed to verify compliance with the requirements of this permit and the emission factor used (i.e., 2.9 lbs particulate emitted per mmcf BFG burned);

b. The test shall be performed by an approved independent testing service during conditions which are representative of maximum emissions and at the maximum production rates allowed, or as close to such rates as reasonable if the Permittee demonstrates to the Agency prior to testing that testing at such production rates within the time constraints of an Agency request to test is not practicable.

c. i. The following methods and procedures shall be used for the testing, unless another method is approved by the Agency: Refer to 40 CFR 60, Appendix A for USEPA test methods;

Location of sample points	USEPA Method 1
Gas flow and velocity	USEPA Method 2
Particulate Matter	USEPA Method 5

ii. All particulate measured shall be considered PM-10 unless emissions are tested by an appropriate USEPA test method for measurement of PM-10, as specified in 35 Ill. Adm. Code 212.110(e).

d. At least 30 days prior to the actual date of testing, a written test plan shall be submitted to the Agency for review and approval. This plan shall be describe the specific procedures for testing, including as a minimum:

i. The persons who will be performing sampling and analysis and their experience with similar tests;

ii. The specific conditions under which testing will be performed including a discussion of why these conditions will be representative of maximum emissions and the means by which operating parameters for the source and the emissions capture and control system will be determined;

iii. The specific determinations of emissions and operation which are intended to be made, including sampling and monitoring locations;

iv. The test methods which will be used, with the specific analysis methods;

v. Any proposed use of an alternative test method, with detailed justification;

vii. The format and content of the Source Test Report.

e. The Agency shall be notified before these tests to enable the Agency to observe these tests. Notification for the expected date of testing shall be submitted a minimum of thirty (30) days prior to the expected date. Notification of the actual and expected time of testing shall be submitted a minimum of five (5) working days prior to the actual date of the test. The Agency may at its discretion accept notifications with shorter advance notice provided that the Agency will not accept such notifications if it interferes with the Agency's ability to observe testing.

f. The Final Report of these tests shall include as a minimum:

i. A tabular summary of results which includes:

- process weight rate and/or fuel usage rate
- production rate
- allowable emission limit
- measured emission rate
- determined emission factor
- compliance demonstrated - Yes/No
- any other pertinent information

ii. Description of test methods and procedures used, including description of sampling train, analysis equipment, and test schedule;

iii. Detailed description of test conditions, including,

- pertinent process information (e.g. fuel or raw material consumption)
- control equipment information, i.e. equipment condition and operating parameters during testing;

iv. Data and calculations, including copies of all raw data sheets and records of laboratory analyses, sample calculations, and data on equipment calibration;

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

g. Copies of the Final Report for these tests shall be submitted to the Agency within 14 days after the test results are compiled and finalized.

h. Submittals of information shall be made as follows:

i. Notice of Test - one copy to Source Emission Test Specialist, one copy to Regional Office, and one copy to Permit Section;

ii. Final Report - one copy to Source Emission Test Specialist, one copy to Regional Office, and one copy to Permit Section.

Pertinent Addresses are:

Illinois Environmental Protection Agency
Division of Air Pollution Control
Attn: Source Emission Test Specialist
Intercontinental Center
1701 1st Avenue
Maywood, Illinois 60153

Illinois Environmental Protection Agency
Division of Air Pollution Control
Regional Office
2009 Mall Street
Collinsville, Illinois 62234

Illinois Environmental Protection Agency
Division of Air Pollution Control
Attn: Permit Section
P.O. Box 19506
Springfield, Illinois 62794-9506

REPORTING

39. If there is an exceedance of the requirements of this permit as determined by the records required by this permit, the Permittee shall submit a report to the Agency's Compliance Unit in Springfield, Illinois within 30 days after the exceedance. The report shall include the emissions released in accordance with the record keeping requirements, a copy of the relevant records, and a description of the exceedance or violation, cause of the exceedance, and efforts to reduce emissions and future occurrences. This report shall be sent to:

Illinois EPA
Bureau of Air
Compliance Section (#40)
P.O. Box 19276
Springfield, Illinois 62794-9276

40. The Permittee shall submit the following additional information from the prior calendar year with the Annual Emissions Report, due May 1st of each year:

a. Iron and steel production (tons/month and tons/yr, each);

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

b. Natural gas and BFG usage ($mmft^3$/month and $mmft^3$/yr, each);

c. Fuel oil usage (thousand gallons/month and thousand gallons/yr, for each type of oil).

APPLICABILITY OF MAJOR SOURCE RULES

41a. As a consequence of the above conditions, this permit is issued based upon the following changes in emissions, as further described in Table 6, accompanying increased production as allowed by this permit:

i. The increases in emissions of lead and VOM are not significant under 35 Ill. Adm. Code Part 203 or 40 CFR 52.21 - Prevention of Significant Deterioration;

ii. The increase in emissions of NO_x are being accompanied by contemporaneous emission decreases provided by the shutdown of equipment and operations such that the net emissions change is not significant under 35 Ill. Adm. Code Part 203 or 40 CFR 52.21 - Prevention of Significant Deterioration.

iii. The increase in emissions of PM and PM-10 are being accompanied by contemporaneous emission decreases provided by additional road dust control and BOF capture and control such that the net emissions change is not significant under 35 Ill. Adm. Code Part 203 or 40 CFR 52.21 - Prevention of Significant Deterioration.

Also, the Permittee has agreed to provide further additional dust control consisting of the sweeping of Granite City public streets and housekeeping measures in the area below and surrounding the BOF ESP. Attachment C is a listing of the emission reductions provided by these control measures.

b. The increases in emissions of SO_2 and CO are significant under 40 CFR 52.21 - Prevention of Significant Deterioration (PSD). Accordingly, the project is considered a major modification and must comply with the requirements of PSD. These requirements include a demonstration of best available control requirements for affected SO2 and CO emission units, an analysis of air quality impacts, an analysis of the impacts of the project on visibility, vegetation's and soils, and the application and proposed permit must undergo a public participation. The Agency has determined that these additional requirements have been met.

c. The changes in emissions pertinent to this project are summarized as follows:

Units = tons/year

- Emission increases which could occur from the project:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
51.6	- 52.0	238.8	476.0	5,685	59.3	0.54

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

- Creditable contemporaneous actual emission decreases:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
58.0	58.0	226.5	0.38	23.31	32.8	0.0

- Other contemporaneous emission increases:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
20.7	20.3	26.0	0.25	11.8	1.6	0.0

- Net emission changes:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
+14.3	-89.2	+38.3	+475.9	+5,673	+28.1	+0.54

- Significant Levels:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
15	25	40	40	100	40	0.6

Explanatory Note:

PM	=	particulate matter = particulate;
PM-10	=	particulate matter less than or equal to 10 micrometers in size;
SO_2	=	sulfur dioxide;
NO_x	=	nitrogen oxides;
VOM	=	volatile organic material;
CO	=	carbon monoxide;
mm	=	million;
gr/dscf	=	grains per dry standard cubic foot;
acfm	=	actual cubic feet per minute;
mmcf	=	million cubic feet;
Mgal	=	thousands of gallons.

Please note that this permit has been revised to allow additional time for operation under this construction permit, to reflect the use of the waste gas suction monitoring system, to revise the BFG usage determination method, and to remove the requirement for BFG generation testing.

If you have any questions on this permit, please call Ernie Kierbach at 217/782-2113.

Donald E. Sutton

Donald E. Sutton, P.E.
Manager, Permit Section
Division of Air Pollution Control

DES:ELK:jar

cc: IEPA, FOS Region 3

Permit Application #95010001

TABLE 1

BLAST FURNACE OPERATIONS

Maximum Hot Metal Production = 3,165,000 net tons per year

1. Casthouse Baghouse (furnace tapping)- captured emissions ducted to baghouse, uncaptured emissions emitted through roof, other openings, etc.

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.0703	111.19
PM-10	0.0703	111.19
SO_2	0.2006	422.0
NO_x	0.0144	22.79
VOM	0.0946	149.68

2. Blast Furnace - uncaptured fugitives

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.031	49.06
PM-10	0.0155	24.53
SO_2	0.0104	21.94
NO_x	0.0007	1.14
VOM	0.0047	7.42

3. Blast Furnace Charging
Maximum pellets charged = 4,308,581 tons/yr

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.0024	5.17
PM-10	0.0024	5.17

4. Slag Pits

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00417	6.60
PM-10	0.00417	6.60
SO_2	0.0100	15.83

Permit Application #95010001

TABLE 1 (cont.)

5. Iron Spout Baghouse- captured emissions controlled by iron spout baghouse.

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.02548	40.32
PM-10	0.02548	40.32
SO_2	0.0073	13.89

6. Iron Pellet Screen
Maximum pellets charged = 4,308,581 tons/yr

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00279	6.01
PM-10	0.00279	6.01

Permit Application #95010001

TABLE 2

BOF SHOP

Maximum Liquid Steel Production = 3,580,000 net tons per year

1. BOF ESP Stack (charge, refine, tap)

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.16	262.80
PM-10	0.16	262.80
NO_x	0.0389	69.63
VOM	0.0060	10.74
CO	8.993	16,097.47
Lead	0.1934 lbs/hr	1.26 tons/yr

2. BOF Roof Monitor

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.0987	176.71
PM-10	0.06614	118.40
Lead	0.0129 lbs/hr	0.08 tons/yr

3. Desulfurization and Reladling - Hot Metal Transfer

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.03721	58.88
PM-10	0.03721	58.88
VOM	0.0010	1.58
Lead	0.0133 lbs/hr	0.09 tons/yr

4. BOF Additive System (i.e., fluxes) with Baghouse, a.k.a., BOF hopper baghouse

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00032	0.57
PM-10	0.00032	0.57

Permit Application #95010001

TABLE 2 (cont.)

5. Flux conveyor & transfer pits, bin floor

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.0016	2.86
PM-10	0.0016	2.86

6. Hot metal charging ladle slag skimmer

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.0050	7.94
PM-10	0.0050	7.94

Permit Application #95010001

TABLE 3

CONTINUOUS CASTING OPERATIONS

Maximum Liquid Steel Throughput = 3,580,000 net tons per year

1. Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy)

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00715	12.80
PM-10	0.00715	12.80

2. Deslagging Station and Material HS.

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00355	6.35
PM-10	0.00355	6.35

3. Caster Molds - Casting

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.006	10.74
PM-10	0.006	10.74
NO_x	0.050	89.50

4. Casters Spray Chambers

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00852	15.25
PM-10	0.00852	15.25

5. Slab Cut-off

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.0071	12.71
PM-10	0.0071	12.71

Permit Application #95010001

TABLE 3 (cont.)

6. Slab Ripping

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00722	12.92
PM-10	0.00722	12.92

Permit Application #95010001

TABLE 4

CERTAIN FUEL COMBUSTION UNITS

1. 10 boilers (#'s 1 - 10)
2. 2 boilers (#'s 11 - 12)
3. Blast Furnace Stoves A & B.
4. BFG Flares
5. Ladle Drying Preheaters (5 heaters).

Total combined fuel usage from affected units (i.e., Boilers, BF stoves, BF Flares, ladle drying preheaters)

	Maximum Usage ($mmft^3/Yr$)
NATURAL Gas (Total)	1,145
BFG	185,030
Fuel Oil	365 thousand gallons/yr

1. Natural Gas

Pollutant	Emission Factor (Lbs/mmcf)	Maximum Emissions (Tons/Yr)
PM	5.1	2.92
PM-10	5.1	2.92
SO_2	0.6	0.34
NO_x	306	175.19
VOM	2.8	1.60
CO	40	22.90

2. BFG

Pollutant	Emission Factor (Lbs/mmcf)	Maximum Emissions (Tons/Yr)
PM	2.9	268.29
PM-10	2.9	268.29
SO_2	6.65	615.22
NO_x	5.28	488.48
CO	13.7	1,267.46

Permit Application #95010001

TABLE 4 (cont.)

3. Fuel Oil

Pollutant	Emission Factor (Lbs/Mgal)	Maximum Emissions (Tons/Yr)
PM	9.72	1.77
PM-10	9.72	1.77
SO_2	141.3	25.79
NO_x	55	10.04
VOM	0.28	0.05
CO	5.0	0.91
Lead	0.336	0.06 (waste oil)

Permit Application #95010001

TABLE 5

LIMITS ON EMISSIONS FROM MAJOR PROCESSES AND ACTIVITIES

Units = tons/year

	PM	PM-10	SO_2	NO_x	VOM	CO	Lead
Blast Furnace Operations	218	194	474	24	157	--	--
BOF Shop	510	451	--	70	12	16,097	1.43
Continuous Casting Operations	71	71	--	90	--	--	--
Certain Fuel Combustion Units[A]	273	273	641	674	2	1,291	0.06
Roadways	27	27	--	--	--	--	--
Material Handling	2	2	--	--	--	--	--

	PM	PM-10	SO_2	NO_x	VOM	CO	Lead
TOTAL	1,101	1,018	1,115	858	171	17,388	1.49

[A] Blast furnace stoves (A and B), boiler house boilers (1-10), blast furnace boilers (11 and 12), ladle drying preheaters and blast furnace gas flares.

Permit Application #95010001

TABLE 6

EMISSIONS SUMMARY

Units = tons/year

- Emission increases which could occur from the project:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
51.6	-52.0	238.8	476.0	5,685	59.3	0.54

- Creditable contemporaneous actual emission decreases:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
58.0	58.0	226.5	0.38	23.31	32.8	0.0

- Other contemporaneous emission increases:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
20.7	20.3	26.0	0.25	11.8	1.6	0.0

- Net emission changes:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
+14.3	-89.2	+38.3	+475.9	+5,673	+28.1	+0.54

- Significant Levels:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
15	25	40	40	100	40	0.6

Permit Application #95010001

ATTACHMENT A

PROCEDURES TO ENSURE PROPER OPERATION
OF BOF ESP CONTROL SYSTEM

1. The emissions control operator shall:

   a. Check on a regular basis and report to the emissions control foreman or melter:

      i. Any ESP fields down;

      ii. Any ESP fields in which the meter readings are showing no current or a fault;

   b. Check on a regular basis that doors on all hopper screws are closed;

   c. Inspect on a regular basis the fans and motors for unusual sounds and/or visual problems. Any abnormalities will be immediately reported to the melter or maintenance foreman for investigation.

2. The melter shall:

   a. Check on a regular basis and report to the emissions control foreman or the area electrician any fields which the pulpit precipitator field short indicators shows as having a short and is able to reset;

   b. Check on a regular basis and report to the emissions control foreman or the maintenance foreman any draft or fan problems;

   c. Check the ESP stack opacity monitor on a regular basis and initiate the following in the event that the stack opacity level, as determined by the opacity monitor, exceeds 30% opacity on a six minute average:

      i. Check the pulpit indicators for proper operation of the steam and spray water system. Report any problems to emission control foreman or maintenance foreman;

      ii. Check the stack gas pulpit set point for proper setting;

      iii. Call the emissions control operator who shall perform the following steps;

         A. Check the AVC operation and power level. Report any problems to electrical maintenance foreman or area electrician;

         B. Check to ensure that doors on all hopper screws are closed;

   d. Check oxygen blow rates and adjust, if necessary;

   e. Check hot metal chemistry;

Permit Application #95010001

ATTACHMENT A (cont.)

f. A log shall be maintained of the above checks and any actions taken as a result.

3. The emission control foreman shall:

   a. Check on a regular basis the opacity monitor exceedances and trends. The control specialist shall be contacted to correct any problems;

   b. Check on a regular basis the draft rate set points;

   c. Check on a regular basis primary and secondary damper settings;

   d. Check on a regular basis ESP operation, including the following:

      i. Fields down;

      ii. Fields indicating shorts and unable to reset;

      iii. Hopper screw doors are closed;

   e. Check on a regular basis blow rates;

   f. Check on a regular basis spray water system operation;

   g. Check on a regular basis steam injection rate;

   h. Contact the area manager regarding electrical maintenance and to schedule the ESP repair work;

   i. Contact the area manger for mechanical maintenance to schedule the isolation of the ESP channel by closing the inlet and outlet gates of that chamber and opening the top hatches for entry into the chamber;

   j. Notify the emissions control operator and melter when isolation work begins;

   k. A log shall be maintained of the above checks and any actions taken as a result.

4. The crane operator shall use the following procedures, as appropriate, to minimize emissions and maximize emissions capture by the hoods:

   a. Use controlled pouring of the hot metal into the BOF vessel;

   b. Use careful positioning of the hot metal ladle with respect to the hood face and furnace mouth;

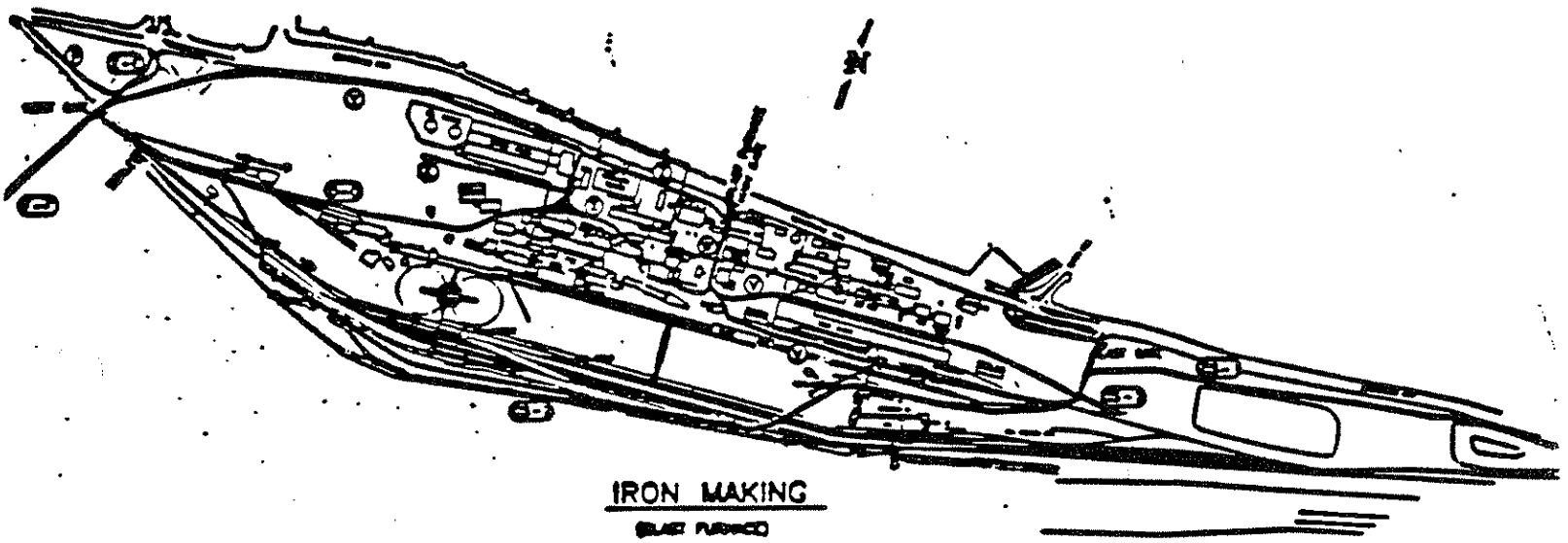
   c. Use the most beneficial furnace tilt angle;

   d. These procedures shall be posted in the crane operator booth.

Permit Application #95010001

ATTACHMENT B

ON-SITE FUGITIVE DUST ROADWAY CONTROL MEASURES AND
MAPS SHOWING THE ROAD SEGMENTS



GRANITE CITY STEEL
GRANITE CITY, ILLINOIS

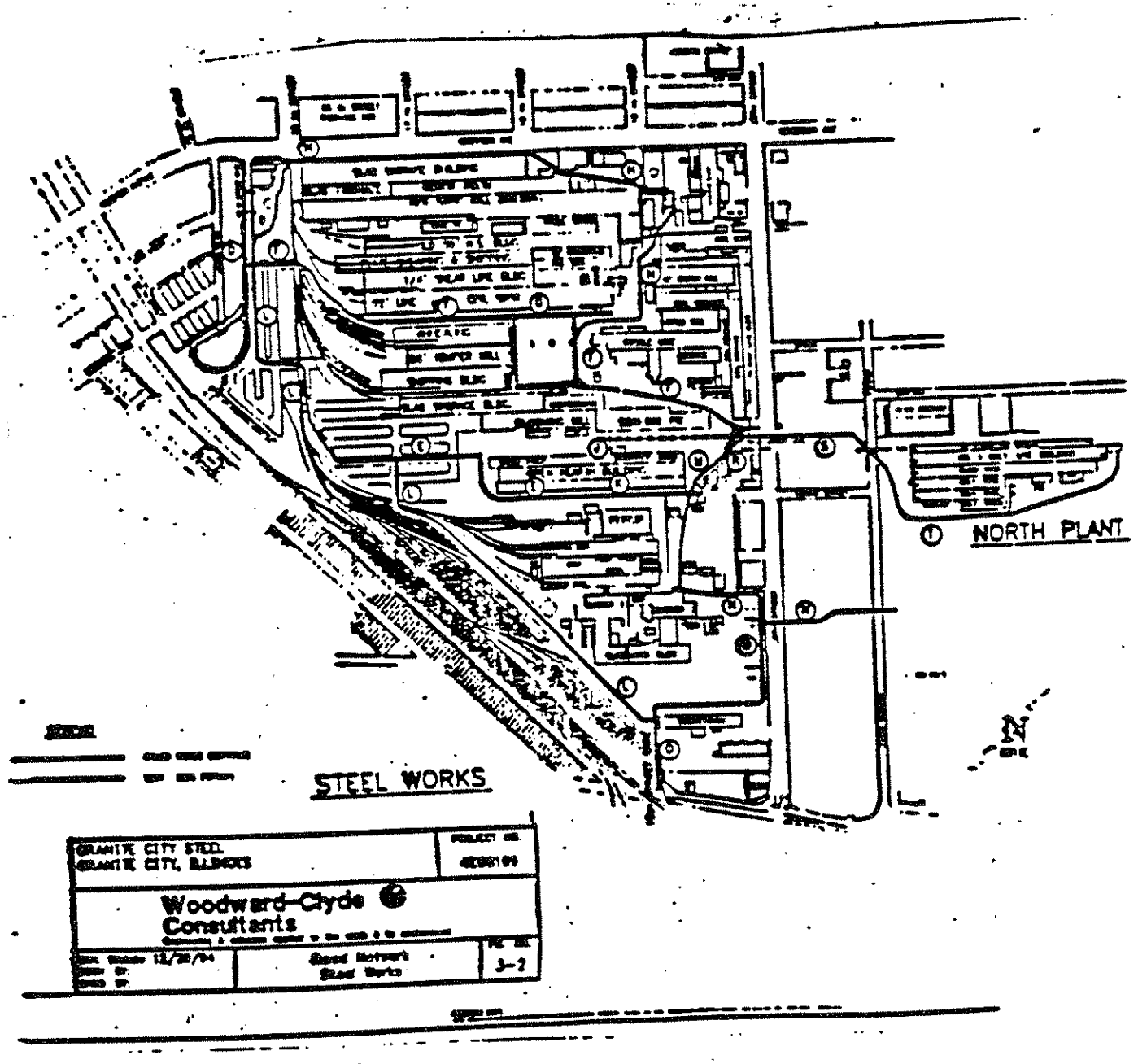
Woodward-Clyde Consultants

Road Network
Iron Making Area

3-3

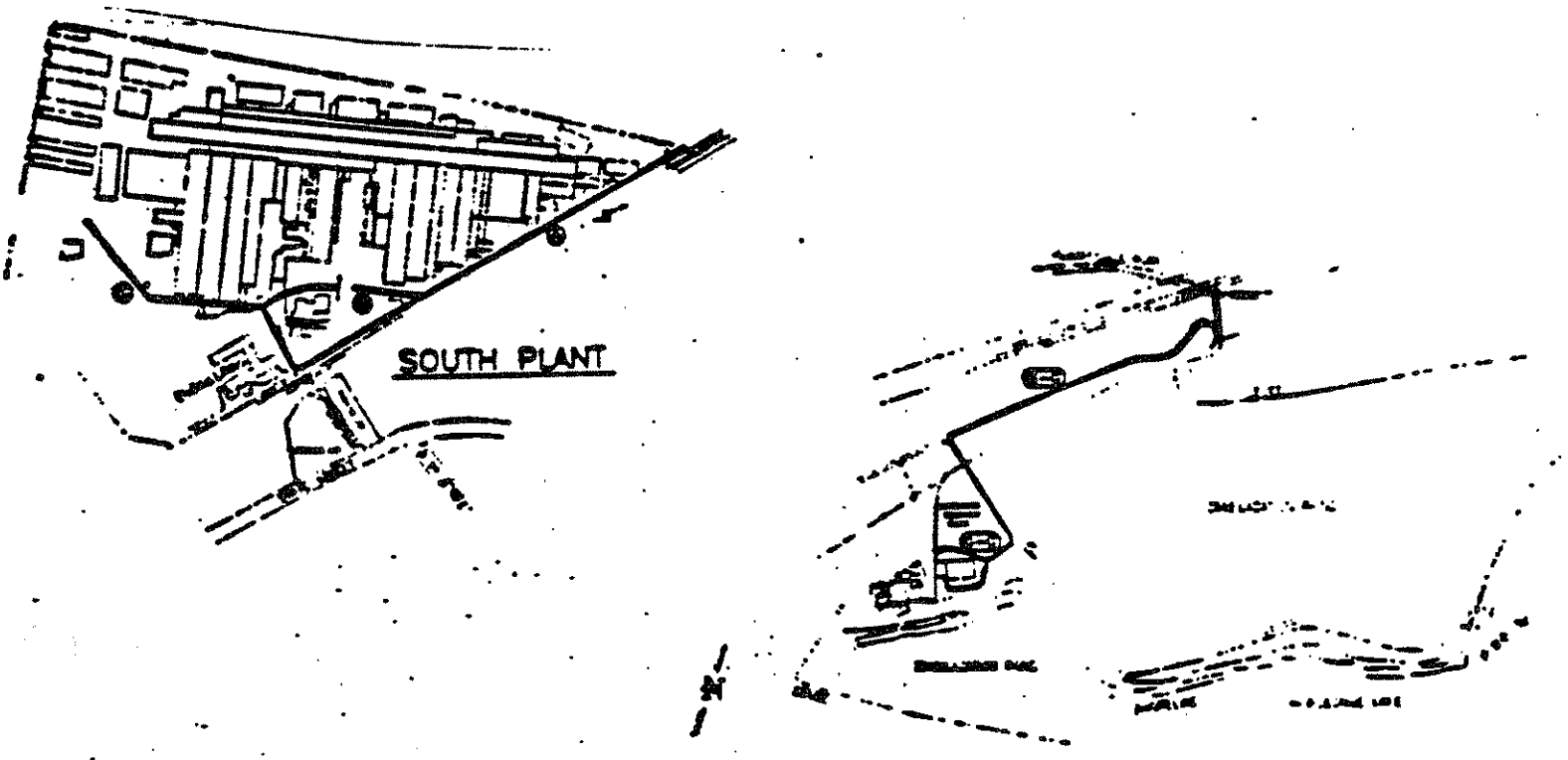
Permit Application #95010001

ATTACHMENT B (cont.)



Permit Application #95010001

ATTACHMENT B (cont.)



GRANITE CITY STEEL
GRANITE CITY, ILLINOIS

Woodward-Clyde Consultants

South Plant & WWTP

3-4

Permit Application #95010001

ATTACHMENT C

CONTEMPORANEOUS REDUCTIONS IN THE
EMISSIONS OF PM-10

- Historic roadway emissions of 428 tons/yr, minus future potential roadway emissions of 27 tons/yr, equals a resulting reduction in roadway emissions of 401 tons/yr
- Historic material handling emissions of 17 tons/yr minus future potential material handling emissions of 2 tons/yr, equals a resulting reduction in material handling emissions of 15 tons/yr.
- Emission reductions resulting from the sweeping of city streets = 52 tons/yr*
- Emission reductions resulting from sweeping and housekeeping of areas below and around BOF ESP = 12 tons/yr*

Total reductions in the emissions of PM-10 as a result of the additional dust control measures required by Illinois' SIP and the special conditions of this permit = 480 tons/yr

* These are considered reasonable estimates of reductions and are subject to change upon further investigation of the actual reductions which will occur as a result of the control measures required by this permit.

ELK:jar

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

State of Illinois
ENVIRONMENTAL PROTECTION AGENCY

Mary A. Gade, Director
217/782-2113

P. O. Box 19506, Springfield, IL 62794-9506

REVISED
OPERATING PERMIT

PERMITTEE

Granite City Division
of National Steel Corporation
Attn: Joseph S. Kocot
20th and State Street
Granite City, Illinois 62040

Application No.: 95010001
Applicant's Designation:
Subject: Production Increase
Date Issued: January 5, 1999
Location: Southeastern Granite City

I.D. No.: 119813AAI
Date Received: December 22, 1998

Expiration Date: June 6, 2002

Permit is hereby granted to the above-designated Permittee for an increase in the allowable production rate of iron (from 2,372,500 to 3,165,000 net tons per year) and steel (from 2,774,000 to 3,580,000 net tons per year) as described in the above-referenced application. This permit is subject to standard conditions attached hereto and the following special conditions:

1. Prior to issuance of this permit, a draft of this permit has undergone a public notice and comment period, and a public hearing was held.

BLAST FURNACE OPERATIONS

2a. Total combined production of hot metal (a.k.a., iron) from blast furnaces A and B shall not exceed 9,849 net tons per day, averaged over any calendar month, and;

b. Total combined production of hot metal from blast furnaces A and B shall not exceed 3,165,000 net tons per year.

3a. Particulate emissions from the blast furnace casthouse baghouse and iron spout baghouse shall not exceed 0.010 gr/dscf, pursuant to 35 Ill. Adm. Code 212.445(b)(1).

b. The opacity of emissions from the blast furnace casthouse baghouse and the iron spout baghouse shall not exceed 10% on a 6 minute rolling average basis, pursuant to 35 Ill. Adm. Code 212.445(b)(1).

4a. Emissions of particulate matter from any opening in the blast furnace casthouse shall not exceed 20% opacity on a 6-minute rolling average basis beginning from initiation of the opening of the tap hole up to the point where iron and slag stops flowing in the troughs, pursuant to 35 Ill. Adm. Code 212.445(a)(2).

5. Emissions from Blast Furnace operations shall not exceed the limits in attached Tables 1 and 5.

Printed on Recycled Paper

BASIC OXYGEN FURNACE SHOP

6a. Total combined production of liquid steel from the Basic Oxygen Furnaces (BOF's) shall not exceed 11,000 net tons per day, averaged over any calendar month, and;

b. Total combined production of liquid steel from the BOF's shall not exceed 3,580,000 net tons per year.

7. The emissions of PM-10 from the BOF ESP stack for the total of all BOF processes (i.e., operations from the beginning of the charging process through the end of the tapping process) shall not exceed 60.0 lbs/hr and 0.225 lbs per ton of steel in process, pursuant to 35 Ill. Adm. Code 212.458(b)(23).

8. Visible emissions from any opening in the BOF shop (e.g., roof monitor) shall not exceed 20% on a 3 minute rolling average basis.

9a. The Permittee shall determine the opacity from the openings BOF shop on at least a weekly basis. Observations shall be conducted for at least an hour or the entire BOF cycle, whichever is greater.

b. The Permittee shall determine the opacity from the BOF ESP stack for at least one hour on any normal work day (i.e., Monday through Friday) that the continuous opacity monitor on the BOF ESP stack has an outage that exceeds two consecutive hours and is still down. The readings shall commence as soon as possible after the opacity monitor has been down for two consecutive hours. If meteorological conditions or lack of visibility preclude these observations from being conducted, then this shall be noted in the log book.

c. The opacity shall be determined in accordance with the observation procedures set out in 40 CFR Part 60, Appendix A, Method 9 including the requirement that readings be taken by a certified observer.

d. These determinations shall be recorded in a log book, which at a minimum shall include the date and time of observations, name and title of observer, individual opacity readings, calculated opacity so as to determine compliance with Section 212.123, and calculated opacity relative to 20% opacity on a three minute rolling average basis.

10. The Permittee shall follow the BOF operating procedures and requirements specified in attachment A. These requirements are designed to ensure proper operation of the BOF control system. These procedures shall be posted in the BOF pulpit (a.k.a., control room).

11. Flame suppression shall be used and maintained during the entire tapping process.

12a. The stack gas pulpit set point of the BOF ESP control system shall be set in accordance with the following, so as to establish sufficient particulate matter capture efficiency of the charging and primary hoods:

i. Set point requirements while only a single BOF vessel is in operation;

A. Minimum set point during charging process: 550,000 cfm;

B. Minimum set point during refining process: 650,000 cfm;

C. Minimum set point during tapping process: 200,000 cfm (until one minute after completing alloy addition);

b. i. During dual operation of BOF vessels (a.k.a., overlapping BOF operation) the minimum set point shall be 700,000 cfm.

iii. Overlapping operations of the BOF vessels is allowed under the following conditions:

A. The hot metal charge of the second vessel shall be initiated and completed during the time between completion of the blow and start of tap on the first vessel while sufficient draft at the ESP capture system is established and maintained for both vessels.

B. The charge and/or blow on one vessel shall not begin until sufficient draft has been established at the associated ESP capture system (a.k.a., doghouse) and the alloy addition at the vessel tapping has been completed for a least 1 minute.

C. Sufficient draft at the ESP capture system of the vessel being tapped shall be maintained for at least 1 minute after alloy addition has been completed. After such period, the capture system draft may be transferred over to the other vessel in order to satisfy condition (A) above.

D. Only overlapping of the hot metal charge of the second vessel after the end of blow and prior to onset of tap of the first vessel and overlapping of tapping of the first vessel, after alloy addition, and the hot metal charge and/or blow on the second vessel are allowed.

E. Condition B and C above shall be part of the Standard Operating Procedure (SOP) of the BOF vessels.

c. The BOF capture system shall be operated at the above minimum set points until and unless the Agency approves a lower minimum set point based on a demonstration that a better level of particulate matter control will occur, except for purposes of emissions testing as related to the set point.

d. The Permittee shall calibrate, operate, and maintain a continuous strip chart recorder of the ESP stack gas flow rate as measured by the stack gas flow meter during ESP use.

e. The Permittee shall record for each steel production cycle the various stack gas flow rates for each process (i.e., for each charge, each refine, each tap) of each steel production cycle. That is, the Permittee shall be able to distinguish the measured flow rate of stack gas during each production cycle.

f. The stack gas flow meter shall be calibrated on at least a quarterly basis.

13a. The Permittee shall operate and maintain the waste gas suction monitor system that continually measures and records for each process (i.e., for each charge, each refine, each tap) of each steel production cycle the static pressure in the main downcommer duct of the ESP emissions capture and transport system.

b. The waste gas suction monitoring system shall be used as a mechanism to ensure sufficient draft is maintained in the emissions capture hoods and transport ducts so as to maximize emissions capture and transport and minimize uncaptured emissions and emission leaks.

c. The monitoring system shall be operated and maintained to ensure accurate and useful data.

d. The Permittee shall continuously record the static pressure in the main downcommer duct of the ESP emissions capture and transport system.

14a. The Permittee shall visually inspect at least monthly all visible BOF vessel enclosures, hooding and ducts used to capture and transport emissions for the BOF ESP control system.

b. A log shall maintained of these inspections which includes observations of the physical appearance of the capture system and any noted deficiencies (e.g., the presence of any holes in ductwork or hoods, flow constrictions caused by dents or accumulated dust in ductwork, and fan erosion).

c. Any leaks or areas otherwise noted to be in need of repair, shall be repaired as soon as practicable.

15a. The Permittee shall operate, maintain, and repair the BOF ESP in a manner that assures compliance with the conditions of this permit.

b. An adequate inventory of spare parts for the BOF ESP shall be maintained.

16. Written operating procedures for the BOF ESP shall be maintained and updated describing proper normal process and equipment operating parameters, monitoring and instrumentation for measuring control equipment operating parameters, control equipment inspection and maintenance practices, and the availability of spare parts from inventory, local suppliers and other sources.

17. The Permittee shall keep operating records, a maintenance log, and inspection log for the BOF ESP and associated control systems which includes the following:

a. Operating time of the BOF;

b. Operating time of the capture systems and performance parameters, including air flow and fan amperage through the fan motors, gas temperature at inlet to ESP, damper settings, and steam injection rate;

c. Operating time of the ESP and performance parameters, including voltage and amperage of each transformer/rectifier set, number of sections in use;

d. All routine and nonroutine maintenance performed, including dates and duration of outages, inspection schedule and findings, leaks detected, repair actions, and replacements.

18. Emissions from the BOF Shop shall not exceed the limits in attached Tables 2 and 5.

Note: For purposes of this permit, a BOF cycle is defined as the period from the beginning of the charging process through the end of the tapping process. The cycle is comprised of three main processes which are charging, refining, and tapping.

CONTINUOUS CASTING OPERATIONS

19. The continuous casting operations shall comply with 35 Ill. Adm. Code 212.450 and 212.458(b)(8).

20. Emissions from the continuous casting operations shall not exceed the limits in Tables 3 and 5.

FUEL COMBUSTION

21. Total fuel usage for blast furnace stoves (A and B), boiler house boilers (1-10), blast furnace boilers (11 and 12), ladle drying preheaters and blast furnace gas flares shall not exceed the following limits:

a. Natural Gas usage: 225 million ft^3 per month and 1,346 million ft^3 per year;

b. Blast Furnace Gas (BFG) usage: 30,800 million ft^3 per month and 185,030 million ft^3 per year;

c. Fuel Oil usage: 60 thousand gallons per month and 365 thousand gallons per year.

22. Emissions from the fuel combustion units listed above shall not exceed the limits in Tables 4 and 5.

ON-SITE FUGITIVE DUST CONTROL

(Refer to Attachment B for a table which summarizes the required on-site fugitive dust roadway control measures and maps indicating the referred to road segments)

23. The Permittee shall immediately initiate and maintain the on-site fugitive dust control measures specified in this permit so as eliminate dust spillage on in-plant and out-of-plant roadways.

24a. The Permittee shall sweep or flush at least every day the paved access area below the BOF ESP where ESP dust collection bags are used, stored and transported.

b. The Permittee shall implement a housekeeping program for the non-roadway areas below and around the BOF ESP. This program shall, at a minimum, contain the following:

i. The ground and other accessible areas where dust may gather shall be swept or cleaned at least every day;

ii. Cleaning shall be performed in such a manner as to minimize the escape of dust into the atmosphere;

iii. Dust collection bags shall be inspected at least daily for rips, tears, or insecure connection to the discharge chutes of the ESP hoppers;

iv. Dust collection bags shall be inspected after removal from, and connection to, the discharge chutes of the ESP hoppers;

v. Ripped or torn bags shall be taken out of service and transported as soon as practicable in a covered truck.

25. Fugitive emissions of particulate matter from any roadway or parking area shall not exceed an opacity of 5%, pursuant to 35 Ill. Adm. code 212.316(e)(1).

26a. UNPAVED ROADS: On unpaved roads that are part of normal traffic patterns as identified in attachment B (including roads B, C, E, N, F-F, and CS(2)) the Permittee shall apply a chemical dust suppressant at least three times a month, with the following exceptions:

i. Road segment G-G, which shall be sprayed at least quarterly;

ii. Road segments P, V, Z, D-D, E-E, and H, which shall be sprayed at least 4 times per month until paving is completed. Paving shall be completed on these roads no later than July 31, 1996;

iii. Road segment L, which shall be sprayed at least 4 times per month.

b. All other unpaved roads shall be treated as necessary.

c. Applications of suppressant may be less frequent than specified above if weather conditions, i.e., precipitation or temperature, interfere with the schedule for spraying, provided each such instance shall be recorded in accordance with the daily records for on-site fugitive dust control required by this permit.

27a. PAVED ROADWAYS AND AREAS: Paved roadways and areas shall be maintained in good condition.

b. On paved roadways and other areas, the Permittee shall sweep or flush as follows:

i. Road segments D, K, M, F, G, J, R, and O shall be swept or flushed at least daily;

ii. Road segments P, V, W, X, Z, D-D, E-E, and CS(1) shall be swept or flushed at least five days per week;

iii. Road segments S and T shall be swept or flushed at least every other day;

iv. Road segments A and H shall be swept or flushed at least once per month;

v. All gate areas leading from the Steelworks area shall be swept or flushed at least daily;

vi. All gate areas leading from the iron making area shall be swept or flushed at least five times per week.

28. The above on-site dust control measures shall be conducted to maximize their effectiveness by performing said measures when the roads or areas are not normally obstructed by parked vehicles and by preferentially using filter sweeping (e.g., Enviro-Whirl sweeper) for the gate areas, the roads and areas surrounding the BOF and BOF ESP, and other key areas.

29. The Permittee shall maintain daily records relative to the on-site fugitive dust control program which includes the following information as a minimum:

a. The date (and time for the gate areas) each road or area was treated;

b. The manner in which the road or area was treated (i.e., filter sweep, conventional sweep, suppressant spray or flush);

c. Detailed information for use of dust suppressant, including but not limited to the application rate, dilution ratio, type of suppressant used, and the number of gallons of suppressant applied;

d. Observations, if any, concerning the condition of the roadway, e.g., presence of parked vehicles, detection of potholes;

e. The amount of precipitation and temperature recorded for each day, and if determination was made to suspend application of suppressant, include name and title of person who made determination to suspend application and explanation;

f. Any and all suspensions or deviations from the designated control procedures, with date, description, and explanation for suspension of application.

OFF-SITE FUGITIVE DUST CONTROL

30. The Permittee or the Permittee's Agent shall sweep or flush the following Granite City street road areas:

a. At least weekly, the quarter mile segment of Madison Avenue in front of the 16th street gate (i.e., 1/8 of a mile in either direction);

b. At least weekly, segment of 20th street between Lee and Quincy roads;

c. At least monthly, segment of 20th street between Madison and Route 203 (a.k.a. Edwardsville Road).

PM-10 CONTINGENCY MEASURES

31. The Permittee shall comply with the additional control measures (e.g., PM-10 contingency plan) required by 35 Ill Adm. Code Part 212 Subpart U.

COMPLIANCE DETERMINATIONS

32a. Compliance with the daily limits of this permit shall be determined from a monthly total of the relevant daily data divided by the number of days in the month.

b. Compliance with the monthly limits of this permit (e.g., fuel usage) shall be determined by direct comparison of monthly data to the applicable limit.

c. i. Compliance with the annual limits of this permit shall be determined based on a calendar year.

ii. A. Compliance with the production limits in conditions 2(b) and 6(b) shall also be determined on a month by month basis by showing that the actual production of iron and steel from the plant did not exceed the scheduled rate of production for a month given in the most recent production schedule provided to the Agency that shows compliance with the following requirements.

B. If no production schedule is submitted to the Agency by the Permittee for a particular year, the scheduled monthly production of iron and steel shall be set at one twelfth of the annual production limits in conditions 2(b) and 6(b).

C. 1. The Permittee may submit a schedule for iron and steel production for each month of the calendar year. Such schedule shall provide the scheduled monthly iron and steel production for each month and the total of such scheduled production shall not exceed the annual production limits in conditions 2(b) and 6(b). This schedule shall be submitted each year no later than December 15th of the preceding year.

2. During the course of the year, the Permittee may submit a revised production schedule which accounts for actual production levels which were below that scheduled for the previous months, provided that in no case shall the scheduled production for prior months in such a revised schedule be lowered to less than actual production levels or raised. Such revised schedule shall be submitted to the Agency no later than 15 days after the first day of the month for which scheduled production has been raised. Such schedule shall be accompanied by data on actual production in preceding months.

33a. Compliance with opacity limits and measurements of opacity shall be made by opacity readings taken in accordance with the observation procedures set out in 40 CFR Part 60, Appendix A, Method 9.

b. The Permittee shall have at least two employees or agents experienced in making opacity readings to the extent that it is reasonably possible to do so, who shall be able to make the opacity readings required by this permit.

34a. Blast furnace hot metal production shall be measured at the BOF hot metal transfer station, and adjusted by documented slag and iron losses.

b. BOF liquid steel production shall be initially measured by a scale equipped crane and adjusted based upon documented steel production analysis of the continuous casters.

c. BFG usage shall be calculated based on the total BFG produced per net ton hot metal (NTHM) derived by the following formula and adjusted per analysis of documented BFG consumptions:

$$mmft^3\ BFG\ per\ month = \frac{(4.585277\ NTHM/day + 498.191)}{80} \times \begin{pmatrix} Number\ of \\ days\ in \\ that\ month. \end{pmatrix}$$

d. Natural gas usage shall be determined by metered volumes.

e. Fuel oil usage shall be determined by tank height differentials.

RECORD KEEPING

35. The Permittee shall keep records of the following items and such other items which may be appropriate to allow the Agency to review compliance:

a. Blast Furnace hot metal production (total combined daily, monthly and annual in tons), including documentation on iron and slag losses;

b. BOF liquid steel production (total combined daily, monthly and annual in tons), including documentation on adjustments made due to production analysis and losses;

c. Fuel usage as follows; Usage of natural gas and BFG (total combined million ft^3 per month and year, each) and fuel oil (total combined gallons/month and year) for the blast furnace stoves (A and B), boiler house boilers (1-10), blast furnace boilers (11 and 12), ladle drying preheaters and blast furnace gas flares.

36. All records and logs required by this permit shall be retained at a readily accessible location at the source for at least three years from the date of entry and shall be made available for inspection and copying by the Agency and USEPA upon request. Any records retained in a computer shall be capable of being retrieved and

printed on paper during normal source office hours so as to be able to respond to an Agency request for records during the course of a source inspection.

TESTING

37. The special conditions of this permit supplement the special conditions of any existing operating permits for this source, and supersede such conditions in cases where a conflict exists.

38a. The following tests shall be performed by no later than August 6, 1997 to demonstrate compliance with the conditions of this permit.

i. Fuel Combustion Units testing: The emissions of particulate matter from boiler #12 while burning blast furnace gas shall be measured. This test shall be designed to verify compliance with the requirements of this permit and the emission factor used (i.e., 2.9 lbs particulate emitted per mmcf BFG burned);

b. The test shall be performed by an approved independent testing service during conditions which are representative of maximum emissions and at the maximum production rates allowed, or as close to such rates as reasonable if the Permittee demonstrates to the Agency prior to testing that testing at such production rates within the time constraints of an Agency request to test is not practicable.

c. i. The following methods and procedures shall be used for the testing, unless another method is approved by the Agency: Refer to 40 CFR 60, Appendix A for USEPA test methods;

Location of sample points	USEPA Method 1
Gas flow and velocity	USEPA Method 2
Particulate Matter	USEPA Method 5

ii. All particulate measured shall be considered PM-10 unless emissions are tested by an appropriate USEPA test method for measurement of PM-10, as specified in 35 Ill. Adm. Code 212.110(e).

d. At least 30 days prior to the actual date of testing, a written test plan shall be submitted to the Agency for review and approval. This plan shall be describe the specific procedures for testing, including as a minimum:

i. The persons who will be performing sampling and analysis and their experience with similar tests;

ii. The specific conditions under which testing will be performed including a discussion of why these conditions will be representative of maximum emissions and the means by which operating parameters for the source and the emissions capture and control system will be determined;

iii. The specific determinations of emissions and operation which are intended to be made, including sampling and monitoring locations;

iv. The test methods which will be used, with the specific analysis methods;

v. Any proposed use of an alternative test method, with detailed justification;

vii. The format and content of the Source Test Report.

e. The Agency shall be notified before these tests to enable the Agency to observe these tests. Notification for the expected date of testing shall be submitted a minimum of thirty (30) days prior to the expected date. Notification of the actual and expected time of testing shall be submitted a minimum of five (5) working days prior to the actual date of the test. The Agency may at its discretion accept notifications with shorter advance notice provided that the Agency will not accept such notifications if it interferes with the Agency's ability to observe testing.

f. The Final Report of these tests shall include as a minimum:

i. A tabular summary of results which includes:

- process weight rate and/or fuel usage rate
- production rate
- allowable emission limit
- measured emission rate
- determined emission factor
- compliance demonstrated - Yes/No
- any other pertinent information

ii. Description of test methods and procedures used, including description of sampling train, analysis equipment, and test schedule;

iii. Detailed description of test conditions, including,

- pertinent process information (e.g. fuel or raw material consumption)
- control equipment information, i.e. equipment condition and operating parameters during testing;

iv. Data and calculations, including copies of all raw data sheets and records of laboratory analyses, sample calculations, and data on equipment calibration;

g. Copies of the Final Report for these tests shall be submitted to the Agency within 14 days after the test results are compiled and finalized.

h. Submittals of information shall be made as follows:

i. Notice of Test - one copy to Source Emission Test Specialist, one copy to Regional Office, and one copy to Permit Section;

ii. Final Report - one copy to Source Emission Test Specialist, one copy to Regional Office, and one copy to Permit Section.

Pertinent Addresses are:

Illinois Environmental Protection Agency
Division of Air Pollution Control
Attn: Source Emission Test Specialist
Intercontinental Center
1701 1st Avenue
Maywood, Illinois 60153

Illinois Environmental Protection Agency
Division of Air Pollution Control
Regional Office
2009 Mall Street
Collinsville, Illinois 62234

Illinois Environmental Protection Agency
Division of Air Pollution Control
Attn: Permit Section
P.O. Box 19506
Springfield, Illinois 62794-9506

REPORTING

39. If there is an exceedance of the requirements of this permit as determined by the records required by this permit, the Permittee shall submit a report to the Agency's Compliance Unit in Springfield, Illinois within 30 days after the exceedance. The report shall include the emissions released in accordance with the record keeping requirements, a copy of the relevant records, and a description of the exceedance or violation, cause of the exceedance, and efforts to reduce emissions and future occurrences. This report shall be sent to:

Illinois EPA
Bureau of Air
Compliance Section (#40)
P.O. Box 19276
Springfield, Illinois 62794-9276

40. The Permittee shall submit the following additional information from the prior calendar year with the Annual Emissions Report, due May 1st of each year:

a. Iron and steel production (tons/month and tons/yr, each);

b. Natural gas and BFG usage ($mmft^3$/month and $mmft^3$/yr, each);

c. Fuel oil usage (thousand gallons/month and thousand gallons/yr, for each type of oil).

APPLICABILITY OF MAJOR SOURCE RULES

41a. As a consequence of the above conditions, this permit is issued based upon the following changes in emissions, as further described in Table 6, accompanying increased production as allowed by this permit:

i. The increases in emissions of lead and VOM are not significant under 35 Ill. Adm. Code Part 203 or 40 CFR 52.21 - Prevention of Significant Deterioration;

ii. The increase in emissions of NO_x are being accompanied by contemporaneous emission decreases provided by the shutdown of equipment and operations such that the net emissions change is not significant under 35 Ill. Adm. Code Part 203 or 40 CFR 52.21 - Prevention of Significant Deterioration.

iii. The increase in emissions of PM and PM-10 are being accompanied by contemporaneous emission decreases provided by additional road dust control and BOF capture and control such that the net emissions change is not significant under 35 Ill. Adm. Code Part 203 or 40 CFR 52.21 - Prevention of Significant Deterioration.

Also, the Permittee has agreed to provide further additional dust control consisting of the sweeping of Granite City public streets and housekeeping measures in the area below and surrounding the BOF ESP. Attachment C is a listing of the emission reductions provided by these control measures.

b. The increases in emissions of SO_2 and CO are significant under 40 CFR 52.21 - Prevention of Significant Deterioration (PSD). Accordingly, the project is considered a major modification and must comply with the requirements of PSD. These requirements include a demonstration of best available control requirements for affected SO2 and CO emission units, an analysis of air quality impacts, an analysis of the impacts of the project on visibility, vegetation's and soils, and the application and proposed permit must undergo a public participation. The Agency has determined that these additional requirements have been met.

c. The changes in emissions pertinent to this project are summarized as follows:

Units = tons/year

- Emission increases which could occur from the project:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
51.6	- 52.0	238.8	476.0	5,685	59.3	0.54

- Creditable contemporaneous actual emission decreases:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
58.0	58.0	226.5	0.38	23.31	32.8	0.0

- Other contemporaneous emission increases:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
20.7	20.3	26.0	0.25	11.8	1.6	0.0

- Net emission changes:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
+14.3	-89.2	+38.3	+475.9	+5,673	+28.1	+0.54

- Significant Levels:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
15	25	40	40	100	40	0.6

d. This revised operating permit issued January 5, 1999 is issued such that the net increase in emissions of PM, PM_{10}, SO_2, NO_x and VOM resulting from increased natural gas combustion are not significant under 35 Ill. Adm. Code Part 203 or 40 CFR 52.21 - Prevention of significant Deterioration. The accounting of the increases in emissions are shown in Tables 7, 8 and 9 of the attachments.

e. The changes in emissions pertinent to the revised operating permit issued January 5, 1999 are summarized as follows:

- Emission increase from increased natural gas combustion:

PM-10	PM	NO_x	SO_2	CO	VOM
3.43	3.43	205.94	0.40	26.92	1.88

- Natural gas combustion baseline emissions (average of 1996 and 1997 actuals):

PM-10	PM	NO_x	SO_2	CO	VOM
2.9	2.9	174.11	0.34	22.76	1.59

- Net emission changes:

PM-10	PM	NO_x	SO_2	CO	VOM
0.53	0.53	31.83	0.06	4.16	0.29

- Significant levels:

PM-10	PM	NO_x	SO_2	CO	VOM
15	25	40	40	100	40

Explanatory Note:

PM	=	particulate matter = particulate;
PM-10	=	particulate matter less than or equal to 10 micrometers in size;
SO_2	=	sulfur dioxide;
NO_x	=	nitrogen oxides;
VOM	=	volatile organic material;
CO	=	carbon monoxide;
mm	=	million;

gr/dscf = grains per dry standard cubic foot;
acfm = actual cubic feet per minute;
mmcf = million cubic feet;
Mgal = thousands of gallons.

Please note that this permit has been revised to incorporate construction permit 98110038.

If you have any questions on this permit, please call Ernie Kierbach at 217/782-2113.

Donald E. Sutton, P.E.
Manager, Permit Section
Division of Air Pollution Control

DES:ELK:jar
ELK\SA
cc: IEPA, FOS Region 3

COPY
Original Signed by
Donald E. Sutton, P.E.

Permit Application #95010001

TABLE 1

BLAST FURNACE OPERATIONS

Maximum Hot Metal Production = 3,165,000 net tons per year

1. Casthouse Baghouse (furnace tapping)- captured emissions ducted to baghouse, uncaptured emissions emitted through roof, other openings, etc.

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.0703	111.19
PM-10	0.0703	111.19
SO_2	0.2006	422.0
NO_x	0.0144	22.79
VOM	0.0946	149.68

2. Blast Furnace - uncaptured fugitives

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.031	49.06
PM-10	0.0155	24.53
SO_2	0.0104	21.94
NO_x	0.0007	1.14
VOM	0.0047	7.42

3. Blast Furnace Charging
Maximum pellets charged = 4,308,581 tons/yr

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.0024	5.17
PM-10	0.0024	5.17

4. Slag Pits

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00417	6.60
PM-10	0.00417	6.60
SO_2	0.0100	15.83

Permit Application #95010001

TABLE 1 (cont.)

5. Iron Spout Baghouse- captured emissions controlled by iron spout baghouse.

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.02548	40.32
PM-10	0.02548	40.32
SO_2	0.0073	13.89

6. Iron Pellet Screen
Maximum pellets charged = 4,308,581 tons/yr

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00279	6.01
PM-10	0.00279	6.01

Permit Application #95010001

TABLE 2

BOF SHOP

Maximum Liquid Steel Production = 3,580,000 net tons per year

1. BOF ESP Stack (charge, refine, tap)

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.16	262.80
PM-10	0.16	262.80
NO_x	0.0389	69.63
VOM	0.0060	10.74
CO	8.993	16,097.47
Lead	0.1934 lbs/hr	1.26 tons/yr

2. BOF Roof Monitor

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.0987	176.71
PM-10	0.06614	118.40
Lead	0.0129 lbs/hr	0.08 tons/yr

3. Desulfurization and Reladling - Hot Metal Transfer

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.03721	58.88
PM-10	0.03721	58.88
VOM	0.0010	1.58
Lead	0.0133 lbs/hr	0.09 tons/yr

4. BOF Additive System (i.e., fluxes) with Baghouse, a.k.a., BOF hopper baghouse

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00032	0.57
PM-10	0.00032	0.57

Permit Application #95010001

TABLE 2 (cont.)

5. Flux conveyor & transfer pits, bin floor

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.0016	2.86
PM-10	0.0016	2.86

6. Hot metal charging ladle slag skimmer

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.0050	7.94
PM-10	0.0050	7.94

Permit Application #95010001

TABLE 3

CONTINUOUS CASTING OPERATIONS

Maximum Liquid Steel Throughput = 3,580,000 net tons per year

1. Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy)

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00715	12.80
PM-10	0.00715	12.80

2. Deslagging Station and Material HS.

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00355	6.35
PM-10	0.00355	6.35

3. Caster Molds - Casting

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.006	10.74
PM-10	0.006	10.74
NO_x	0.050	89.50

4. Casters Spray Chambers

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00852	15.25
PM-10	0.00852	15.25

5. Slab Cut-off

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.0071	12.71
PM-10	0.0071	12.71

Permit Application #95010001

TABLE 3 (cont.)

6. Slab Ripping

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00722	12.92
PM-10	0.00722	12.92

Permit Application #95010001

TABLE 4

CERTAIN FUEL COMBUSTION UNITS

1. 10 boilers (#'s 1 - 10)
2. 2 boilers (#'s 11 - 12)
3. Blast Furnace Stoves A & B.
4. BFG Flares
5. Ladle Drying Preheaters (5 heaters).

Total combined fuel usage from affected units (i.e., Boilers, BF stoves, BF Flares, ladle drying preheaters)

	Maximum Usage ($mmft^3/Yr$)
NATURAL Gas (Total)	1,346
BFG	185,030
Fuel Oil	365 thousand gallons/yr

1. Natural Gas

Pollutant	Emission Factor (Lbs/mmcf)	Maximum Emissions (Tons/Yr)
PM	5.1	3.43
PM-10	5.1	3.43
SO_2	0.6	0.40
NO_x	306	205.94
VOM	2.8	1.88
CO	40	26.92

2. BFG

Pollutant	Emission Factor (Lbs/mmcf)	Maximum Emissions (Tons/Yr)
PM	2.9	268.29
PM-10	2.9	268.29
SO_2	6.65	615.22
NO_x	5.28	488.48
CO	13.7	1,267.46

Permit Application #95010001

TABLE 4 (cont.)

3. Fuel Oil

Pollutant	Emission Factor (Lbs/Mgal)	Maximum Emissions (Tons/Yr)
PM	9.72	1.77
PM-10	9.72	1.77
SO_2	141.3	25.79
NO_x	55	10.04
VOM	0.28	0.05
CO	5.0	0.91
Lead	0.336	0.06 (waste oil)

Permit Application #95010001

TABLE 5

LIMITS ON EMISSIONS FROM MAJOR PROCESSES AND ACTIVITIES

Units = tons/year

	PM	PM-10	SO_2	NO_x	VOM	CO	Lead
Blast Furnace Operations	218	194	474	24	157	--	--
BOF Shop	510	451	--	70	12	16,097	1.43
Continuous Casting Operations	71	71	--	90	--	--	--
Certain Fuel Combustion Units[A]	274	274	641	706	2	1,295	0.06
Roadways	27	27	--	--	--	--	--
Material Handling	2	2	--	--	--	--	--
	PM	PM-10	SO_2	NO_x	VOM	CO	Lead
TOTAL	1,102	1,019	1,115	890	171	17,392	1.49

[A] Blast furnace stoves (A and B), boiler house boilers (1-10), blast furnace boilers (11 and 12), ladle drying preheaters and blast furnace gas flares.

Permit Application #95010001

TABLE 6

EMISSIONS SUMMARY

Units = tons/year

- Emission increases which could occur from the project:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
51.6	-52.0	238.8	476.0	5,685	59.3	0.54

- Creditable contemporaneous actual emission decreases:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
58.0	58.0	226.5	0.38	23.31	32.8	0.0

- Other contemporaneous emission increases:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
20.7	20.3	26.0	0.25	11.8	1.6	0.0

- Net emission changes:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
+14.3	-89.2	+38.3	+475.9	+5,673	+28.1	+0.54

- Significant Levels:

PM-10	PM	NO_x	SO_2	CO	VOM	Lead
15	25	40	40	100	40	0.6

Permit Application #95010001

TABLE 7

Change in Emissions from Increased Natural Gas Combustion

Baseline Emissions (Average of 1996 and 1997 Actuals)

Pollutant	Emissions (Tons/Yr)
PM	2.9
PM-10	2.9
SO_2	0.34
NO_x	174.11
VOM	1.59
CO	22.76

Potential Emissions from Natural Gas Usage of 1,346 $mmft^3/Yr$

Pollutant	Emissions (Tons/Yr)
PM	3.43
PM-10	3.43
SO_2	0.40
NO_x	205.94
VOM	1.88
CO	26.92

Net Emission Change

Pollutant	Emissions (Ton/Yr)	Significant Emissions Level (Tons/Yr)
PM	0.53	25
PM-10	0.53	15
SO_2	0.06	40
NO_x	31.83	40
VOM	0.29	40
CO	4.16	100

ELK:jar

Permit Application #95010001

TABLE 8

1996 Actual Emissions from Natural Gas Usage of 1,131 $mmft^3/Yr$

Pollutant	Emissions (Tons/Yr)
PM	2.88
PM-10	2.88
SO_2	0.34
NO_x	173.04
VOM	1.58
CO	22.62

TABLE 9

1997 Emissions from an Allowable Natural Gas Usage of 1,145 $mmft^3/Yr$

Pollutant	Emissions (Tons/Yr)
PM	2.92
PM-10	2.92
SO_2	0.34
NO_x	175.19
VOM	1.60
CO	22.9

ELK:jar

Permit Application #95010001

ATTACHMENT A

PROCEDURES TO ENSURE PROPER OPERATION
OF BOF ESP CONTROL SYSTEM

1. The emissions control operator shall:

   a. Check on a regular basis and report to the emissions control foreman or melter:

      i. Any ESP fields down;

      ii. Any ESP fields in which the meter readings are showing no current or a fault;

   b. Check on a regular basis that doors on all hopper screws are closed;

   c. Inspect on a regular basis the fans and motors for unusual sounds and/or visual problems. Any abnormalities will be immediately reported to the melter or maintenance foreman for investigation.

2. The melter shall:

   a. Check on a regular basis and report to the emissions control foreman or the area electrician any fields which the pulpit precipitator field short indicators shows as having a short and is able to reset;

   b. Check on a regular basis and report to the emissions control foreman or the maintenance foreman any draft or fan problems;

   c. Check the ESP stack opacity monitor on a regular basis and initiate the following in the event that the stack opacity level, as determined by the opacity monitor, exceeds 30% opacity on a six minute average:

      i. Check the pulpit indicators for proper operation of the steam and spray water system. Report any problems to emission control foreman or maintenance foreman;

      ii. Check the stack gas pulpit set point for proper setting;

      iii. Call the emissions control operator who shall perform the following steps;

         A. Check the AVC operation and power level. Report any problems to electrical maintenance foreman or area electrician;

         B. Check to ensure that doors on all hopper screws are closed;

   d. Check oxygen blow rates and adjust, if necessary;

   e. Check hot metal chemistry;

Permit Application #95010001

ATTACHMENT A (cont.)

f. A log shall be maintained of the above checks and any actions taken as a result.

3. The emission control foreman shall:

a. Check on a regular basis the opacity monitor exceedances and trends. The control specialist shall be contacted to correct any problems;

b. Check on a regular basis the draft rate set points;

c. Check on a regular basis primary and secondary damper settings;

d. Check on a regular basis ESP operation, including the following:

i. Fields down;

ii. Fields indicating shorts and unable to reset;

iii. Hopper screw doors are closed;

e. Check on a regular basis blow rates;

f. Check on a regular basis spray water system operation;

g. Check on a regular basis steam injection rate;

h. Contact the area manager regarding electrical maintenance and to schedule the ESP repair work;

i. Contact the area manger for mechanical maintenance to schedule the isolation of the ESP channel by closing the inlet and outlet gates of that chamber and opening the top hatches for entry into the chamber;

j. Notify the emissions control operator and melter when isolation work begins;

k. A log shall be maintained of the above checks and any actions taken as a result.

4. The crane operator shall use the following procedures, as appropriate, to minimize emissions and maximize emissions capture by the hoods:

a. Use controlled pouring of the hot metal into the BOF vessel;

b. Use careful positioning of the hot metal ladle with respect to the hood face and furnace mouth;

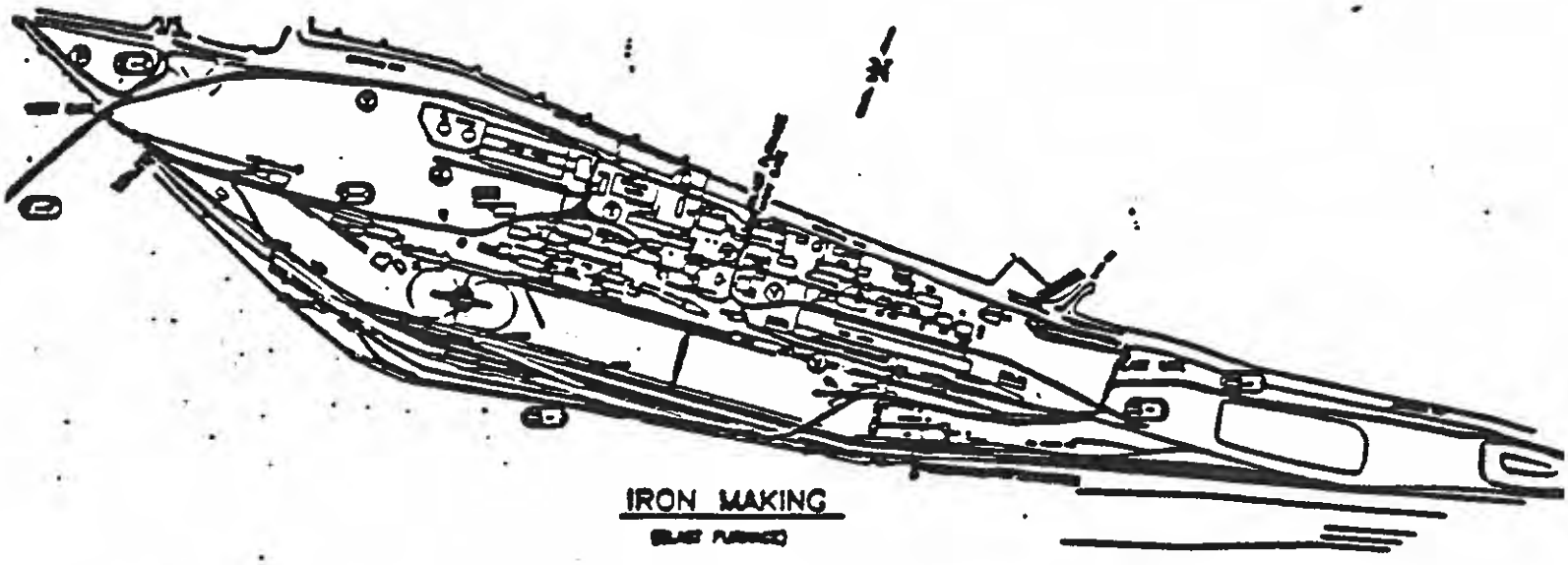
c. Use the most beneficial furnace tilt angle;

d. These procedures shall be posted in the crane operator booth.

Permit Application #95010001

ATTACHMENT B

ON-SITE FUGITIVE DUST ROADWAY CONTROL MEASURES AND MAPS SHOWING THE ROAD SEGMENTS



GRANITE CITY STEEL
GRANITE CITY, ILLINOIS

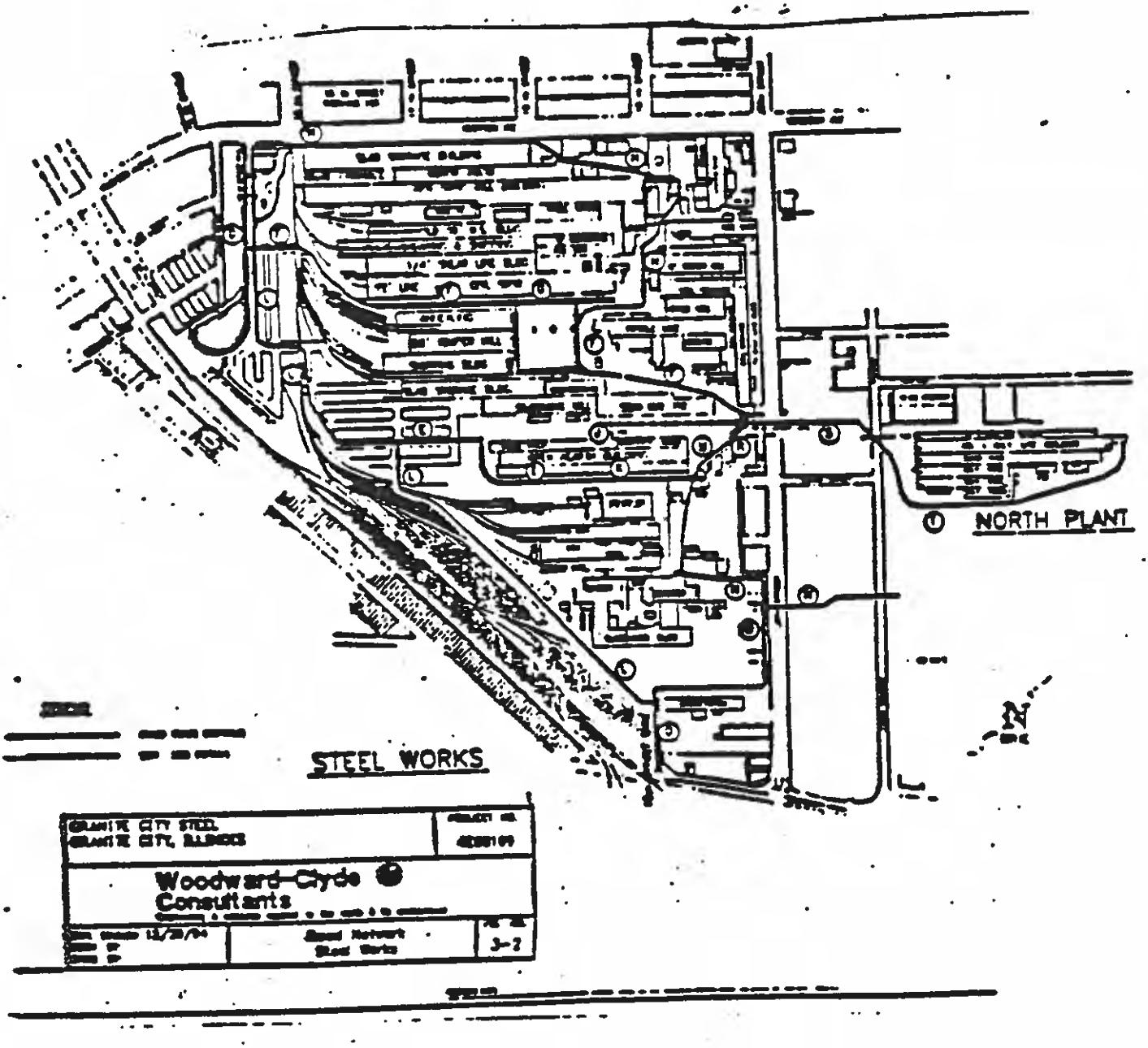
Woodward-Clyde Consultants

12/23/94

3-3

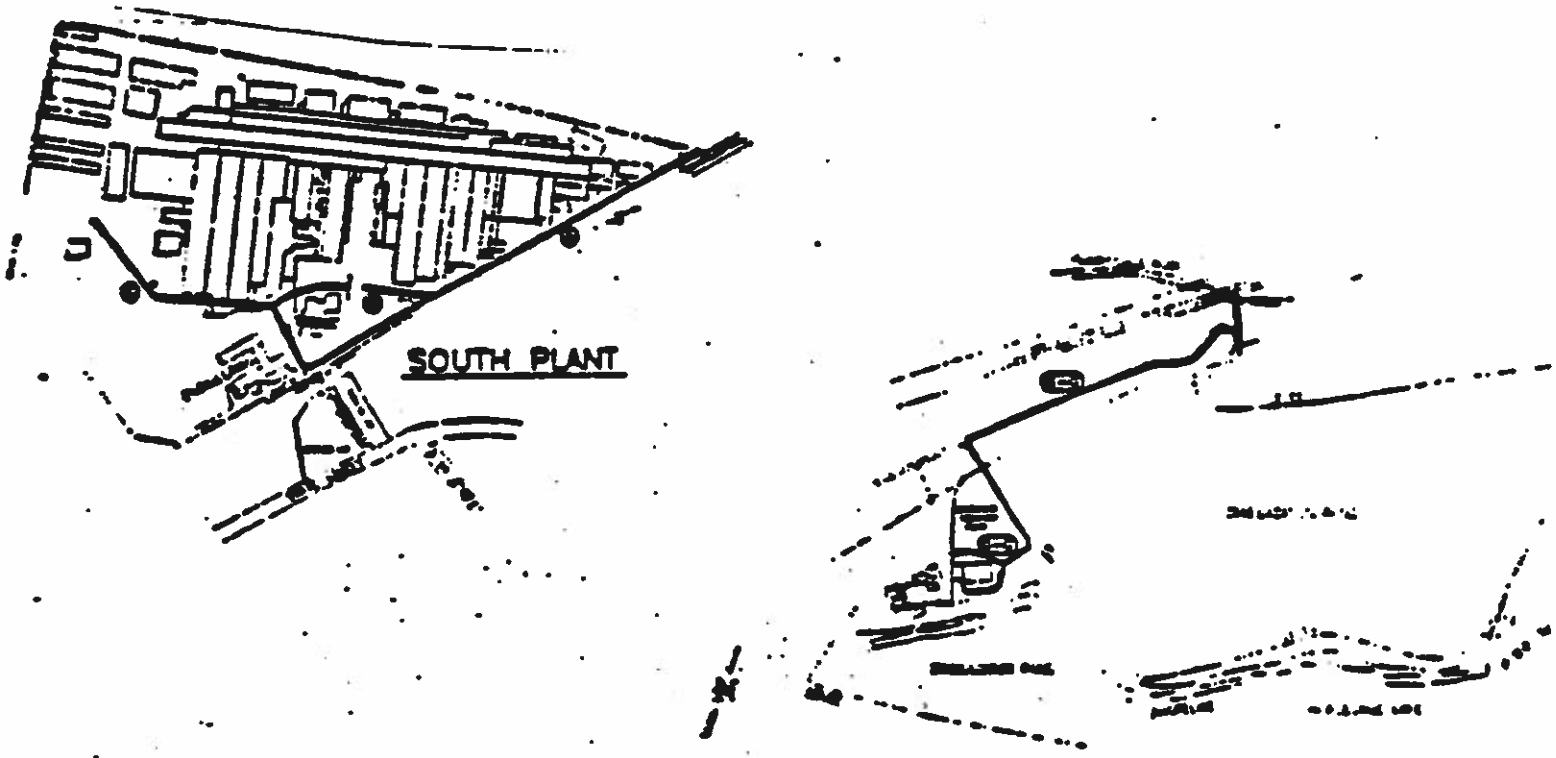
Permit Application #95010001

ATTACHMENT B (cont.)



Permit Application #95010001

ATTACHMENT B (cont.)



Permit Application #95010001

ATTACHMENT C

CONTEMPORANEOUS REDUCTIONS IN THE EMISSIONS OF PM-10

- Historic roadway emissions of 428 tons/yr, minus future potential roadway emissions of 27 tons/yr, equals a resulting reduction in roadway emissions of 401 tons/yr
- Historic material handling emissions of 17 tons/yr minus future potential material handling emissions of 2 tons/yr, equals a resulting reduction in material handling emissions of 15 tons/yr.
- Emission reductions resulting from the sweeping of city streets = 52 tons/yr*
- Emission reductions resulting from sweeping and housekeeping of areas below and around BOF ESP = 12 tons/yr*

Total reductions in the emissions of PM-10 as a result of the additional dust control measures required by Illinois' SIP and the special conditions of this permit = 480 tons/yr

* These are considered reasonable estimates of reductions and are subject to change upon further investigation of the actual reductions which will occur as a result of the control measures required by this permit.

ELK:jar

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

STATE OF ILLINOIS
ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF AIR POLLUTION CONTROL
2200 CHURCHILL ROAD
SPRINGFIELD, ILLINOIS 62706

STANDARD CONDITIONS FOR OPERATING PERMITS

July 1, 1985

The Illinois Environmental Protection Act (Illinois Revised Statutes, Chapter 111-1/2, Section 1039) grants the Environmental Protection Agency authority to impose conditions on permits which it issues.

The following conditions are applicable unless superseded by special permit condition(s).

1. The issuance of this permit does not release the permittee from compliance with state and federal regulations which are part of the Illinois State Implementation Plan, as well as with other applicable statutes and regulations of the United States or the State of Illinois or with applicable local laws, ordinances and regulations.

2. The Agency has issued this permit based upon the information submitted by the permittee in the permit application. Any misinformation, false statement or mispresentation in the application shall be grounds for revocation under 35 Ill. Adm. Code 201.207.

3. a. The permittee shall not authorize, cause, direct or allow any modification, as defined in 35 Ill. Adm. Code 201.102, of equipment, operations or practices which are reflected in the permit application as submitted unless a new application or request for revision of the existing permit is filed with the Agency and unless a new permit or revision of the existing permit(s) is issued for such modification.

   b. This permit only covers emission sources and control equipment while physically present at the indicated plant location(s). Unless the permit specifically provides for equipment relocation, this permit is void for an item of equipment on the day it is removed from the permitted location(s) or if all equipment is removed, notwithstanding the expiration date specified on the permit.

4. The permittee shall allow any duly authorized agent of the Agency, upon the presentation of credentials, at reasonable times:

   a. to enter the permittee's property where actual or potential effluent, emission or noise sources are located or where any activity is to be conducted pursuant to this permit,

   b. to have access to and to copy any records required to be kept under the terms and conditions of this permit,

   c. to inspect, including during any hours of operation of equipment constructed or operated under this permit, such equipment and any equipment required to be kept, used, operated, calibrated and maintained under this permit,

   d. to obtain and remove samples of any discharge or emission of pollutants, and

   e. to enter and utilize any photographic, recording, testing, monitoring or other equipment for the purpose of preserving, testing, monitoring or recording any activity, discharge or emission authorized by this permit.

5. The issuance of this permit:

   a. shall not be considered as in any manner affecting the title of the premises upon which the permitted facilities are located,

   b. does not release the permittee from any liability for damage to person or property caused by or resulting from the construction, maintenance, or operation of the facilities,

c. does not take into consideration or attest to the structural stability of any unit or part of the project, and

d. in no manner implies or suggests that the Agency (or its officers, agents or employees) assumes any liability, directly or indirectly, for any loss due to damage, installation, maintenance, or operation of the proposed equipment or facility.

6. The facilities covered by this permit shall be operated in such a manner that the disposal of air contaminants collected by the equipment shall not cause a violation of the Environmental Protection Act or regulations promulgated thereunder.

7. The permittee shall maintain all equipment covered under this permit in such a manner that the performance of such equipment shall not cause a violation of the Environmental Protection Act or regulations promulgated thereunder.

8. The permittee shall maintain a maintenance record on the premises for each item of air pollution control equipment. This record shall be made available to any agent of the Environmental Protection Agency at any time during normal working hours and/or operating hours. As a minimum, this record shall show the dates of performance and nature of preventative maintenance activities.

9. No person shall cause or allow continued operation during malfunction, breakdown or startup of any emission source or related air pollution control equipment if such operation would cause a violation of an applicable emission standard or permit limitation. Should a malfunction, breakdown or startup occur which results in emissions in excess of any applicable standard or permit limitation, the permittee shall:

   a. immediately report the incident to the Agency's Regional Field Operations Section Office by telephone, telegraph, or other method as constitutes the fastest available alternative, and shall comply with all reasonable directives of the Agency with respect to the incident;

   b. maintain the following records for a period of no less than two (2) years:

      i. date and duration of malfunction, breakdown or startup,

      ii. full and detailed explanation of the cause,

      iii. contaminants emitted and an estimate of quantity of emissions,

      iv. measures taken to minimize the amount of emissions during the malfunction, breakdown or startup, and

      v. measures taken to reduce future occurrences and frequency of incidents.

10. If the permit application contains a compliance program and project completion schedule, the permittee shall submit a project completion status report within thirty (30) days of any date specified in the compliance program and project completion schedule or at six month intervals, whichever is more frequent.

11. The Permittee shall submit an Annual Emission Report as required by 35 Ill. Adm. Code. 201.302 and 35 Ill. Adm. code Part 254.

Angela M. Buhl

From: TrackingUpdates@fedex.com
Sent: Monday, March 2, 2020 9:37 AM
To: Gurinder (Gary) Saini
Subject: FedEx Shipment 777894182226 Delivered

Your package has been delivered

Tracking # 777894182226

Ship date:
Fri, 2/28/2020

Karen Santala
RTP ENVIRONMENTAL ASSOC., INC
RALEIGH, NC 27609
US

Delivered

Delivery date:
Mon, 3/2/2020 9:31 am

Ray Pilapil
Illinois EPA - Bureau of Air
1021 E NORTH GRAND AVE
SPRINGFIELD, IL 62702
US

Personalized Message

Permit Revision Application - USS Granite City Works - 1 binder

Shipment Facts

Our records indicate that the following package has been delivered.

Tracking number:	777894182226
Status:	Delivered: 03/02/2020 09:31 AM Signed for By: K.OJHONSON
Reference:	USSCC19.5
Signed for by:	K.OJHONSON
Delivery location:	SPRINGFIELD, IL
Delivered to:	Receptionist/Front Desk
Service type:	FedEx Priority Overnight®
Packaging type:	FedEx® Box
Number of pieces:	1
Weight:	5.00 lb.
Special handling/Services:	Deliver Weekday
Standard transit:	3/2/2020 by 10:30 am

This tracking update has been requested by:

Company name:	RTP ENVIRONMENTAL ASSOC., INC
Name:	Karen Santala
Email:	santala@rtpenv.com

Please do not respond to this message. This email was sent from an unattended mailbox. This report was generated at approximately 9:37 AM CST on 03/02/2020.

All weights are estimated.

To track the latest status of your shipment, click on the tracking number above.

This tracking update has been sent to you by FedEx on behalf of the Requestor santala@rtpenv.com. FedEx does not validate the authenticity of the requestor and does not validate, guarantee or warrant the authenticity of the request, the requestor's message, or the accuracy of this tracking update.
Standard transit is the date and time the package is scheduled to be delivered by, based on the selected service, destination and ship date. Limitations and exceptions may apply. Please see the FedEx Service Guide for terms and conditions of service, including the FedEx Money-Back Guarantee, or contact your FedEx Customer Support representative.

© 2020 Federal Express Corporation. The content of this message is protected by copyright and trademark laws under U.S. and international law. Review our privacy policy. All rights reserved.

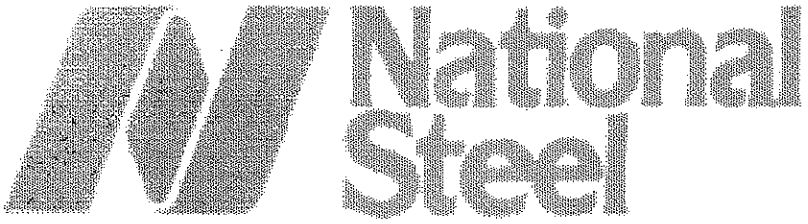
Thank you for your business.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

PERMIT APPLICATION

■■■■■■■

PROPOSED PRODUCTION INCREASE
GRANITE CITY DIVISION of
NATIONAL STEEL CORPORATION
GRANITE CITY, ILLINOIS



Prepared for
Granite City Division of
National Steel Corporation

For Submittal to
Illinois Environmental Protection Agency

Prepared by
Woodward-Clyde Consultants
2318 Millpark Drive
St. Louis, Missouri

December, 1994
Amended October, 1995
4E08109

Permit Application Update
APPLICATION # 95010001
Proposed Production Increase
Granite City Division of National Steel

The December, 1994 Permit Application for a proposed production increase at the Granite City Division of National Steel contains information concerning emissions changes that are contemporaneous with the proposed increase in production. One of the contemporaneous changes listed is the installation of a new galvanizing line (#8 Galvanizing Line).

The information contained in the permit application was based on design information as it was available at the time of application preparation. Since that time as-built information has become available. The original design envisioned six 0.64 mmBtu/hr space heaters. The final installation included five 3.44 mmBtu/hr space heaters. This change resulted in small changes in the estimated emissions associated with the project.

The attached replacement pages for the production increase application reflect emissions estimated based on the installed equipment. These pages also reflect a correction to the TSP emission factor used to calculate blast furnace uncaptured fugitive emissions. The corrected emission factor changes the projected actual emissions associated with this unit from 24.53 to 49.06 tons per year.

The changes in estimated emissions contained in this update do not result in any changes to the conclusions drawn from the analysis. There are no changes in pollutants that have significant net increases in emissions.

The attached package includes the following.

New Section or Table	Replaces Section or Table
Pages 3-7 through 3-14 (January 16, 1996)	Pages 3-7 through 3-14 (October 30, 1995)
Table 3-1 (January 16, 1996)	Table 3-1 (October 30, 1995)
Table 3-2 (January 16, 1996)	Table 3-2 (October 30, 1995)
Table 3-3 (January 16, 1996)	Table 3-3 (October 30, 1995)
Table 3-4 (January 16, 1996)	Table 3-4 (October 30, 1995)
Table 3-5 (January 16, 1996)	Table 3-5 (October 30, 1995)
Table 3-6 (January 16, 1996)	Table 3-6 (October 30, 1995)
Appendix E (January 16, 1996)	Appendix E (October 30, 1995)

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

TABLE OF CONTENTS

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

LIST OF FIGURES

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

LIST OF TABLES

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

LIST OF APPENDICES

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

1.1 PROJECT OVERVIEW

The Granite City Division of National Steel Corporation is proposing to increase production at it's steel mill in Granite City, Illinois. This application is proposed to permit an increase in the production rate of the existing Blast Furnaces, Basic Oxygen Furnaces, and Continuous Casters. Operation of the furnaces is for 24 hours per day, 365 days per year.

The Granite City Steel mill is located in Madison County, Illinois. The largest city near the facility is St. Louis, which is located approximately 15 kilometers southwest of the Granite City steel mill. The latitude and longitude of the mill are approximately 38:41:55 and 90:08:42. The facility occupies approximately 1,100 acres of land in an area primarily used for industrial and agricultural purposes. A site location map is provided in **Figure 1-1**. A site map is provided in **Figure 1-2**. There are no listed federal Prevention of Significant Deterioration (PSD) Class I areas located within 100 km of the project site.

1.2 RECENT PERMITTING HISTORY

Granite City Steel obtained a permit from Illinois EPA in January 1994 to increase the production rate of Blast Furnaces to 6,500 net tons per day and Basic Oxygen Furnaces to 7,600 net tons per day. The permitted production rate for the continuous caster remained at 6,900 net tons per day (permit #119813AAI dated January 4, 1994).

1.3 APPLICATION INFORMATION

The applicant for this project is as follows:

Granite City Division of
National Steel Corporation
20th and State Streets
Granite City, Illinois 62040

The applicant contact is Mr. Larry Siebenberger. Mr. Siebenberger may be contacted at (618) 451-3391.

The Granite City Division of National Steel Corporation proposes to increase production from their two blast furnaces, two basic oxygen furnaces, and two continuous casters.

The production increases proposed in this application are as follows:

- Increase the blast furnaces' production from 6,500 net tons per day (NTPD) to 8,671 NTPD on a calander year average and 9,849 NTPD on a maximum monthly average
- Increase the Basic Oxygen Furnaces' production from 7,600 NTPD to 9,808 NTPD on a calander year average and 11,000 NTPD on a maximum monthly average
- Increase the continuous casters' production from 6,900 NTPD to 9,808 NTPD on a calander year average and 11,000 NTPD on a maximum monthly average

Based on an analysis to determine the net emissions changes resulting from the proposed project, the production increase would result in a net increase in emissions of sulfur dioxide (SO_2), particulate matter less than 10 microns in diameter (PM_{10}), total suspended particulate matter (TSP), carbon monoxide (CO), nitrogen oxides (NO_x), volatile organic material (VOM), and lead (Pb). However, with the exception of CO and SO_2 emissions, the increase would not be significant when measured against state and federal air quality regulations. Therefore the netting analysis presented in Section 3 addresses all pollutants and the balance of this application addresses CO and SO2 only.

The Granite City facility is located in an area that is designated as attainment for SO_2, CO, and Pb and nonattainment for ozone (including NO_x and VOM) and particulate matter (including TSP and PM_{10}). The net emission increases for SO_2 and CO are in excess of the applicable Prevention of Significant Deterioration (PSD) significance levels of 40 and 100 tons per year, respectively. Therefore, the proposed increase in production is considered a major modification

requiring a Best Available Control Technology (BACT) analysis. The net emission increases for Pb and the nonattainment pollutants are all below the PSD and new source review (NSR) significance levels. Therefore no additional control technology analyses for these pollutants are necessary.

Related to the production increase, the amount of fuel used by the boilers at the mill may also increase. However, the increase in fuel use by the boilers will not bring total fuel use to an amount greater than allowed by Granite City Steel's existing permits. Also, the fuels types used by the boilers will not change. Therefore, the boilers are not considered part of the major modification and are exempt from BACT review as specified in the federal regulations at 40 CFR 52.21(b)(2)(iii). Increases in emissions due to increased fuel use will, however, be included in the air quality modeling analysis for this application.

It should also be noted that the actual increase in the use of blast furnace gas can only be estimated at this time. This is because actual operation of the blast furnaces at the proposed production level is needed to determine the actual increase in the blast furnace gas generated. Granite City Steel has estimated the increase in blast furnace gas for this application and is confident that the total emissions associated with this fuel for the production increase will be no greater than that represented in this application. Depending on the actual fuel mix and steam demand that accompanies the production increase, Granite City Steel may consider replacement of some existing boilers or modifications to existing boilers to more efficiently use blast furnace gas which would otherwise be flared. These boiler changes would not adversely affect the total emissions associated with the fuel mix. Such changes, if they appear prudent, will be discussed with IEPA prior to implementation.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

2.0
PROCESS DESCRIPTION

2.1 GENERAL DESCRIPTION OF THE MILL

The Granite City Division of National Steel Corporation owns and operates an integrated steel mill in Granite City, Illinois. Integrated steel manufacturing involves raw material preparation, iron production, iron preparation, and steel production.

2.2 GENERAL PROCESS DESCRIPTION

In this mill, iron is produced in blast furnaces by reducing iron bearing material with a hot gas. The charge, consisting of iron ore, coke, limestone, and other materials, is heated to a temperature above 900°C in the blast furnace. Air heated from 870°C to 1100°C is blown through tuyeres into bottom of the furnace. Oxygen in the air reacts with coke, forming carbon monoxide, which in turn reduces the iron oxides in the ore to iron. Limestone and other fluxs in the charge combine with the sulfur in the charge to form sulfates, which float to the top of the mix and are removed in the slag. A trace amount of sulfur is present in the blast furnace gas as it exits due to the reactions and oxidation taking place in the furnace. Molten iron and slag, accumulated in the hearth of the furnace, are drained into a trough equipped with a skimmer and a dam, resulting in the separation of molten iron from the slag.

The molten iron is further desulfurized by injecting a desulfurization reagent through a lance into the hot metal in the hot metal ladle using a carrier gas. This process is conducted in a desulfurization station located inside the BOF shop. The constituents of this reagent are typically CaC_2 which desulfurizes the molten metal, and $CaCO_3$ which provides the CO_2 gas required to mix the metal with the desulfurization agent. This treatment can reduce the sulfur content of the metal to less than 0.005%. Sulfur in the molten metal reacts to form calcium sulfate compounds, which are skimmed off the molten metal as slag. A collection hood collects emissions from the desulfurization process.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

The basic oxygen furnace receives a charge composed of approximately 30% metal scrap and 70% molten iron. High purity oxygen is injected below the surface of the molten metal converting it into molten steel. Limestone is added to the charge to form a slag to capture the oxidation products.

Figure 2-1 shows the process flow for the Basic Oxygen Furnace Shop, **Figure 2-2** shows the process flow for ladle metallurgy and argon stirring stations, and **Figure 2-3** shows the process flow for the Continuous Casters.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

3.1 EXISTING AND PROPOSED EMISSION RATES

Emission rates used for calculation of pollutant emissions from the Blast Furnace, BOF and Continuous Casters are based on published emission factors, regulatory limits, and emission test results. Appendix A provides information on stack tests used in this application. The factors used for lead emssions are based on laboratory analysis of the dust taken from control equipment. Laboratory information is included in Appendix B. Certain of the process sources (e.g. Hot Metal Relading, Transfer Pits, and the Desulfurization Station) are grouped since the emissions are ducted to a common control device. Selected process related emission factors are summarized in the following table.

PROCESS RELATED EMISSION FACTORS

Process Unit	Pollutant	Emission Factor	Reference
BOF Precipitator Stack	PM	0.160 lb/ton	Average (March 1989 Stack Test July 1990 Stack Test August 1993 Stack Test)
	NO_x	0.0389 lb/ton	August 1993 Stack Test
	CO	8.993 lb/ton	August 1993 Stack Test
BOF Roof Monitor (Base Period)	PM	0.4282 lb/ton PM 0.2869 lb/ton PM_{10}	Based on calculations included in Appendix C
BOF Roof Monitor (Projected Period)	PM	0.09872 lb/ton 0.06614 lb/ton	Based on calculations included in Appendix C
Blast Furnance Iron Spout Baghouse	SO_2	0.0073 lb/ton	July, 1993 Stack Test
Blast Furnace Casthouse	PM	0.0703 lb/ton	based on New Source Performance Standards (40CFR60.142a)
	SO_2	0.2006 lb/ton	July, 1993 Stack Test
Blast Furnace Casthouse	NO_x	0.0144 lb/ton	July, 1993 Stack Test
	VOM	0.1016 lb/ton	July, 1993 Stack Test

Fuel combustion emission increases related to the proposed production increase were based on use of the emission factors listed on the following table. The factors for oil are based on

residual oil since the boilers have multiple fuel capability and residual oil factors result in the highest emissions.

FUEL RELATED EMISSION FACTORS

FUEL and FACTOR UNITS	POLLUTANT	EMSSION FACTOR	REFERENCE
Natural Gas (lb/MMcf)	CO	40	AP-42, Page 1.4-2
	NOx	306	November 4, 1992 Stack Test
	SO_2	0.6	AP-42, Page 1.4-2
	PM10	5.1	AP-42, Page 1.4-2
	TSP	5.1	AP-42, Page 1.4-2
	VOM	1.4	AP-42, Page 1.4-2
	Pb	-	-
Blast Furnace Gas (lb/MMcf)	CO	13.7	AIRS, 1990
	NOx	5.28	February 1, 1993 Stack Test
	SO_2	6.65	Stack Test
	PM10	2.9	AIRS, 1990
	TSP	2.9	AIRS, 1990
	VOM	-	-
	Pb	-	-
Fuel Oil (lb/1000gal)	CO	5	AP-42, Page 1.3-2
	NOx	55	AP-42, Page 1.3-2
	SO_2	141.3	AP-42, Page 1.3-2 (based on 0.9%S residual oil)
Fuel Oil (lb/1000gal)	PM10	9.72	AP-42, Page 1.11-2 (based on 0.18% ash)
	TSP	10.8	AP-42, Page 1.11-2 (based on 0.18% ash)
	VOM	0.28	AP-42, Page 1.3-2
	Pb	0.34	AP-42, Page 1.11-2 (based on 0.008% weight % lead in waste oil)

3.2 REGULATORY ANALYSIS

The proposed modification at the Granite City mill will be subject to both state and federal requirements. Illinois has promulgated air pollution control requirements which apply to both existing and new facilities. The source is subject to the requirements of the Prevention of Significant Deterioration (PSD) regulations. Madison County, where the facility is located is designated moderate nonattainment for ozone and attainment for all other criteria pollutants.

On June 19, 1978, the USEPA promulgated regulations governing Prevention of Significant Deterioration of air quality to implement provisions of the Clean Air Act Amendments of 1977. These regulations were changed as a result of the December 14, 1979 decision of the U.S. Court of Appeals for the District of Columbia (Alabama Power Company, et al. vs. Costle). Final rules pursuant to this decision were promulgated on August 7, 1980.

The PSD regulations apply to major sources - i.e., any of the 28 source categories listed in the regulations which emit, or have the potential to emit, more than 100 tons per year of any pollutant subject to regulation under the Clean Air Act, or any other source category which has the potential to emit more than 250 tons per year of any pollutant subject to regulation under the Act. The PSD regulation also applies to the proposed modification of an existing major source, if the emission increase exceeds the significant emission rates defined in the regulations. The proposed production increase will result in an emission increase greater than the PSD significant level of 100 and 40 tons per year for CO and SO_2 respectively. Thus, the proposed modification will be subject to the PSD regulations for CO and SO_2.

3.3 NETTING ANALYSIS

The Granite City Division of National Steel Corporation intends to increase production at their Blast Furnaces, Basic Oxygen Furnaces, and Continuous Casters. The proposed production level is set out in the following table.

PRODUCTION AREA	PROPOSED PRODUCTION
BLAST FURNACE	8,671 NTPD
BOF SHOP	9,808 NTPD
CASTERS	9,808 NTPD (liquid steel to the casters)

There will be changes in regulated air pollutants accompanying this increase in production. Production related emission increases and contemporaneous emission changes were calculated in accordance with Illinois Environmental Protection Agency (IEPA) regulations for Construction and Modification of Major Stationary Sources (Part 203).

A baseline period for this analysis was chosen to be the period August 1992 through July 1994. Emission changes (related to the production increase and contemporaneous changes) were calculated for:

- Carbon Monoxide (CO)
- Nitrogen Oxides (NO_X)
- Sulfur Dioxide (SO_2)
- Particulate Matter less than 10 Microns (PM_{10})
- Particulate Matter (TSP)
- Volatile Organic Material (VOM)
- Lead (Pb)

The following conclusions were reached regarding the magnitude of the net emission changes related to the production increase and contemporaneous emissions changes:

POLLUTANT	NET EMISSION CHANGE
Carbon Monoxide	Significant
Nitrogen Oxides	Not Significant
Sulfur Dioxide	Significant
Total Suspended Particulate Matter	Not Significant

POLLUTANT	NET EMISSION CHANGE
Particulate Matter less than 10 Microns	Not Significant
Volatile Organic Material	Not Significant
Lead	Not Significant

On the basis of these results, only carbon monoxide (CO) and sulfur dioxide (SO_2) will be considered further in the New Source Review process. Information contained in this section concerning the net emission changes for the significant pollutants are presented for information only since these pollutants will be considered in the review process.

3.3.1 BASE PERIOD SELECTION AND NETTING PROCEDURE

The first step in the air quality permitting process is a "netting" evaluation. This evaluation is used to determine whether an air quality permit and subsequent New Source Review is needed. The analysis considers the increase in emissions that will accompany the proposed project. The increase is measured against a base period which is typically taken as the actual annual emissions averaged over the 24 most recent months. Other base periods can be established if they can be shown to be more representative of normal source operations.

The base period used for this analysis is August 1, 1992 through July 31, 1994. This period was selected because it represents the most recent available 24 month period consistent with IEPA Regulation 203.104. While this period has been used for this analysis, it should be noted that there was significant downtime related to furnace repairs in 1992 which has the effect of depressing base period production.

Changes in emissions expected as a result of the proposed increase in production were in most cases scaled from the base period average actual annual emission rate based on fuel usage and production rates consistent with the proposed production increase. A factor was developed by dividing the proposed production levels by the base period production levels as shown in the following table.

PRODUCTION AREA	AUGUST 1992 - JULY 1994 PRODUCTION	PROPOSED PRODUCTION	RATIO
BLAST FURNACE	5,643	8,671 NTPD	1.537
BOF SHOP	6,612	9,808 NTPD	1.483
CASTERS	6,612	9,808 NTPD (steel to casters)	1.483

9808 / 6612 = 1.483

Appendix D contains additional information on the base period production. **Figure 3-1** shows production trends for the mill.

In certain instances where there is an allowable emission limitation, that limitation was used as the basis of calculating the potential emissions levels associated with the proposed production limit increases. The netting analysis also considers contemporaneous emission changes, both increases and decreases. Contemporaneous changes are defined as changes that have occurred over the past five years.

The analysis is carried out individually for each pollutant that will be effected by the proposed change in source operations. In this case, emissions of Sulfur Dioxide (SO_2), Particulate Matter (TSP and PM_{10}), Nitrogen Oxides (NO_X), Volatile Organic Material (VOM), Lead (Pb), and Carbon Monoxide (CO) were evaluated.

For each pollutant for which the source is major, the net emission change is compared against significance levels specified in new source review guidelines. If the net changes in emissions that result from the planned project plus contemporaneous changes for any single pollutant exceed the applicable significance level, the project is treated as a major modification of the source. The significance levels applicable for this project are:

POLLUTANT	SIGNIFICANCE LEVEL (tons per year)
Carbon Monoxide	100
Nitrogen Oxides	40
Sulfur Dioxide	40

POLLUTANT	SIGNIFICANCE LEVEL (tons per year)
Total Suspended Particulate	25
Particulate Matter < 10 microns	15
Volatile Organic Material	40
Lead	0.6

The procedures, assumptions, and results are discussed for each pollutant discussed below.

3.3.2 POLLUTANT ANALYSES

3.3.2.1 CARBON MONOXIDE

CO emission sources that would be affected by the proposed production increase include :

- Blast Furnace Stoves
- Continuous Casters
- Boilers 1-12
- Blast Furnace Gas Flare
- BOF Vessels
- Ladle Dryer & Preheater

Table 3-1 presents the estimated increases in CO emissions associated with the production increase. The total increase in CO emissions is 5,685 tons per year. There have been three projects within the five year contemporaneous time frame which resulted in changes to CO emissions. Appendix E presents information on the emission changing projects. Projects considered in calculating the net emission change are listed in the table below.

PROJECT	DATE	EMISSION CHANGE (tpy)
Shutdown of Blooming Mill	April 1991	-22.1
Shutdown of Batch Annealing	December 1991	-1.2
Installation of #8 Galvanizing Line	Expected 1996	+11.8

POLLUTANT	SIGNIFICANCE LEVEL (tons per year)
Total Suspended Particulate	25
Particulate Matter < 10 microns	15
Volatile Organic Material	40
Lead	0.6

The procedures, assumptions, and results are discussed for each pollutant discussed below.

3.3.2 POLLUTANT ANALYSES

3.3.2.1 CARBON MONOXIDE

CO emission sources that would be affected by the proposed production increase include :

- Blast Furnace Stoves
- Continuous Casters
- Boilers 1-12
- Blast Furnace Gas Flare
- BOF Vessels
- Ladle Dryer & Preheater

Table 3-1 presents the estimated increases in CO emissions associated with the production increase. The total increase in CO emissions is 5,685 tons per year. There have been three projects within the five year contemporaneous time frame which resulted in changes to CO emissions. Appendix E presents information on the emission changing projects. Projects considered in calculating the net emission change are listed in the table below.

PROJECT	DATE	EMISSION CHANGE (tpy)
Shutdown of Blooming Mill	April 1991	-22.1
Shutdown of Batch Annealing	December 1991	-1.2
Installation of #8 Galvanizing Line	Expected 1996	+10.2

PROJECT	DATE	EMISSION CHANGE (tpy)
Net Contemporaneous Change		**-11.5**
Proposed Production Increase	To Be Determined	+5,684.8
Net Emission Change		**+5,673.3**

On the basis of these calculations, the proposed production increase would result in a net CO emission increase in excess of the significance level (100 tpy). Thus the production increase would be classified as a major modification and Prevention of Significant Deterioration review requirements would apply for this pollutant.

3.3.2.2NITROGEN OXIDES

Nitrogen Oxides emission sources that would be affected by the proposed production increase include the following:

- Blast Furnace Stoves
- Continuous Casters
- Boilers 1-12
- Blast Furnace Gas Flare
- BOF Vessels
- Ladle Dryer & Preheater
- Caster Molds
- Blast Furnace Casthouse

Table 3-2 presents the estimated increases in NO_X emissions associated with the production increase. The total increase in NO_X emissions is estimated to be 239 tons per year. There have been three projects within the five year contemporaneous time frame which resulted in changes to NO_X emissions. Appendix E presents information on the emission changing projects. Projects considered in calculating the net emission change are listed in the table below.

PROJECT	DATE	EMISSION CHANGE (tpy)
Net Contemporaneous Change		**-13.1**
Proposed Production Increase	To Be Determined	+5,684.8
Net Emission Change		**+5,671.7**

On the basis of these calculations, the proposed production increase would result in a net CO emission increase in excess of the significance level (100 tpy). Thus the production increase would be classified as a major modification and Prevention of Significant Deterioration review requirements would apply for this pollutant.

3.3.2.2NITROGEN OXIDES

Nitrogen Oxides emission sources that would be affected by the proposed production increase include the following:

- Blast Furnace Stoves
- Continuous Casters
- Boilers 1-12
- Blast Furnace Gas Flare
- BOF Vessels
- Ladle Dryer & Preheater
- Caster Molds
- Blast Furnace Casthouse

Table 3-2 presents the estimated increases in NO_X emissions associated with the production increase. The total increase in NO_X emissions is estimated to be 239 tons per year. There have been three projects within the five year contemporaneous time frame which resulted in changes to NO_X emissions. Appendix E presents information on the emission changing projects. Projects considered in calculating the net emission change are listed in the table below.

PROJECT	DATE	EMISSION CHANGE (tpy)
Shutdown of Blooming Mill	April 1991	-217.8
Shutdown of Batch Annealing	December 1991	-8.7
Installation of #8 Galvanizing Line	Expected 1996	+26.0
Net Contemporaneous Change		**-200.5**
Proposed Production Increase	To Be Determined	+238.8
Net Emission Change		**+38.3**

On the basis of these calculations, the proposed production increase would result in a net NO_X emission change below the significance level (40 tpy). Thus the production increase would not require Prevention of Significant Deterioration (for NO_2) or Nonattainment New Source Review (for O_3 based on NO_x emission levels).

3.3.2.3 SULFUR DIOXIDE

SO_2 emission sources that would be affected by the proposed production increase include :

- Blast Furnace Stoves
- Continuous Casters
- Boilers 1-12
- Blast Furnace Gas Flare
- BOF Vessels
- Ladle Dryer & Preheater
- Blast Furnace Casthouse

Table 3-3 presents the estimated increases in SO_2 emissions associated with the production increase. The expected increase in SO_2 emissions is 476 tons per year. Based on information provided by Granite City Steel, there have been three projects within the five year contemporaneous time frame which resulted in changes to SO_2 emissions. Appendix E presents information on the emission changing projects. Projects considered in calculating the net emission change are listed in the table below.

PROJECT	DATE	EMISSION CHANGE (tpy)
Shutdown of Blooming Mill	April 1991	-217.8
Shutdown of Batch Annealing	December 1991	-8.7
Installation of #8 Galvanizing Line	Expected 1996	+18.4
Net Contemporaneous Change		**-208.1**
Proposed Production Increase	To Be Determined	+238.8
Net Emission Change		**+30.7**

On the basis of these calculations, the proposed production increase would result in a net NO_X emission change below the significance level (40 tpy). Thus the production increase would not require Prevention of Significant Deterioration (for NO_2) or Nonattainment New Source Review (for O_3 based on NO_x emission levels).

3.3.2.3 SULFUR DIOXIDE

SO_2 emission sources that would be affected by the proposed production increase include :

- Blast Furnace Stoves
- Continuous Casters
- Boilers 1-12
- Blast Furnace Gas Flare
- BOF Vessels
- Ladle Dryer & Preheater
- Blast Furnace Casthouse

Table 3-3 presents the estimated increases in SO_2 emissions associated with the production increase. The expected increase in SO_2 emissions is 476 tons per year. Based on information provided by Granite City Steel, there have been three projects within the five year contemporaneous time frame which resulted in changes to SO_2 emissions. Appendix E presents information on the emission changing projects. Projects considered in calculating the net emission change are listed in the table below.

PROJECT	DATE	EMISSION CHANGE (tpy)
Shutdown of Blooming Mill	April 1991	-0.34
Shutdown of Batch Annealing	December 1991	-0.04
Installation of #8 Galvanizing Line	Expected 1996	+0.25
Net Contemporaneous Change		**-0.13**
Proposed Production Increase	To Be Determined	+475.98
Net Emissions Change		**+475.85**

On the basis of these calculations, the proposed production increase would result in a net SO_2 emission increase in excess of the significance level. Thus the production increase would be classified as a major modification and Prevention of Significant Deterioration requirements would apply for this pollutant.

3.3.2.4PARTICULATE MATTER

Particulate Matter (PM_{10} and TSP) emission sources that would be affected by the proposed production increase include the following:

- Blast Furnace Stoves
- Boilers 1-12
- Blast Furnace Gas Flare
- BOF Vessels
- Continuous Casters
- Ladle Dryer & Preheater
- Blast Furnace Process Emission Points
- BOF Shop Process Emission Points
- Continuous Caster Process Emission Points
- Fugitive Emissions from Roads and Materials Handling

Particulate matter emission increases are affected by the types and amounts of fuel used in each process unit that will be affected by the production increase. Appendix F presents information

PROJECT	DATE	EMISSION CHANGE (tpy)
Shutdown of Blooming Mill	April 1991	-0.34
Shutdown of Batch Annealing	December 1991	-0.04
Installation of #8 Galvanizing Line	Expected 1996	+0.20
Net Contemporaneous Change		**-0.18**
Proposed Production Increase	To Be Determined	+475.98
Net Emissions Change		**+475.80**

On the basis of these calculations, the proposed production increase would result in a net SO_2 emission increase in excess of the significance level. Thus the production increase would be classified as a major modification and Prevention of Significant Deterioration requirements would apply for this pollutant.

3.3.2.4 PARTICULATE MATTER

Particulate Matter (PM_{10} and TSP) emission sources that would be affected by the proposed production increase include the following:

- Blast Furnace Stoves
- Boilers 1-12
- Blast Furnace Gas Flare
- BOF Vessels
- Continuous Casters
- Ladle Dryer & Preheater
- Blast Furnace Process Emission Points
- BOF Shop Process Emission Points
- Continuous Caster Process Emission Points
- Fugitive Emissions from Roads and Materials Handling

Particulate matter emission increases are affected by the types and amounts of fuel used in each process unit that will be affected by the production increase. Appendix F presents information

PROJECT	DATE	EMISSION CHANGE (tpy)
Shutdown of Blooming Mill	April 1991	-0.34
Shutdown of Batch Annealing	December 1991	-0.04
Installation of #8 Galvanizing Line	Expected 1996	+0.20
Net Contemporaneous Change		**-0.18**
Proposed Production Increase	To Be Determined	+475.8
Net Emissions Change		475.8 **+470.28**

On the basis of these calculations, the proposed production increase would result in a net SO_2 emission increase in excess of the significance level. Thus the production increase would be classified as a major modification and Prevention of Significant Deterioration requirements would apply for this pollutant.

3.3.2.4 PARTICULATE MATTER

Particulate Matter (PM_{10} and TSP) emission sources that would be affected by the proposed production increase include the following:

- Blast Furnace Stoves
- Boilers 1-12
- Blast Furnace Gas Flare
- BOF Vessels
- Continuous Casters
- Ladle Dryer & Preheater
- Blast Furnace Process Emission Points
- BOF Shop Process Emission Points
- Continuous Caster Process Emission Points
- Fugitive Emissions from Roads and Materials Handling

Particulate matter emission increases are affected by the types and amounts of fuel used in each process unit that will be affected by the production increase. Appendix F presents information

regarding fugitive emissions changes from roads and materials handling areas. **Figures 3-2, 3-3,** and **3-4** show the road network used in this analysis.

The baseline information used is from a 1988 fugitive emission inventory performed by MRI for the USEPA. Based on that information the emissions were adjusted to reflect the effect of the PM10 control program incorporated into Illinois' SIP to represent base case conditions. The emissions were then scaled up on each road that would be effected by the production increase. In addition, the emissions estimates were adjusted to reflect new controls that are integral to this application.

The specific fugitive dust control program that will be in place concurrent with production increase is described in Appendix F.

Table 3-4 and **Table 3-5** present the estimated changes in PM_{10} and TSP emissions associated with the production increase. The total change in PM_{10} and TSP emissions is 52 tons per year and -52 tons per year respectively. *(With the exception of the emission factor for the BOF Roof Monitor and the Blast Furnace uncaptured fugitives, the PM_{10} emissions have been estimated using a factor identical to the PM factor. This procedure may result in an overestimate of actual PM_{10} emissions).*

The change in PM emissions reflected in **Tables 3-4** and **3-5** reflect significant improvements in the capture and control system for the BOF stack. These improvements, which have not been accounted for in any previous permit, result in emissions reductions of 228 and 340 tons per year PM_{10} and TSP respectively including consideration of the proposed production increase. Additional information regarding this emissions change can be found in Appendix C.

There have been six projects (in addition to control of fugitive emissions from roads) within the five year contemporaneous time frame which resulted in changes to PM_{10} emissions. Appendix E presents information on the emission changing projects.

Projects considered in calculating the net PM_{10} and TSP emission change and the associated total estimated emissions change are listed in the table below.

regarding fugitive emissions changes from roads and materials handling areas. **Figures 3-2, 3-3,** and **3-4** show the road network used in this analysis.

The baseline information used is from a 1988 fugitive emission inventory performed by MRI for the USEPA. Based on that information the emissions were adjusted to reflect the effect of the PM10 control program incorporated into Illinois' SIP to represent base case conditions. The emissions were then scaled up on each road that would be effected by the production increase. In addition, the emissions estimates were adjusted to reflect new controls that are integral to this application.

The specific fugitive dust control program that will be in place concurrent with production increase is described in Appendix F.

Table 3-4 and **Table 3-5** present the estimated changes in PM_{10} and TSP emissions associated with the production increases and fugitive dust controls to roads. The total change in PM_{10} and TSP emissions is 52 tons per year and -61 tons per year respectively. *(With the exception of the emission factor for the BOF Roof Monitor, the PM_{10} emissions have been estimated using a factor identical to the PM factor. This procedure may result in an overestimate of actual PM_{10} emissions).*

The change in PM emissions reflected in **Tables 3-4** and **3-5** reflect significant improvements in the capture and control system for the BOF stack. These improvements, which have not been accounted for in any previous permit, result in emissions reductions of 228 and 340 tons per year PM_{10} and TSP respectively including consideration of the proposed production increase. Additional information regarding this emissions change can be found in Appendix C.

There have been six projects (in addition to control of fugitive emissions from roads) within the five year contemporaneous time frame which resulted in changes to PM_{10} emissions. Appendix E presents information on the emission changing projects.

Projects considered in calculating the net PM_{10} and TSP emission change and the associated total estimated emissions change are listed in the table below.

ESTIMATED CHANGE IN PM10 EMISSIONS

PROJECT	DATE	PM_{10} EMISSION CHANGE (tpy)
Remove Blast Furnace Slag Spout Hood	January 1990	+4.9
# 2 Caster Production	December 1990	+11.7
Ingot Teeming Shutdown	April 1991	-22.4
Shutdown of Blooming Mill	April 1991	-3.4
Shutdown of Batch Annealing	December 1991	-0.2
Road and Material Handling Fugitive Dust Controls	November, 1991 to Present	-32.0
Installation of #8 Galvanizing Line	Expected 1996	+4.1
Net Contemporaneous Change		**-37.3**
Proposed Production Increase	To Be Determined	+51.6
Net Emissions Change		**+14.3**

ESTIMATED CHANGE IN TSP EMISSIONS

PROJECT	DATE	PM_{10} EMISSION CHANGE (tpy)
Remove Blast Furnace Slag Spout Hood	January 1990	+4.9
# 2 Caster Production	December 1990	+11.7
Ingot Teeming Shutdown	April 1991	-22.4
Shutdown of Blooming Mill	April 1991	-3.4
Shutdown of Batch Annealing	December 1991	-0.2
Road and Material Handling Fugitive Dust Controls	November, 1991 to Present	-32.0
Installation of #8 Galvanizing Line	Expected 1996	+4.2
Net Contemporaneous Change		**-37.2**
Proposed Production Increase	To Be Determined	-52.0
Net Emissions Change		**-89.2**

ESTIMATED CHANGE IN PM10 EMISSIONS

PROJECT	DATE	PM_{10} EMISSION CHANGE (tpy)
Remove Blast Furnace Slag Spout Hood	January 1990	+4.9
# 2 Caster Production	December 1990	+11.7
Ingot Teeming Shutdown	April 1991	-22.4
Shutdown of Blooming Mill	April 1991	-3.4
Shutdown of Batch Annealing	December 1991	-0.2
Road and Material Handling Fugitive Dust Controls	November, 1991 to Present	-32.0
Installation of #8 Galvanizing Line	Expected 1996	+3.8
Net Contemporaneous Change		**-37.6**
Proposed Production Increase	To Be Determined	+51.6
Net Emissions Change		**+14.0**

ESTIMATED CHANGE IN TSP EMISSIONS

PROJECT	DATE	PM_{10} EMISSION CHANGE (tpy)
Remove Blast Furnace Slag Spout Hood	January 1990	+4.9
# 2 Caster Production	December 1990	+11.7
Ingot Teeming Shutdown	April 1991	-22.4
Shutdown of Blooming Mill	April 1991	-3.4
Shutdown of Batch Annealing	December 1991	-0.2
Road and Material Handling Fugitive Dust Controls	November, 1991 to Present	-32.0
Installation of #8 Galvanizing Line	Expected 1996	+4.0
Net Contemporaneous Change		**-37.4**
Proposed Production Increase	To Be Determined	-60.6
Net Emissions Change		**-98.0**

On the basis of these calculations, the proposed production increases and additional dust controls will result in a net decrease in TSP emissions and an increase in PM_{10} emissions that is not significant. Because there is no significant increase in particulate matter emissions, the production increase will not trigger Nonattainment New Source Review for PM_{10} or TSP.

3.3.2.5 VOLATILE ORGANIC MATERIAL

The Blast Furnace Casthouse is the primary source of Volatile Organic Material (VOM) emissions increase that would result from the proposed production increase.

Table 3-6 presents the estimated increases in VOM emissions associated with the production increase. The total increase in VOM emissions is estimated at 59.3 tons per year. The increased emissions due to production increases were estimated by increasing 1993 emissions proportionally.

There have been four projects within the five year contemporaneous time frame which resulted in changes to VOM emissions. Appendix E presents information on the emission changing projects. Projects considered in calculating the net VOM emission change are listed in the table below.

PROJECT	DATE	VOM EMISSION CHANGE (tpy)
Installation NESHAP Controls Coke By-Product	July 1991	-31.6
Shutdown of Blooming Mill	April 1991	-0.9
Shutdown of Batch Annealing	December 1991	-0.3
Installation of #8 Galvanizing Line	Expected 1996	+1.6
Net Contemporaneous Change		**-31.2**
Proposed Production Increase	To Be Determined	+59.3
Net Emissions Change		**+28.1**

On the basis of these calculations, the proposed production increases and additional dust controls will result in a net decrease in TSP emissions and an increase in PM_{10} emissions that is not significant. Because there is no significant increase in particulate matter emissions, the production increase will not trigger Nonattainment New Source Review for PM_{10} or TSP.

3.3.2.5 VOLATILE ORGANIC MATERIAL

The Blast Furnace Casthouse is the primary source of Volatile Organic Material (VOM) emissions increase that would result from the proposed production increase.

Table 3-6 presents the estimated increases in VOM emissions associated with the production increase. The total increase in VOM emissions is estimated at 59.3 tons per year. The increased emissions due to production increases were estimated by increasing 1993 emissions proportionally.

There have been four projects within the five year contemporaneous time frame which resulted in changes to VOM emissions. Appendix E presents information on the emission changing projects. Projects considered in calculating the net VOM emission change are listed in the table below.

PROJECT	DATE	VOM EMISSION CHANGE (tpy)
Installation NESHAP Controls Coke By-Product	July 1991	-31.6
Shutdown of Blooming Mill	April 1991	-0.9
Shutdown of Batch Annealing	December 1991	-0.3
Installation of #8 Galvanizing Line	Expected 1996	+1.2
Net Contemporaneous Change		**-31.7**
Proposed Production Increase	To Be Determined	+59.3
Net Emissions Change		**+27.6**

On the basis of these calculations, the proposed production increase would result in a net increase in VOM emissions below the applicable significance level of 40 tons per year. Thus the production increase would not require a Nonattainment New Source Review for this pollutant.

3.3.2.6LEAD

Table 3-7 presents the estimated increases in lead emissions associated with the production increase. The total increase in lead emissions is estimated at 0.539 tons per year. The increased emissions due to production increases were estimated by increasing 1993 emissions proportionally to the increase in production.

On the basis of these calculations, the production increase results in increased lead emissions less than the 0.6 tons per year significance threshold. Therefore, a PSD Review for this pollutant is not required.

On the basis of these calculations, the proposed production increase would result in a net increase in VOM emissions below the applicable significance level of 40 tons per year. Thus the production increase would not require a Nonattainment New Source Review for this pollutant.

3.3.2.6 LEAD

Table 3-7 presents the estimated increases in lead emissions associated with the production increase. The total increase in lead emissions is estimated at 0.539 tons per year. The increased emissions due to production increases were estimated by increasing 1993 emissions proportionally to the increase in production.

On the basis of these calculations, the production increase results in increased lead emissions less than the 0.6 tons per year significance threshold. Therefore, a PSD Review for this pollutant is not required.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

4.0
BEST AVAILABLE CONTROL TECHNOLOGY REVIEW

4.1 REQUIREMENTS AND APPLICABILITY

BACT is defined as an emission limitation based on the maximum degree of reduction of each pollutant subject to regulation which would be emitted from any proposed major stationary source or major modification which the Administrator (on a case-by-case basis, taking into account energy, environmental and economic impacts, and other costs) determines is achievable for such pollutant. BACT limitations must not cause the exceedance of any applicable New Source Performance Standards (NSPS) and/or National Emission Standards for Hazardous Pollutants (NESHAP).

The requirement to conduct a BACT analysis and determination is set forth in Section 165(a)(4) of the Clean Air Act and in federal regulations at 40 CFR 52.21(j). BACT must also comply with all the applicable limits established by the State of Illinois.

BACT is required for each regulated major source pollutant emitted in excess of the significant emission rates. Individual BACT determinations are to be performed for each pollutant subjected to a PSD review emitted from the same emission unit. The BACT determination must also separately address, for each regulated pollutant with a significant emission increase at the source, air pollution controls for each emissions unit or pollutant emitting activity subject to review.

Based on emission estimates for the proposed project, a BACT review is required for both SO_2 and CO control for the proposed project and is presented in the following format:

- BACT procedures
- Control Technology Review
- Previous BACT Determinations
- BACT Conclusion

Preparation of the BACT analysis included in this document incorporates the most recent "top-down" BACT guidance (EPA, 1990) by United States Environmental Protection Agency (USEPA) for PSD permit determinations. That is, for each pollutant, the most stringent emission limit potentially applicable for a given pollutant was considered and then compared to the proposed project to determine its technical and economic feasibility.

When the most stringent technically feasible emission limitation is not selected as BACT, justification must be provided in terms of adverse economic, environmental, or energy impacts. Several other factors may be considered in justification of rejecting more stringent controls, including:

a. A showing that utilizing the control would adversely impact the project's financial viability.

b. A showing that the costs associated with the control are significantly higher for this specific project than for other similar projects that have installed this control system or in general for controlling the pollutant.

c. A showing that those economic considerations outweigh the energy and environmental benefits.

4.2 SO_2 CONTROL TECHNOLOGY REQUIREMENTS AND APPLICABILITY

The sources of SO_2 emissions impacted by the proposed production increases and considered as a part of the BACT review include the blast furnace stoves, the blast furnace casthouse, the ladle dryer preheater and the continuous casters. The increase in iron-making by the blast furnaces may correspondingly increase the production of process blast furnace gas.

4.2.1 INHERENTLY LOWER-EMITTING PROCESSES/PRACTICES

4.2.1.1 Blast Furnace Stove and Boiler Emissions

The blast furnace stoves will burn increased amounts of blast furnace gas and comparable amounts of natural gas to accommodate the production increase. Due to the low concentrations

of SO_2 and other pollutants in blast furnace gas and natural gas, these products are typically thought of as clean burning fuels[1].

Emissions of SO_2 will be impacted by the quantity of fuel required and the sulfur content of the fuel. For example, blast furnace gas has trace amounts of sulfur but is lower in heating value than natural gas or fuel oil. Therefore, it takes a much greater volume of blast furnace gas to provide the same heat energy as these other fuels. The greater volume and respective sulfur concentration must be compared to the lower volumes and respective sulfur concentration for natural gas or fuel oil to determine a lower emitting practice.

Based on fuel data for each type of fuel used, the lowest emitting fuel for SO_2 is natural gas (approximately 6.0×10^{-4} lbs/mmBtu). The next lowest emitting fuel for SO_2 is blast furnace gas (approximately 8.3×10^{-2} lbs/mmBtu).

There may be a small increase in fuel oil use associated with the production increase. Fuel oil combustion results in SO_2 emissions of approximately 1.0 lb/mmBtu. During the base period little oil was combusted. The projected oil use is based on the amount of oil reclaimed from Granite City Steel's wastewater treatment system. Oil generated through this pollution prevention technique is presently being sold; however, Granite City Steel must maintain the ability to consume this oil internally should future requirements preclude the sale of this material.

Increased quantities of blast furnace gas will be produced by the blast furnaces with the proposed production increase. If this fuel is not used in the blast furnace stoves or in other combustion sources, it must be flared. Although blast furnace gas is a higher SO_2 emitting fuel than natural gas, substituting natural gas at the blast furnace stoves would still result in the combustion of the blast furnace gas at the flare. Therefore, combustion of blast furnace gas in the blast furnace stoves is the inherently lowest emitting practice on a plant-wide basis.

4.2.1.2 Casthouse Emissions

As discussed in Section 2.2, SO_2 emissions from iron-making operations are limited by process practices employing limestone and other fluxing agents in the burden. Due to the reducing

atmosphere and the fluxes used in the furnace burden to remove impurities, wide ranges of sulfur in the burden are efficiently removed (98+%), predominately into the slag.

Approximate 60% of the sulfur in the coal used to make coke remains in the fuel. Therefore, reducing the sulfur content of the coal used to make coke that is part of the charge to the blast furnace was considered. However, this is not an effective means of reducing SO2 emissions because greater than 98% of the sulfur in the blast furnace burden is removed by the process. Thus, for every pound of sulfur in coal used to make coke, more than 0.988 pounds of sulfur are removed.

1 lb S *(1-0.6) =	0.400 lbs S removed when making coke
0.6 lb S * 0.98 =	0.588 lb S removed by the process
	0.988 lb S removed

As shown, due to the effectiveness of the process in reducing sulfur, reduction in the sulfur content of the coal used would have an insignificant effect on sulfur dioxide emissions.

Some trace amounts of sulfur are also in the iron. The necessary burden practice of adding limestone and fluxes effectively and effectively reduces SO_2 emissions to trace amounts[4]. No other lower emitting practices are in use in the steel industry[3,4,5].

4.2.1.3 Ladle Dryer Preheater and Continuous Caster Emissions

The ladle dryer preheater and continuous casters may require an increase in fuel usage as a result of the production increase. However, because natural gas is the only fuel used at these units, the lowest emitting practice is in place and will continue to be employed.

4.2.2 SO_2 CONTROL TECHNOLOGY OPTIONS

There are no add-on SO_2 control technologies currently in use in the steel industry for SO_2 control at blast furnace stoves using process blast furnace gas, or to control SO_2 at the blast furnace casthouse, ladle dryer preheater and continuous casters.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

4.2.3 INFEASIBLE OPTIONS - SO_2

The proposed production increases to the blast furnaces will result in increased blast furnace gas generation and require additional fuel combustion in the blast furnace stoves. Blast furnace gas and natural gas are considered clean fuels and are the preferred supplemental fuels for the increased combustion needs based on inherently lower emitting practices.

Blast furnace gas is a low Btu fuel (approximately 80 Btu/cubic feet). Because of its low Btu value, large volumes of blast furnace gas are necessary to produce the required heat energy for the proposed production increases. Because the use of blast furnace gas in some processes is limited by other factors, such as physical limitations of the gas lines and burners, natural gas may also be used as a supplemental fuel. However, the overall quantity of natural gas usage throughout the plant will remain constant.

Blast furnace gas and natural gas typically contains approximately 0.01 and 0.001 percent sulfur (by weight). Based on these low sulfur concentrations, SO_2 reduction using add-on controls is technically infeasible.

4.2.4 SELECTED BACT - SO_2

Based on a review of the BACT/LAER clearinghouse, information obtained from the U.S. EPA Control Technology Group, and literature from the U.S. EPA Office of Air Quality Planning and Standards, no add-on BACT determination has been made for SO_2 emissions at these sources. Based on the extremely low concentrations of SO_2 in blast furnace gas, control of SO_2 emissions at blast furnace stoves is not practiced in the steel industry[3,4,5].

The combustion of blast furnace gas in the blast furnace stoves to supplement existing fuel combustion is the only feasible option to support the proposed production increases. Therefore, this option is determined as BACT for SO_2.

Sulfur dioxide emissions from the blast furnace casthouse are effectively controlled by the solubility of sulfur containing gases in the liquid iron and the efficiency of fluxing to remove impurities, including SO_2. Based on the low SO_2 concentrations in casthouse emissions,

additional reduction using add-on controls is technically infeasible. SO_2 emissions from the blast furnace casthouse are effectively reduced by using current industry work practices. This option is selected as BACT for casthouse SO_2 emissions.

The use of natural gas in the ladle dryer preheater and continuous casters is the only feasible control option to support the proposed production increases based on inherently lower emitting practices.

4.3 CO CONTROL TECHNOLOGY REQUIREMENTS AND APPLICABILITY

The major sources of CO emissions impacted by the proposed production increases include the blast furnace stoves, the basic oxygen furnaces (BOF), the ladle dryer preheater and the continuous casters. CO emissions may increase as a result of additional process blast furnace firing in the stoves, additional steel production at the BOF and additional fuel requirements at the ladle dryer preheater and continuous casters. A BACT review requires an evaluation of inherently lower-emitting processes/practices and technically feasible add-on controls.

4.3.1 INHERENTLY LOWER-EMITTING PROCESSES/PRACTICES

4.3.1.1 Blast Furnace Stoves

CO formation results from the incomplete combustion of fossil fuels and oxidation of carbon containing materials. The better the combustion practices, the lower the CO formation.

Good combustion practices require the following elements:

- Proper fuel/air mixture
- Proper mixing
- High temperature

Good combustion practice is the inherently lowest emitting method of controlling CO emissions from combustion sources[2,6].

4.3.1.2 Basic Oxygen Furnaces (BOF)

CO is formed in the BOFs by oxidizing carbon in the molten iron. Because high-purity oxygen is the industry standard for making steel, there is no lower-emitting practice for this source.

4.3.1.3 Ladle Dryer Preheater and Continuous Casters

The ladle dryer preheater and continuous casters may require an increase in fuel usage as a result of the production increase. However, because natural gas is the only fuel used at these units, the lowest emitting practice is in place and will continue to be employed.

4.3.2 CO CONTROL TECHNOLOGY OPTIONS

The following control technologies are currently available to control CO emissions from affected sources.

4.3.2.1 Blast Furnace Stoves

The following add-on control technology options are currently available to control CO emissions from the blast furnace stoves:

- Direct Combustion (flaring)
- Thermal Oxidization
- Catalytic Oxidation

Direct Combustion

Flaring is a combustion control process in which combustible gases are burned in an open flame in the open air using a specially designed burner tip. Completeness of combustion in a flare is governed by flame temperature, residence time in the combustion zone, turbulent mixing, and available oxygen. The major factors affecting flare combustion efficiency are gas flammability, auto-ignition temperature, heating value (Btu/scf), density, and flame zone mixing.

The heating value affects flame stability, emissions, and flame structure. A lower heating value produces a cooler flame that does not favor combustion and is more easily extinguished.

Thermal Oxidizers

Thermal oxidizers refer to any device that uses a flame combined within an enclosed chamber to convert combustible gases to carbon dioxide and water. Thermal oxidizers operate most effectively at temperatures between 1,300 to 1,500°F with a residence time of 0.1 to 0.5 seconds. By raising the temperature, the residence time for complete combustion can be reduced and vice versa. However, temperature is the more important process variable. The removal efficiency for CO is in the range of 90 to 95 percent.

Besides temperature and residence time, the concentration of the pollutant in the gas stream also affects operation of the system. The concentration of the pollutant dictates the amount of supplemental fuel required. Low concentrations of the combustible gas require increased supplemental fuel usage.

Catalytic Oxidation

Catalytic incinerators employ a bed of active material (catalyst) that facilitates the overall combustion reaction. The catalyst is a substance that speeds up the rate of a chemical reaction at a given temperature without being permanently altered. The use of a catalyst in an enclosed combustor enables oxidation at temperatures in the range of 500 to 600°F. Common catalysts used in catalytic oxidation units are platinum or other metals. The catalysts are placed on an alumina pellet or honeycomb support. The typical removal efficiency with this type of control is 90 percent.

Certain contaminants contained in the exhaust gas streams will chemically react or alloy poison with the catalyst and cause deactivation, including most heavy metal compounds. Sulfur is also considered a catalyst poison, but its effect is reversible.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

4.3.2.2 Basic Oxygen Furnaces (BOF)

The BOF receives a charge composed of approximately 30 percent scrap and 70 percent molten iron and converts it to molten steel by utilizing a jet of high purity oxygen. The oxygen oxidizes the carbon and silicon in the molten iron, removes them, and provides heat for melting scrap.

Two primary systems for hooding and combustion of the BOF gases are currently used. The following control technologies are currently available and in use to control CO emissions from BOF vessels.

- Closed-hood combustion with exhaust stack flare
- Open-hood combustion with no additional controls

Closed-Hood Combustion w/Flare

A closed hood system suppresses combustion at the hood and collects the gases for combustion of CO at an exhaust stack flare. In a closed-hood system movable skirts seal the top of the furnace to limit air induction. Suppressed combustion hoods discourage air infiltration, with as low as 5 percent theoretical air. By suppressing combustion, the CO concentration is increased and the gases are more easily flared.

Open-Hood Combustion

Open combustion hoods allow excess air to be introduced in quantities up to 300 percent. With open hoods there is a gap between the hood and the furnace top into which air can be induced. In an open-hood system CO gases are combusted in the primary hood system with the addition of the excess air.

4.3.2.3 Ladle Dryer Preheater and Continuous Casters

There are no add-on CO control technologies currently in use in the steel industry for CO control at the ladle dryer preheater or continuous casters.

4.3.3 INFEASIBLE OPTIONS - CO

Low concentrations of CO are not effectively and efficiently controlled by emissions control devices[8]. Due to the low concentrations of CO gas in the exhaust stream of the blast furnace stoves, which are below the lower explosive limit (LEL) of 12.5 percent for CO, sustained combustion (flaring) cannot occur[7] without the use of a supplemental fuel. Because the use of supplemental fuel at the flare would result in higher emissions of other pollutants and the formation of additional CO, this is an infeasible option.

The Granite City facility is already equipped with an open hood system on the BOFs where CO is combusted in the hood. Switching to a closed-hood system would require a large capital expense and would be economically infeasible. The residual CO from open-hood combustion is at a concentration level that is not technically feasible to treat further.

4.3.4 SELECTED BACT - CO

A review of BACT/LAER Clearinghouse, U.S. EPA Control Technology Group, and U.S. EPA Office of Air Quality and Planning literature was conducted to determine the current BACT status for sources within the steel industry. Based on this review and the previous evaluation of BACT options, the following BACT determinations for CO were made for sources impacted by the proposed production increases.

4.3.4.1 BACT - Blast Furnace Stoves

BACT literature indicates that blast furnace stoves at steel mills are not using add-on control equipment for CO emissions control. CO emissions can be adequately controlled by the use of

good combustion practices. Therefore the BACT recommendation for control of CO emissions from the blast furnace stoves is the maintenance of present good combustion practices.

4.3.4.2 BACT - Basic Oxygen Furnaces (BOF)

The open hood system used by Granite City Steel is a process control with the CO being combusted in the hood system. This type of process does not use add-on controls. After combustion in the open hood system, the CO average concentration is approximately 2500 ppm. This concentration is too low for additional CO control to be technically feasible[8]. Therefore, the existing open hood system, operated in the manner necessary to produce a quality product, is determined to be BACT for the BOFs.

4.3.4.3 BACT - Ladle Dryer Preheater and Continuous Casters

The use of natural gas is the only feasible control option based on inherently lower emitting practices and there are no add-on CO control technologies currently in use in the steel industry for CO control at the ladle dryer preheater and continuous casters. Therefore, the use of natural gas is determined to be BACT for the ladle dryer preheater and continuous casters.

4.4 REFERENCES

1."Pollution Effects of Abnormal Operations in Iron and Steelmaking. Vol. I. U.S. Environmental Protection Agency. EPA- 600/2-78-118.

2. A.J. Buonicore and W.T. Davis. "Air Pollution Engineering Manual. "Van Nostrand Reinhold, New York, 1992.

3. A. Vervaert, U.S. EPA Office of Air Quality Planning and Standards, Control Technology Group, personal communication.

4. D. Schuerer, American Institute of Steel Industries, Technical Representative, Pittsburgh, Pa., personal communication.

5. E. Wojcheckowski, U.S. EPA Region V, Air and Radiation Section, personal communication.

6. Air Pollution Technology Institute, Course 427 "Combustion Evaluation", manual. EPA 450/2-80-063.

7. Office of Air Quality Planning and Standards, Control Cost Manual. EPA 450/3-90-006.

8. A. Marshall, John Zink Company, personal communication.

9. "Basic Oxygen Process Furnaces". U.S. Environmental Protection Agency. EPA 340/1-77-02.

10. Air Pollution Technology Institute, Course 415, "Control Of Gaseous Emissions, " manual. EPA 450/2-81-005.

11. Iron and Steel Plant Inspection Workshop. Volumes I and II. Pedco Environmental, Inc., 1983.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

5.0
AIR QUALITY IMPACT ASSESSMENT

5.1 BACKGROUND

The proposed production increase at National Steel Corporation's Granite City Steel mill will result in a facility-wide net emission increase of carbon monoxide (CO) and sulfur dioxide (SO_2) of greater than 100 and 40 tons per year, respectively. Therefore, the proposed production increase constitutes a major modification to an existing major stationary source, and subject the mill (for the respective pollutants) to the Federal Clean Air Act's (CAA) New Source Review (NSR) process.

The NSR process requires a major stationary source undergoing a major modification to demonstrate that the modification will not cause or contribute to an exceedance of the National Ambient Air Quality Standards (NAAQS). NSR also requires the source to demonstrate that emissions of specific attainment air pollutants will not deteriorate the existing air quality above incremental amounts established by the CAA. Federal and state regulations have been developed to meet the requirements set forth in the CAA.

The Prevention of Significant Deterioration (PSD) program is a part of the NSR process that states have implemented for major new and modified sources of air pollution, in regions currently in attainment the NAAQS. An air quality impact assessment is one of the requirements which must be conducted in order to receive a PSD permit to construct or modify a source. This section will address the air quality impact assessment requirements which are necessary to receive a PSD permit. The air quality analyses presented in this section satisfy the regulatory requirements given in the Code of Federal Register 40 CFR 52.21(k) and 40 CFR 52.21(m).

Once source and pollutant applicability have been determined, dispersion modeling is typically used to estimate potential ambient pollutant impacts from a major modification. Initially, only

the incremental emission increases resulting from the major modification are modeled. If the impacts from these emissions exceed the CAA's ambient significance levels, a more refined modeling analysis must be conducted to demonstrate overall compliance with NAAQS and PSD increments. **Table 5-1** provides the ambient significance levels for CO and SO_2 impacts. **Table 5-2** presents the CO and SO_2 NAAQS (The Illinois Ambient Air Quality Criteria Pollutant Standards are identical to the NAAQS). **Table 5-3** lists the applicable Class II PSD SO_2 increments.

Another set of ambient impact limits which are applicable to PSD reviews are the de minimis ambient monitoring concentrations given in **Table 5-4**. These concentrations are used to determine whether site specific ambient air monitoring may be required prior to construction or modification. Concentrations greater than the values presented in **Table 5-4** could require preconstruction monitoring for up to a year, however, nearby existing representative monitoring data can often be substituted if available, approved by IEPA, and QA/QC certified according to federal guidelines.

The Illinois Environmental Protection Agency (IEPA) has recently conducted extensive dispersion modeling analyses in and around the Granite City Steel mill. The purpose of this modeling was to demonstrate NAAQS attainment for SO_2 and particulate matter. The IEPA modeling successfully demonstrated NAAQS compliance based on federally enforceable state operating permit (FESOP) SO_2 and PM_{10} emission rates for the Granite City Steel mill. SO_2 emission rates proposed for the production increases are no greater than the proposed FESOP limits. Therefore, NAAQS modeling will not be performed.

IEPA also provided a major portion of the data used in the modeling analyses. Included in the data provided are:

- meteorology (five years surface and upper air);
- receptors (three grid files of varying resolution and coverage);
- stack parameters; and
- downwash and wake effect parameters.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

5.2 AREA DESCRIPTION

The Granite City Steel mill is located in Madison County, Illinois. Madison County is located in east-central Illinois. The largest city near the mill is St. Louis, Missouri which is located approximately 15 kilometers southwest of the site. The Granite City Steel mill is situated at a surface elevation of approximately 420 feet above mean sea level. The elevations within a five kilometers radius of the site range from 400 to 430 feet, which are below the stack height elevations of all existing sources at the mill. Therefore, the site is located in an area consisting of simple terrain, and terrain elevations were not included as part of the modeling analyses.

Based on classification systems recognized by the EPA, the project area can be classified as rural. EPA guidance presents two alternative procedures to determine whether the character of an area is predominately urban or rural: 1) land use or 2) population density. The area classification system developed by Auer (1978) was used to classify the area as rural, based on color codes on the USGS maps and population density.

5.3 MODEL SELECTION

A dispersion modeling analysis for the Granite City Steel mill was performed using USEPA computer models which evaluate the ambient impact of air pollution sources by simulating the processes of transport and diffusion of effluents in the atmosphere. The procedures recommended by USEPA Region V, the Illinois Environmental Protection Agency (IEPA), and the *Guideline on Air Quality Models* (Revised), (EPA-450/12-78-027R) were followed for the modeling analysis.

The revised Industrial Source Complex Short Term (ISCST2) model, version 93109 and the more recent ISCST3 models were selected to predict ambient concentration increases. The ISCST model is frequently used in PSD modeling analyses and has gained wide acceptance by the modeling community since options are available to depict emission rate scalars, particle size data, building wake effects and downwash, cavity effects, and various types of emission sources.

The ISCST model is a steady-state Gaussian plume model designed to estimate ground-level pollutant concentrations from a wide variety of sources associated with an industrial complex in an area having simple terrain. The ISCST model utilized the regulatory default options including the following:

- final plume rise;
- stack-tip downwash;
- buoyancy-induced dispersion; and
- no calms processed

5.4 METEOROLOGICAL DATA

The dispersion modeling analysis was performed using five years (1982-86) of hourly surface meteorological data from the St. Louis International Airport (No. 13994) and twice-daily upper air meteorological data from the Salem Regional Airport (No. 03879). The meteorological data was recommended and supplied to Granite City Steel by the IEPA, and was previously used to conduct dispersion modeling analyses for SIP NAAQS attainment demonstrations. These data were received from IEPA in a preprocessed binary format compatible with the requirements of the ISCST2 model. The meteorological data consisted of hourly observations for the following parameters:

- Wind speed
- Wind direction
- Ambient temperature
- Atmospheric stability
- Mixing heights

These data were used to calculate hourly plume rise and pollutant concentrations at downwind receptor locations for averaging periods of up to a year. Each year was processed individually and maximum predicted concentrations for the worst-case year are reported in the modeling results.

The St. Louis Airport is located approximately 25 kilometers west of the mill and the Salem Regional Airport is located approximately 100 kilometers east of the mill. Both data sets are considered representative of the meteorological conditions in Madison County, Illinois. IEPA stated that the surface meteorological was collected at a sampling height of 6.1 meters instead of the standard 10 meters. The non-standard height was included in the modeling runs.

5.5 RECEPTORS

The five-year dispersion modeling analysis utilized three IEPA generated UTM Cartesian receptor grids with varying spacing (1 to 1,000 meter) and coverage. Potential near-source impacts due to downwash and wake effects were assessed utilizing fenceline receptors generated by IEPA and incorporated into three grids provided. Since terrain elevations are fairly constant, the modeling analysis was performed using only simple terrain (no terrain elevations). A copy of the receptor grid files are provided in Appendix G.

5.6 PRECONSTRUCTION AMBIENT AIR QUALITY MONITORING

Preconstruction monitoring of the air quality in the area near a proposed major modification is required by the PSD regulations to determine existing background pollutant concentrations prior to evaluating the impacts of the proposed major modification. The PSD regulations stipulate preconstruction monitoring is required if the maximum predicted (modeled) ambient impact concentration exceeds the de minimis PSD monitoring threshold. However, in lieu of a preconstruction monitoring requirement, the IEPA can designate existing representative monitoring data from a nearby site, if available, and if QA/QC certified according to federal guidelines.

The IEPA monitors CO in Madison County at 2001 Edison Street. This location is approximately 3 blocks (<0.5 kilometers) northwest of the Granite City Steel mill. This location should be considered nearby and representative of background conditions at the site. Therefore, preconstruction monitoring should not be necessary.

The IEPA monitors SO_2 in Madison County at four locations. The nearest monitoring station to the Granite City Steel mill is located in South Roxanna. This monitoring station is approximately 16 kilometers northeast of the Granite City Steel mill. However, because IEPA has already conducted extensive NAAQS SO_2 modeling and determined compliance for the area based on this modeling (at least in-so-far as it relates to the Granite City Steel mill), preconstruction monitoring should not be necessary.

The 1993 Illinois Annual Air Quality Report states that the maximum 1-hour CO average was 8.0 parts per million (9,200 $\mu g/m^3$) and the maximum 8-hour CO average was 3.7 parts per million (4,255 $\mu g/m^3$). These levels are below the 40,000 and 10,000 $\mu g/m^3$ 1-hour and 8-hour NAAQS, respectively.

The 1993 Illinois Annual Air Quality Report states that the maximum 3-hour SO_2 average was 0.171 parts per million (447 $\mu g/m^3$), the maximum 24-hour SO_2 average was 0.063 parts per million (164 $\mu g/m^3$), and the annual SO_2 average was 0.011 parts per million (28.6 $\mu g/m^3$). These levels are below the 1,300, 365, and 80 $\mu g/m^3$ 3-hour, 24-hour and annual NAAQS, respectively.

5.7 SOURCE DATA

The proposed production increases at the Granite City Steel mill will be achieved utilizing existing production equipment. Therefore, only the total emissions from the existing source points will change. The source parameters (stack height, temperature, etc.) are expected to remain the same.

The source data for the SO_2 and CO sources affected by the proposed production increases are presented in **Table 5-5**. The primary source points at the mill are the blast furnace stoves, boilers, baghouse, the ladle preheater/dryer stacks, the blast furnace casthouse and roof vents, the iron spout baghouse vent, slag pits and the continuous caster stacks. The ladle preheater/dryers were assumed to exhaust through a single stack for this modeling analysis.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

5.8 MODELING PROTOCOL

The dispersion modeling analysis was conducted in four steps. Initially, worst-case individual impacts were determined by modeling each source individually for the five year period. From this modeling, a worst-case combined impact was determined by adding together all individual worst-case impacts regardless of time period (within an averaging period) or receptor location. If this process demonstrated that the combined impacts were below the CAA ambient significance levels, NAAQS levels, or applicable PSD Class II increments, no further analyses were conducted. If, however, the combined impacts were calculated to be above the NAAQS levels (with background levels included) or PSD Class II increments, a refined modeling analysis (taking into account the same time period and receptor locations) was performed to evaluate the specific combined impact cases which appeared to exceed the NAAQS or PSD increments

5.8.1 INDIVIDUAL IMPACT MODELING

To determine the individual worst-case impacts, a Chi/Q modeling analysis was conducted utilizing a nominal emission rate of one gram per second for each source. Once the modeling was completed, the applicable emission rates "Q" (in grams per second) for each individual source were multiplied to the Chi/Q impacts and the worst-case individual source impacts were determined.

For example, the maximum eight-hour Chi/Q impact from the basic oxygen furnace (BOF) for the five year modeling period was 5.3327 $\mu g/m^3$ (1982). Multiplying this impact to the 174.12 gram per second increase in CO emissions from the proposed production increases to the BOF results in a maximum eight-hour CO impact of 928.5 $\mu g/m^3$.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

5.8.2 COMBINED IMPACT MODELING

Once the individual worst-case impacts were determined, the next step was to evaluate the worst-case combined impacts. To achieve this, it was first necessary to separate the combustion sources from the process sources.

Combustion sources (in this assessment) are defined as sources that burn fuels for the sole purpose of generating steam or thermal energy. These sources can be used interchangeably, that is, fuel burned in one source can be switched immediately to a different source. Therefore, to determine the worst case impacts from the combustion sources (and to maximize operating flexibility), the total emissions from all additional fuel combustion were applied to each combustion source, and the combustion source that was determined to have the highest impact (Boiler 12) was used in the combined impact analysis.

The worst-case combustion source impacts (Boiler 12) were then added to the worst-case individual process source impacts to arrive at a combined worst-case impact. These impacts were then compared to the CAA's ambient significant impact levels. If the significant impact levels were exceeded, the combined impacts were compared to the applicable NAAQS or PSD Class II increment. If the NAAQS or PSD Class II increments were exceeded, additional modeling was required.

5.8.3 REFINED MODELING

If the worst-case combined impacts were greater than the NAAQS (CO) or the PSD Class II increments (SO_2), refined modeling would be necessary. Since IEPA has already conducted extensive modeling to demonstrate SO_2 NAAQS compliance, this modeling was not repeated.

Refined modeling combines the applicable sources into a single modeling run and evaluates the combined impacts of these sources on particular receptor locations and at particular time periods. This modeling typically results in much lower combined impacts because it is unlikely that two or more sources are impacting on the same receptor point at the same time.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

5.9 MODELING RESULTS

The results of the dispersion modeling indicate that the proposed production increases will not cause or contribute to a violation of a NAAQS, or cause an exceedance of an applicable PSD Class II increment.

5.9.1 SIGNIFICANT IMPACT DETERMINATION

As described in Section 5.9.1, individual Chi/Q modeling was conducted for all CO and SO_2 sources impacted by the proposed production increases. **Table 5-6** gives the individual and worst-case combined CO modeling results, and **Table 5-7** gives the individual and worst-case combined SO_2 modeling results.

The worst-case combined 1-hour impact levels for CO are 3,164.5 $\mu g/m^3$. This impact is greater than the applicable significant impact level of 2,000 $\mu g/m^3$. Likewise, the worst-case combined 8-hour impact level for CO was 960.3 $\mu g/m^3$, which is greater than the 500.0 $\mu g/m^3$ applicable significant impact level. Therefore, the CO impacts are considered significant and require further evaluation for NAAQS compliance.

The worst-case combined 3-hour, 24-hour and annual impacts for SO_2 are modeled to be 345.3, 32.6 and 7.1 $\mu g/m^3$, respectively. These impacts are greater than their respective 25, 5 and 1 $\mu g/m^3$ applicable significant impact levels. Therefore, the SO_2 impacts are also significant and require further evaluation for PSD Class II increment consumption.

5.9.2 NAAQS DETERMINATION - CO

Table 5-8 presents the individual and worst-case combined modeling results for all CO sources at the Granite City Steel mill. Based on these modeling results, the worst-case combined 1-hour impacts from the Granite City Steel sources is 9,827.8 $\mu g/m^3$. If a representative background concentration of 9,200 $\mu g/m^3$ is added to this impact, the total worst-case 1-hour

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

impact is 19,027.8 $\mu g/m^3$. This impact is below the NAAQS of 40,000 $\mu g/m^3$, therefore, the production increase does not cause or contribute to a 1-hour CO NAAQS exceedance.

Based on the modeling results, the worst-case combined 8-hour impacts from the Granite City Steel sources is 2,871.4 $\mu g/m^3$. If a representative background concentration of 4,255 $\mu g/m^3$ is added to this impact, the total worst-case 8-hour impact is 7,126.4 $\mu g/m^3$. This impact is below the NAAQS of 10,000 $\mu g/m^3$; therefore, the production increase does not cause or contribute to an 8-hour CO NAAQS exceedance.

5.9.3 PSD CLASS II INCREMENT CONSUMPTION - SO_2

SO_2 increment is consumed by sources in a specific area that increase their emission of SO_2 after the SO_2 baseline date has been established for that area. The increment can be expanded in a similar fashion if sources in a specific area decrease their SO_2 emissions after the baseline date. Based on data provided by IEPA, the SO_2 baseline date was established for the Kilngas - Wood River Gas Turbine project in December 1982. This project was eventually canceled. Since this time, two additional PSD projects that would have been potential SO_2 increment consumers were proposed and ultimately canceled.

IEPA and Granite City Steel were unable to identify the number and magnitude of minor source increment changes that have occurred since 1983. However, SO_2 monitoring data for Madison County indicate that SO_2 concentrations are remaining constant or trending downward. Therefore, we can conclude that at least the full Class II PSD increments for SO_2 should be available.

Table 5-7 presents the individual and worst-case combined modeling results for all SO_2 sources affected by the proposed production increases at the Granite City Steel mill. The worst-case combined impact for the 3-hour averaging period was 345.3 $\mu g/m^3$, for the 24-hour averaging period was 99.1 $\mu g/m^3$, and for the annual averaging period was 7.1 $\mu g/m^3$. Based on these

results, the worst-case combined impacts are at or below the 3-hour and annual Class II PSD SO_2 increments of 512 and 20 $\mu g/m^3$, respectively. However, the maximum 24-hour impact was estimated to be 99.1 using this conservative method. That impact is greater than the applicable 24-hour PSD increment of 91 $\mu g/m^3$. Therefore, additional analysis was required for the 24-hour averaging period.

5.9.3.2 Increment Consumption Based on Refined Modeling

Refined modeling was carried out for the 24-hour averaging period. This modeling used the same source assumptions that were used for the previous modeling (e.g. assumption that all incremental fuel was used by one combustion source). Each combustion source was modeled in turn with the process sources to estimate a maximum a maximum ground level concentration, this time adding the predicted concentrations for each source at each receptor location. As shown on Table 5-9, this analysis shows that the maximum concentration predicted at any receptor is 32.6 $\mu g/m^3$, well below the 24-hour PSD increment for SO_2 of 91 $\mu g/m^3$.

5.10 REFERENCES

Auer, Jr., A.H. 1978. *Correlation of Land Use and Cover with Meteorological Anomalies*, Journal of Applied Meteorology, 17:636-643.

U.S. Environmental Protection Agency. 1986. Guideline on Air Quality Models (Revised). EPA-450/2-78-027R, Research Triangle Park, North Carolina.

Illinois Environmental Protection Agency. 1994. 1993 Illinois Annual Air Quality Report. IEPA\APC\94-150, Bureau of Air, Springfield, Illinois.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

6.0
ADDITIONAL IMPACT ANALYSES

The additional impact analyses required under 40 CFR 52.21(o) are the following:

1. Air quality impacts in Class I areas within 100 km;
2. Visibility impacts in Class I areas within 100 km;
3. Impacts on soils and vegetation that would result from the modification;
4. Impacts on endangered species; and
5. Socioeconomic analysis

The air quality modeling projections performed in Section 5.0 and by IEPA have demonstrated that the proposed modification will not cause or contribute to an exceedance of the applicable National Ambient Air Quality Standard (NAAQS), or cause an exceedance of a PSD Class II increment. The same can be said for any other anticipated effects that the proposed modification might have upon the surrounding areas of Madison county. Although the source impact analysis is a quantitative, mathematical determination evaluated in relative numerical terms, other impact analyses are generally more qualitative and descriptive in nature. The following sections summarize those additional considerations and demonstrate in each case that the proposed modification will produce no adverse effects.

6.1 AIR QUALITY IMPACTS IN CLASS I AREAS

The Clean Air Act Amendments require evaluation of new emission sources to determine potential impact on air quality in Class I areas. Mandatory Class I areas include international parks, national wilderness areas, national memorial parks and other areas redesignated to Class I areas by the state.

The nearest Federal Class I area to the Granite City Steel mill is the Mingo National Wilderness Area which is approximately 210 km southwest of the mill. The next closest Class I area (Hercules-Glades) is about 330 km southwest of the mill. The distance from the Class I area to

the mill is greater than 100 km; therefore no air quality impact analyses were performed to evaluate impacts within the wilderness area.

6.2 VISIBILITY IMPACT ANALYSIS IN CLASS I AREAS

The Clean Air Act Amendments require evaluation of new emission sources to determine potential impact on visibility in Class I areas. Mandatory Class I areas include international parks, national wilderness areas, national memorial parks and other areas redesignated to Class I areas by the state. The nearest Class I area is the Mingo National Wilderness Area in Popular Bluff, Missouri, located approximately 210 km south-west of Granite City mill.

The current regulation governing PSD review addresses the prevention of visibility impairment in federal Class I areas. No visibility impact analysis for the Class I area was performed, as the nearest Class I area is more than 100 km from the Granite City mill and no impact is expected.

6.3 IMPACTS ON SOILS AND VEGETATION

Impacts on soils and vegetation applies only to those areas in which there is vegetation of significant commercial or recreational value. There are no vegetation or soil types in Granite City area which would be harmed by concentrations of criteria pollutants below the national ambient air quality standards. Therefore, no soils or vegetation analyses are required for the proposed modification.

6.4 IMPACTS ON ENDANGERED SPECIES

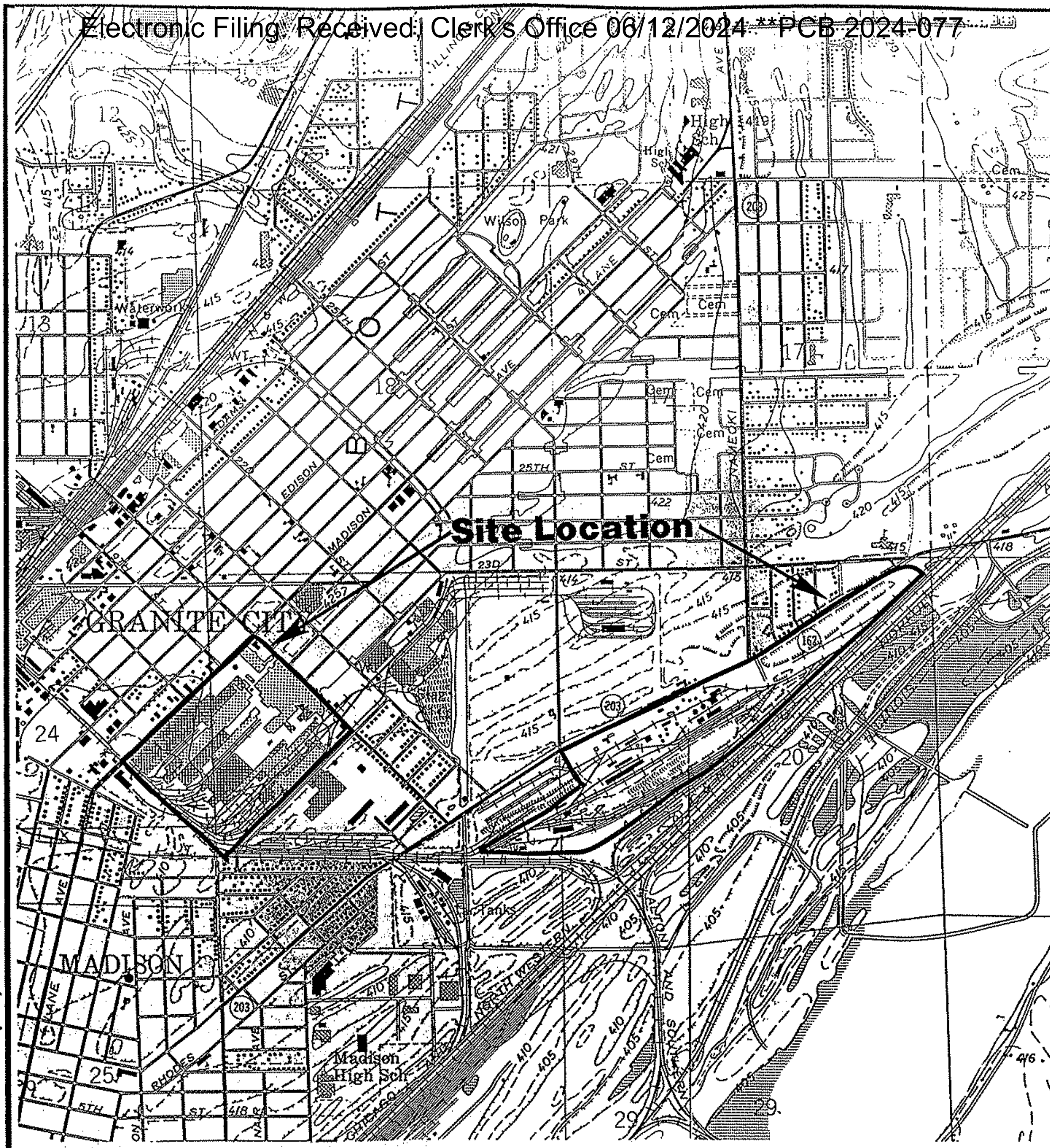
No impacts will occur to any listed endangered or threatened species, since none are known or likely to occur in the project area.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

6.5 SOCIOECONOMIC ANALYSIS

The proposed modification at the Granite City mill will have a positive economic impact for the company and therefore, for the community surrounding the mill. The infrastructure surrounding the mill is already established due to the existing industrial nature of the area. Therefore, it is not anticipated that there will be secondary air quality impacts due to the increase in production.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077



NOTE: Drawing taken from U.S.G.S.–Granite City, IL 7.5 minute Quadrangle dated 1982.

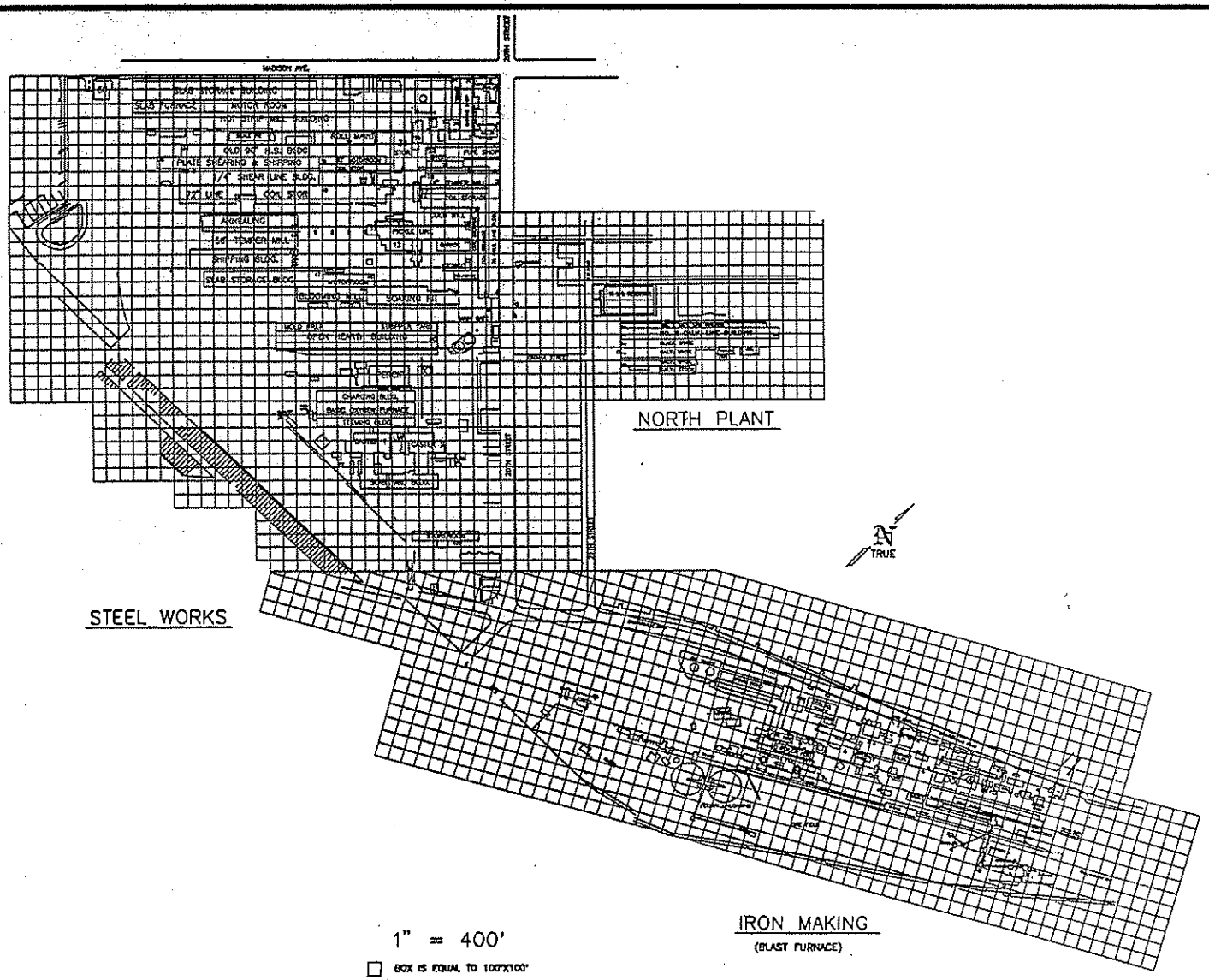
N

Ø 100

SCALE FEET

GRANITE CITY STEEL GRANITE CITY, ILLINOIS		PROJECT NO. 4EØ8109
Woodward-Clyde Consultants Engineering & sciences applied to the earth & its environment		
DRN. BY: kdw 7/20/95 DSGN. BY: CHKD. BY:	Site Location Map	FIG. NO. 1–1

File: F:\...08109\FIG1-1.DWG Last edited: 07/20/95 @ 10:10 a.m. @ ...–ST.LOUIS



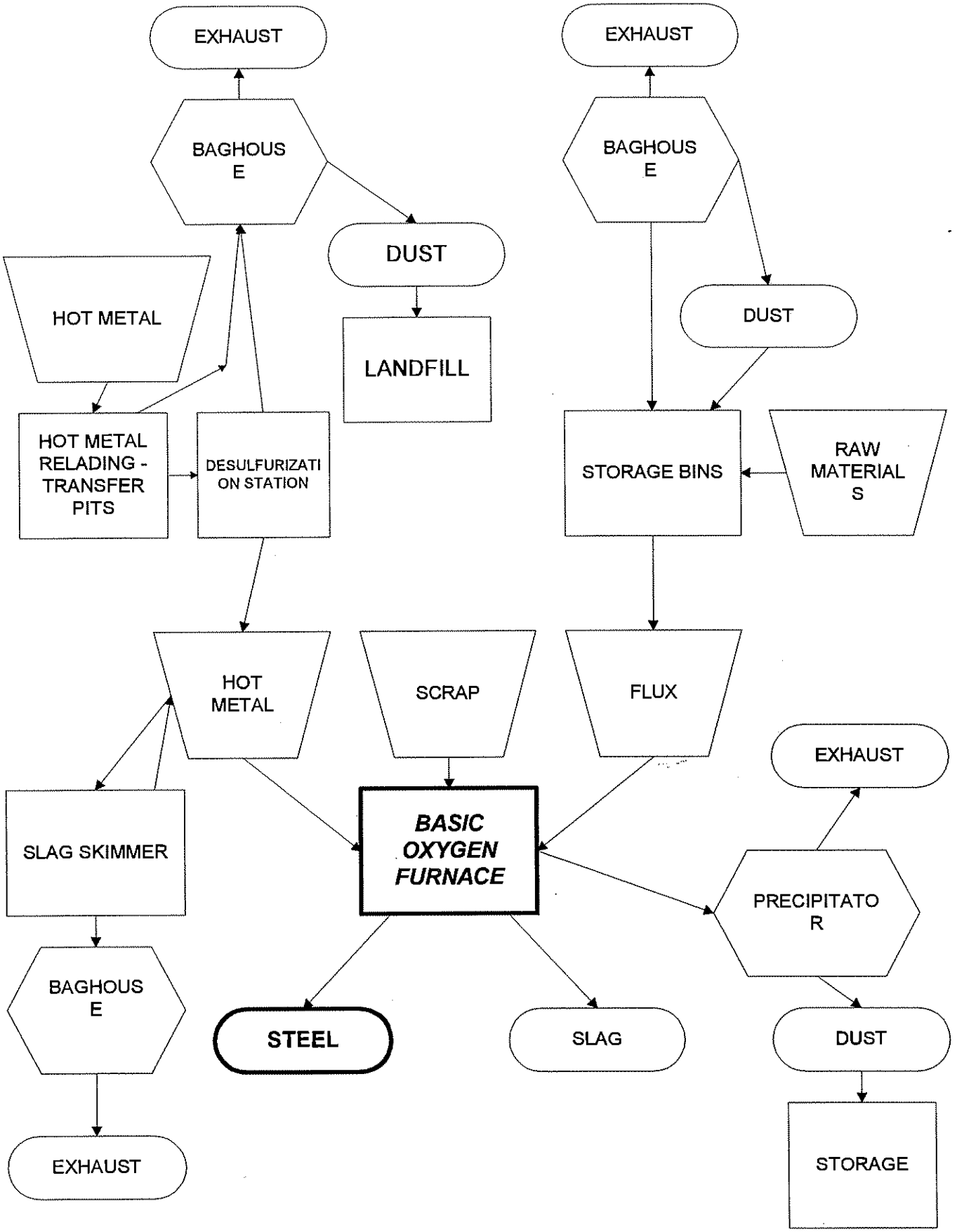
SOURCE: Map from Granite City Steel.

GRANITE CITY STEEL GRANITE CITY, ILLINOIS	PROJECT NO. 4E0810 9
Woodward-Clyde Consultants Engineering & sciences applied to the earth & its environment	
DRN. BY: kdw 12/29/94 DSGN. BY: CHKD. BY:	Site Map — FIG. NO. 1-2

File: F:\4E08109\FIG1-2.DWG Last edited: 12/29/94 @ 1:09 p.m. @ WCC-STLOUIS

SR 2350

FIGURE 2-1
PROCESS FLOW - BASIC OXYGEN FURNACE SHOP



PROCESS FLOW - LADLE METALLURGY STATION & ARGON STIRRING STATIONS

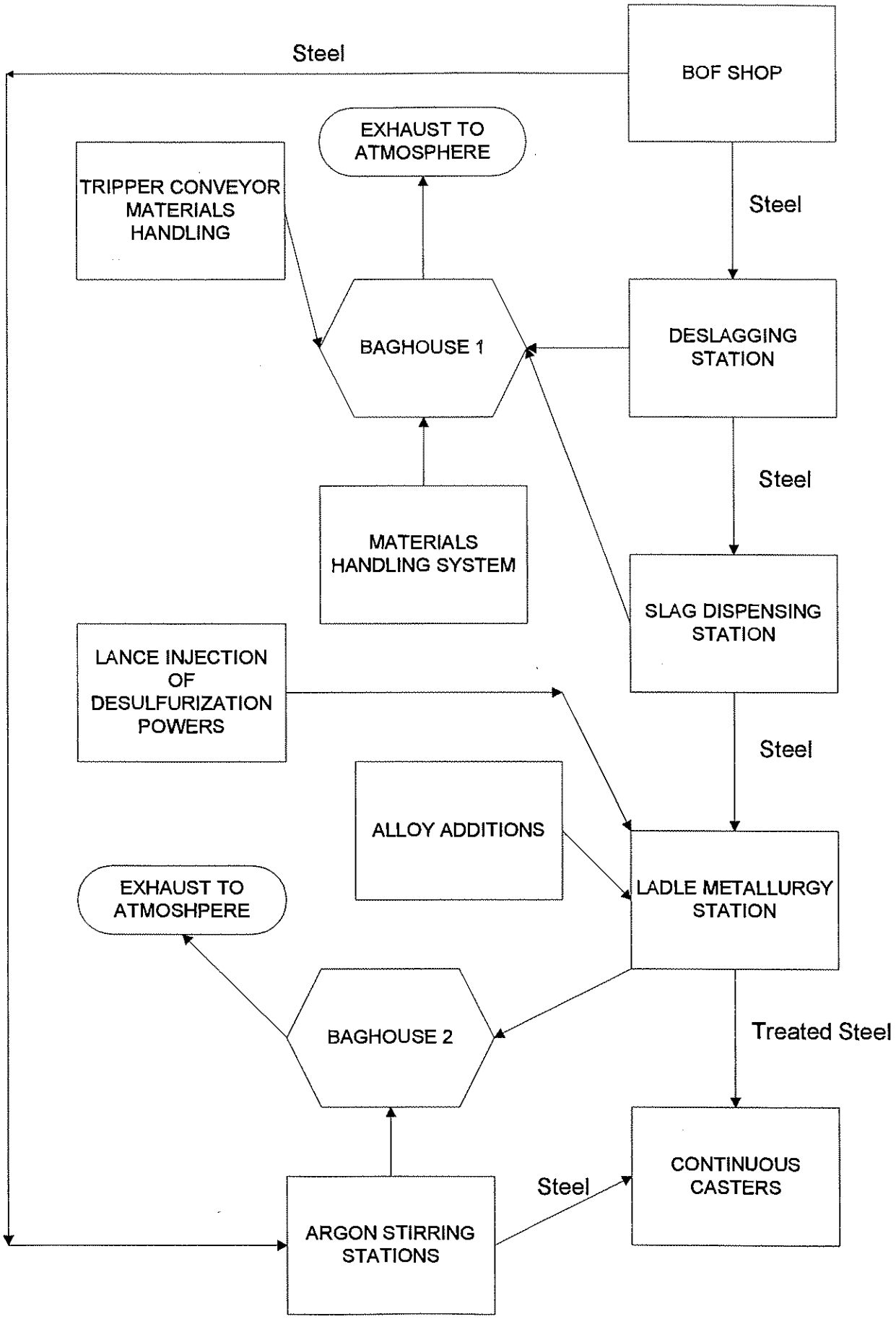


FIGURE 2-3 - PROCESS FLOW CONTINUOUS CASTER

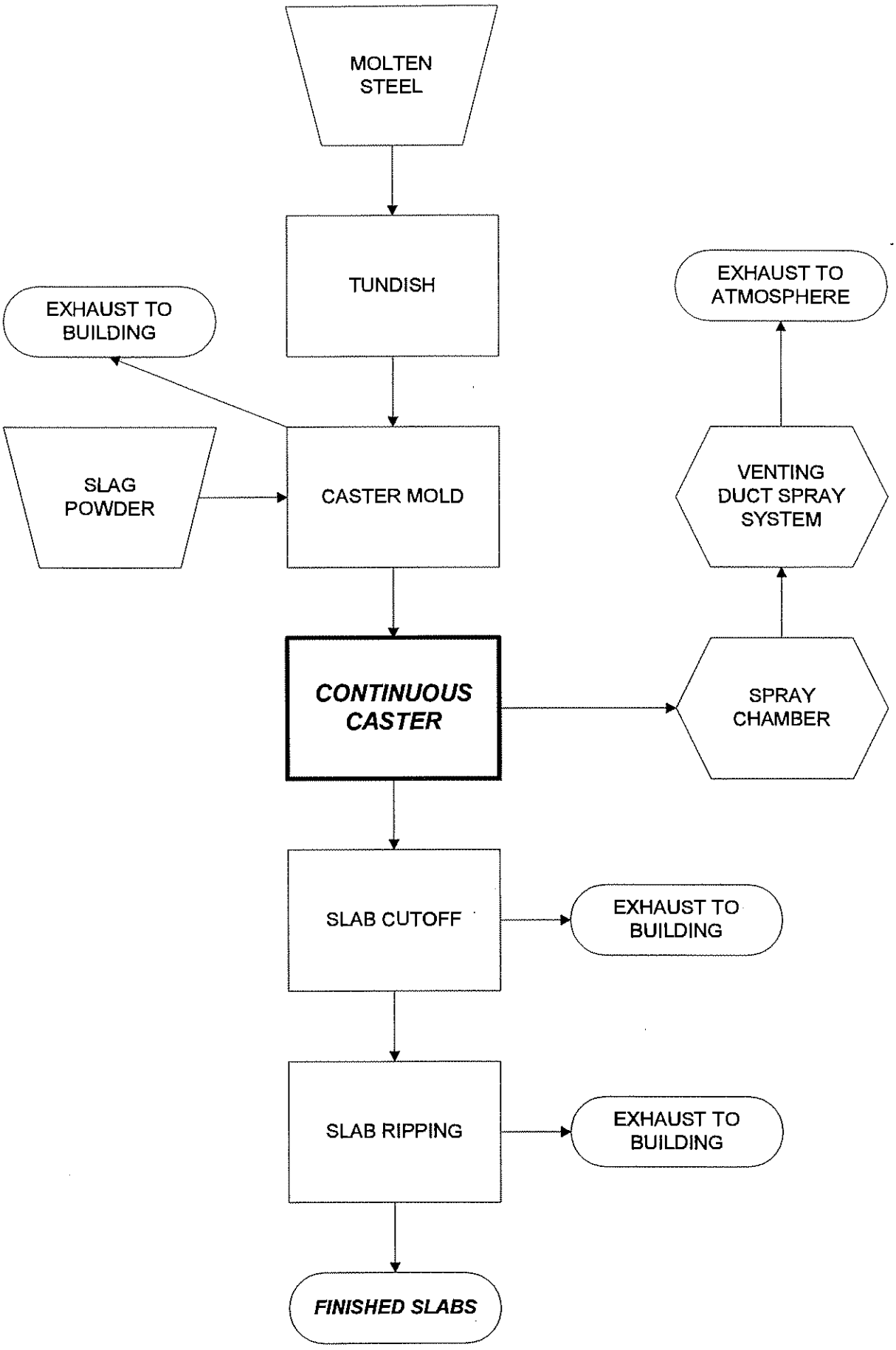
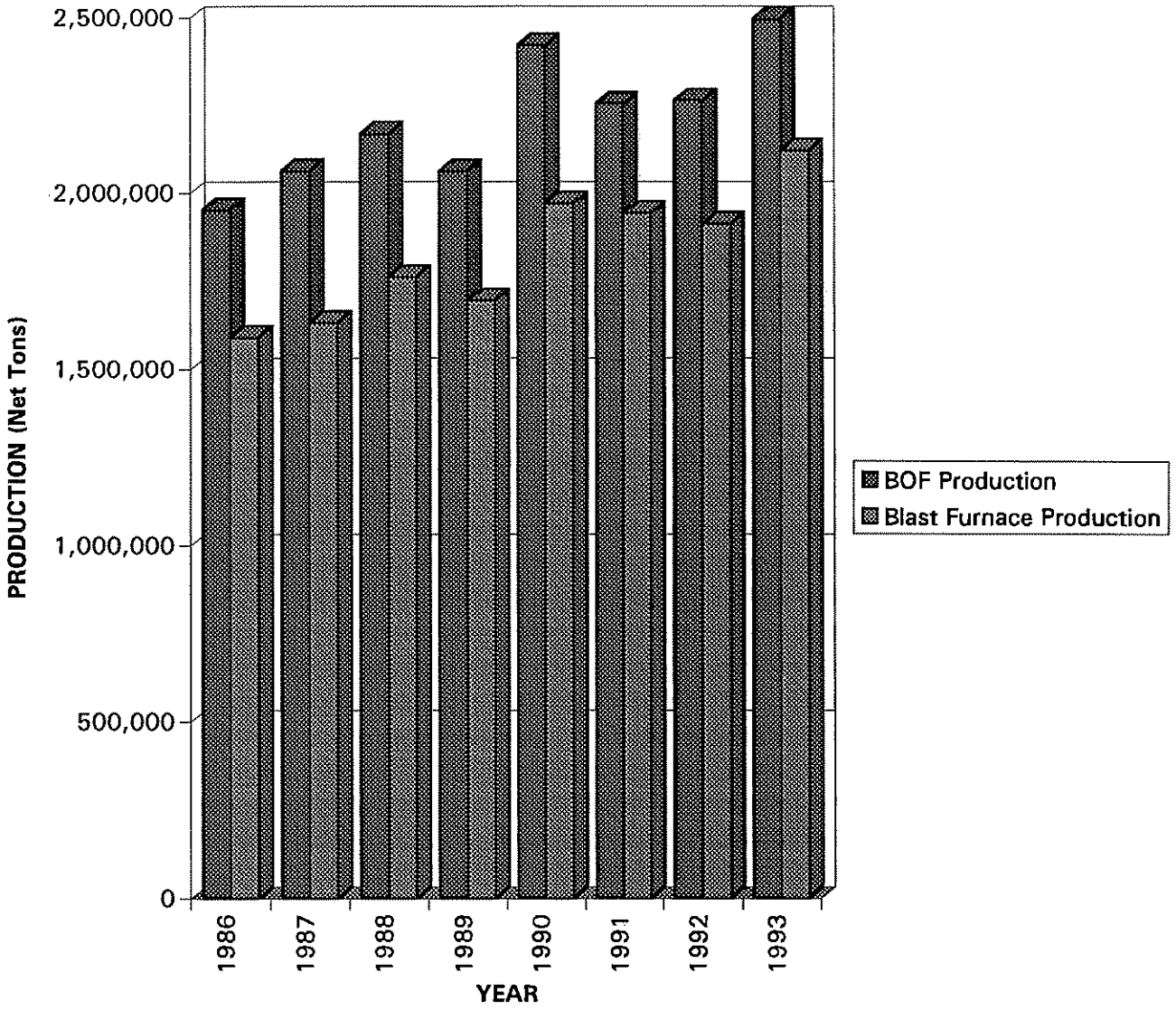
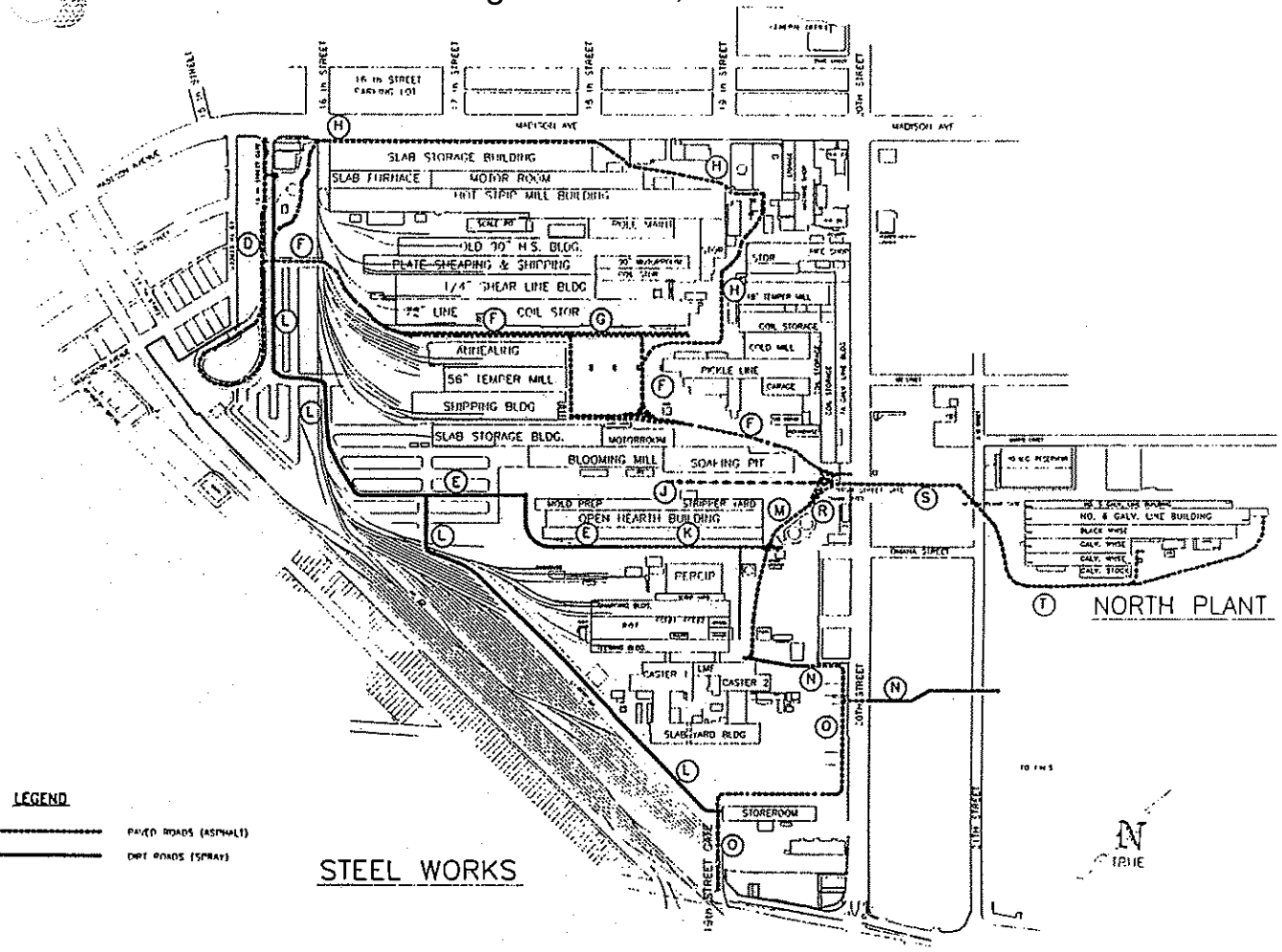


FIGURE 3-1
GRANITE CITY DIVISION of NATIONAL STEEL CORPORATION
PRODUCTION TRENDS

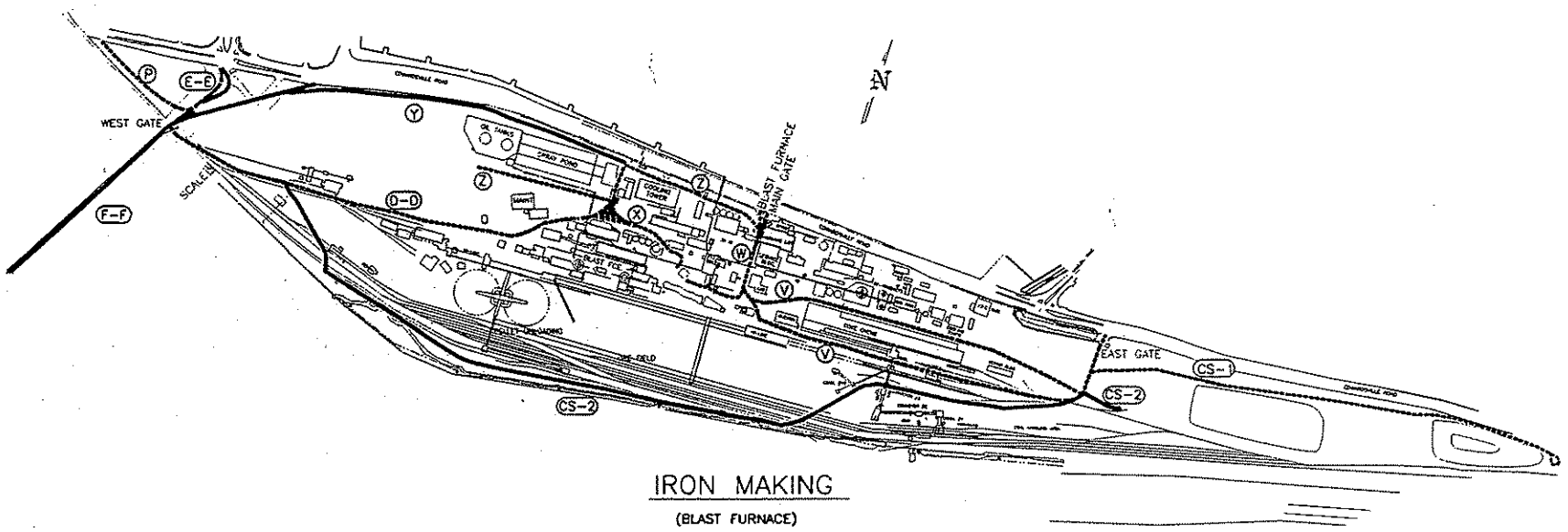


PRODUCT Chart 1

Woodward-Clyde 10/30/95



GRANITE CITY STEEL GRANITE CITY, ILLINOIS	PROJECT NO. 4E08109
Woodward-Clyde Consultants Engineering & sciences applied to the earth & its environment	
DRN. BY: kdw 12/29/94 DSGN. BY: CHKD. BY:	Road Network Steel Works
	FIG. NO. 3-2



IRON MAKING

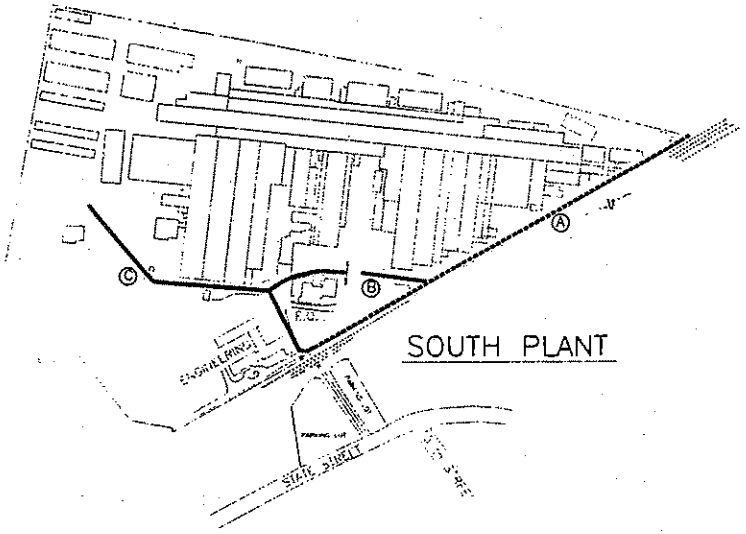
(BLAST FURNACE)

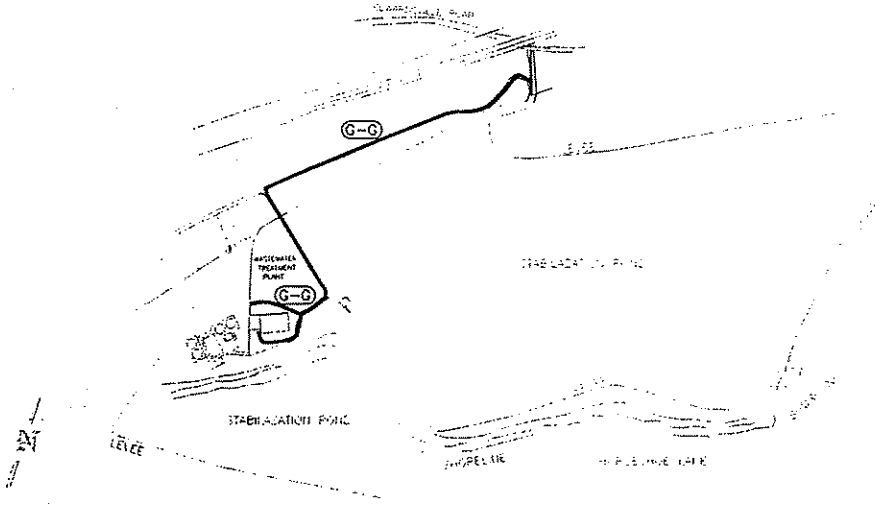
LEGEND

PAVED ROADS (ASPHALT)

DIRT ROADS (GRAVEL)

GRANITE CITY STEEL GRANITE CITY, ILLINOIS		PROJECT NO. 4E08109
Woodward-Clyde Consultants Engineering & sciences applied to the earth & its environment		
DRN. BY: kdw 12/29/94 DSGN. BY: CHKD. BY:	Road Network Iron Making Area	FIG. NO. 3-3





LEGEND

PAVED ROAD (ASPHALT)

DIRT ROAD (GRAVEL)

GRANITE CITY STEEL GRANITE CITY, ILLINOIS		PROJECT NO. 4E08109
Woodward-Clyde Consultants Engineering & sciences applied to the earth & its environment		
DRN. BY: kdw 12/29/94 DSGN. BY: CHKD BY:	Road Network South Plant & WWTP	FIG. NO. 3-4

Projected Emissions Based On: Blast Furnace @ 8,571NTPD
BOF @ 9,808 NTPD

TABLE 3-1
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - CO

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	13.7	lb/MMcf	22,774	MMcf	156.00	included in line 17	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	13.7	lb/MMcf	22,203	MMcf	152.09	included in line 17	-	-	-
3	0008	01	Blast Furnace Gas Flare - BFG	13.7	lb/MMcf	26,132	MMcf	179.00	included in line 17	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	13.7	lb/MMcf	37,501	MMcf	256.88	included in line 17	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	40	lb/MMcf	361	MMcf	7.22	included in line 16	-	-	-
6	0044	01	Boiler #11 - BFG	13.7	lb/MMcf	5,323	MMcf	36.46	included in line 17	-	-	-
7	0044	91	Boiler #11 - NG	40	lb/MMcf	226	MMcf	4.52	included in line 16	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	5.0	lb/Mgal	15.00	Mgal	0.04	included in line 18	-	-	-
9	0048	01	Boiler #12 - BFG	13.7	lb/MMcf	7,106	MMcf	48.68	included in line 17	-	-	-
10	0048	91	Boiler #12 - NG	40	lb/MMcf	218	MMcf	4.36	included in line 16	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	5.0	lb/Mgal	1.00	Mgal	0.00	included in line 18	-	-	-
12	0033	01	BOF 2 Vessels	8.993	lb/ton proc.	2,413,406	ton proc.	10,851.88	3,580,000	ton proc.	16,097.47	5,245.59
13	0038	01	BOF Preheaters/Dryers - NG	40	lb/MMcf	283	MMcf	5.66	included in line 16	-	-	-
14	0071 & 0119	01	Continuous Casters #1 & #2 - NG	40	lb/MMcf	57	MMcf	1.14	included in line 16	-	-	-
15			Natural Gas	40	lb/MMcf	1,145	MMcf	inc. above	1,145	MMcf	22.90	-
16			Blast Furnace Gas	13.7	lb/MMcf	121,039	MMcf	inc. above	185,030	MMcf	1,267.46	-
17			Fuel Oil	5.0	lb/Mgal	16	Mgal	inc. above	365	Mgal	0.91	-
	TOTALS:							**11,703.94**			**17,388.74**	**5,684.80**
			Contemporaneous Changes									(11.51)
			Net Change									***5,673.29***

TABLE 3-1
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - CO

Projected Emissions Based On: Blast Furnace @ 8,671NTPD
BOF @ 9,808 NTPD

9849 NTBD/mth
11,000 NTBD/mth

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	13.7	lb/MMcf	22,774	MMcf	156.00	included in line 17	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	13.7	lb/MMcf	22,203	MMcf	152.09	included in line 17	-	-	-
3	0008	01	Blast Furnace Gas Flare - BFG	13.7	lb/MMcf	26,132	MMcf	179.00	included in line 17	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	13.7	lb/MMcf	37,501	MMcf	256.88	included in line 17	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	40	lb/MMcf	361	MMcf	7.22	included in line 16	-	-	-
6	0044	01	Boiler #11 - BFG	13.7	lb/MMcf	5,323	MMcf	36.46	included in line 17	-	-	-
7	0044	91	Boiler #11 - NG	40	lb/MMcf	226	MMcf	4.52	included in line 16	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	5.0	lb/Mgal	15.00	Mgal	0.04	included in line 18	-	-	-
9	0048	01	Boiler #12 - BFG	13.7	lb/MMcf	7,106	MMcf	48.68	included in line 17	-	-	-
10	0048	91	Boiler #12 - NG	40	lb/MMcf	218	MMcf	4.36	included in line 16	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	5.0	lb/Mgal	1.00	Mgal	0.00	included in line 18	-	-	-
12	0033	01	BOF 2 Vessels	8.993	lb/ton proc.	2,413,406	ton proc.	10,851.88	3,580,000	ton proc.	16,097.47	5,245.59
13	0038	01	BOF Preheaters/Dryers - NG	40	lb/MMcf	283	MMcf	5.66	included in line 16	-	-	-
14	0071 & 0119	01	Continuous Casters #1 & #2 - NG	40	lb/MMcf	57	MMcf	1.14	included in line 16	-	-	-
15			Natural Gas	40	lb/MMcf	1,145	MMcf	inc. above	1,145	MMcf	22.90	-
16			Blast Furnace Gas	13.7	lb/MMcf	121,039	MMcf	inc. above	185,030	MMcf	1,267.46	-
17			Fuel Oil	5.0	lb/Mgal	16	Mgal	inc. above	365	Mgal	0.91	-
	TOTALS:							**11,703.94**			**17,388.74**	**5,684.80**
			Contemporaneous Changes								(11.51)	(13.11)
			Net Change								~~5,671.69~~	
												5673.29

Projected Emissions Based On: Blast Furnace @2,971NTPD
BOF @ 9,808 NTPD

TABLE 3-2
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - NOx

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy	
1	0004	01	"A" Blast Furnace Stoves - BFG	5.28	lb/MMcf	22,774	MMcf	60.12	Included in Line 20	-	-	-	
2	0009	01	"B" Blast Furnace Stoves - BFG	5.28	lb/MMcf	22,203	MMcf	58.62	Included in Line 20	-	-	-	
3	0008	01	Blast Furnace Gas Flare - BFG	5.28	lb/MMcf	26,132	MMcf	68.99	Included in Line 20	-	-	-	
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	5.28	lb/MMcf	37,501	MMcf	99.00	Included in Line 20	-	-	-	
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	306	lb/MMcf	361	MMcf	55.23	Included in Line 19	-	-	-	
6	0044	01	Boiler #11 - BFG	5.28	lb/MMcf	5,323	MMcf	14.05	Included in Line 20	-	-	-	
7	0044	91	Boiler #11 - NG	306	lb/MMcf	226	MMcf	34.58	Included in Line 19	-	-	-	
8	0044	92	Boiler #11 - Fuel Oil	55	lb/Mgal	15.00	Mgal	0.41	Included in Line 21	-	-	-	
9	0048	01	Boiler #12 - BFG	5.28	lb/MMcf	7,106	MMcf	18.76	Included in Line 20	-	-	-	
10	0048	91	Boiler #12 - NG	306	lb/MMcf	218	MMcf	33.35	Included in Line 19	-	-	-	
11	0048	92	Boiler #12 - Fuel Oil	55	lb/Mgal	1.00	Mgal	0.03	Included in Line 21	-	-	-	
12	0033	01	BOF 2 Vessels	0.0389	lb/ton proc.	2,413,406	tons proc.	46.94	3,580,000	ton proc.	69.63	X -	+22.69
13	0038	01	BOF Preheaters/Dryers - NG	306	lb/MMcf	283	MMcf	43.30	Included in Line 19	-	-	-	
14	0007 & 0012	01	"A" & "B" Blast Furnace - Casthouse	0.01440	lb/ton proc.	2,059,557	tons proc.	14.83	3,165,000	tons proc.	22.79	X -	.796
15	0005 & 0010	01	"A" & "B" Blast Furnace - Uncaptured Roof Emiss.	0.00072	lb/ton proc.	2,059,557	tons proc.	0.74	3,165,000	tons proc.	1.14	-	0.4
16	0070 &0120	01	Caster Mold - Casters #1 & #2	0.05	lb/ton prod.	2,413,406	tons prod.	60.34	3,580,000	ton prod.	89.50	X -	29.16
17	0071 & 0119	01	Continuous Casters #1 & #2 - NG	306	lb/MMcf	57	MMcf	8.72	Included in Line 19	-	-	-	60.21
18			Natural Gas	306	lb/MMcf	1,145	MMcf	inc. above	1,145	MMcf	175.19	-	
19			Blast Furnace Gas	5.28	lb/MMcf	121,039	MMcf	inc. above	185,030	MMcf	488.48	+ 168.94	52.8%
20			Fuel Oil	55	lb/Mgal	16	Mgal	inc. above	365	Mgal	10.04	+ 9.59	
	TOTALS:							618.01			856.76	238.75	229.15
			Contemperaneous Changes									(200.54)	
			Net Change									***38.21***	

+15%

TABLE 3-2
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - NOx

Projected Emissions Based On: Blast Furnace @8,671NTPD
BOF @ 9,808 NTPD

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	5.28	lb/MMcf	22,774	MMcf	60.12	Included in Line 20	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	5.28	lb/MMcf	22,203	MMcf	58.62	Included in Line 20	-	-	-
3	0008	01	Blast Furnace Gas Flare - BFG	5.28	lb/MMcf	26,132	MMcf	68.99	Included in Line 20	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	5.28	lb/MMcf	37,501	MMcf	99.00	Included in Line 20	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	306	lb/MMcf	361	MMcf	55.23	Included in Line 19	-	-	-
6	0044	01	Boiler #11 - BFG	5.28	lb/MMcf	5,323	MMcf	14.05	Included in Line 20	-	-	-
7	0044	91	Boiler #11 - NG	306	lb/MMcf	226	MMcf	34.58	Included in Line 19	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	55	lb/Mgal	15.00	Mgal	0.41	Included in Line 21	-	-	-
9	0048	01	Boiler #12 - BFG	5.28	lb/MMcf	7,106	MMcf	18.76	Included in Line 20	-	-	-
10	0048	91	Boiler #12 - NG	306	lb/MMcf	218	MMcf	33.35	Included in Line 19	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	55	lb/Mgal	1.00	Mgal	0.03	Included in Line 21	-	-	-
12	0033	01	BOF 2 Vessels	0.0389	lb/ton proc.	2,413,406	tons proc.	46.94	3,580,000	ton proc.	69.63	-
13	0038	01	BOF Preheaters/Dryers - NG	306	lb/MMcf	283	MMcf	43.30	Included in Line 19	-	-	-
14	0007 & 0012	01	"A" & "B" Blast Furnace - Casthouse	0.01440	lb/ton proc.	2,059,557	tons proc.	14.83	3,165,000	tons proc.	22.79	-
15	0005 & 0010	01	"A" & "B" Blast Furnace - Uncaptured Roof Emiss.	0.00072	lb/ton proc.	2,059,557	tons proc.	0.74	3,165,000	tons proc.	1.14	-
16	0070 &0120	01	Caster Mold - Casters #1 & #2	0.05	lb/ton prod.	2,413,406	tons prod.	60.34	3,580,000	ton prod.	89.50	-
17	0071 & 0119	01	Continuous Casters #1 & #2 - NG	306	lb/MMcf	57	MMcf	8.72	Included in Line 19	-	-	-
18			Natural Gas	306	lb/MMcf	1,145	MMcf	inc. above	1,145	MMcf	175.19	-
19			Blast Furnace Gas	5.28	lb/MMcf	121,039	MMcf	inc. above	185,030	MMcf	488.48	-
20			Fuel Oil	55	lb/Mgal	16	Mgal	inc. above	365	Mgal	10.04	-
	TOTALS:							**618.01**			**856.76**	**238.75**
			Contemperaneous Changes								(260.54)	~~(208.14)~~
			Net Change								(38.21)	~~30.61~~

Projected Emissions Based On: Blast Furnace @ 8,071NTPD
BOF @ 9,808 NTPD

TABLE 3-3
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - SO2

LINE #	POINT	MODE	SOURCE OESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy	COMMENTS
1	0004	01	"A" Blast Furnace Stoves - BFG	6.65	lb/MMcf	22,774	MMcf	75.72	included in line 19	-	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	6.65	lb/MMcf	22,203	MMcf	73.82	included in line 19	-	-	-	-
3	0008	01	Blast Furnace Gas Flare - BFG	6.65	lb/MMcf	26,132	MMcf	86.89	included in line 19	-	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	6.65	lb/MMcf	37,501	MMcf	124.69	included in line 19	-	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	0.6	lb/MMcf	361	MMcf	0.11	included in line 18	-	-	-	-
6	0044	01	Boiler #11 - BFG	6.65	lb/MMcf	5,323	MMcf	17.70	included in line 19	-	-	-	-
7	0044	91	Boiler #11 - NG	0.6	lb/MMcf	226	MMcf	0.07	included in line 18	-	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	141.3	lb/Mgal	15.00	Mgal	1.06	included in line 20	-	-	-	-
9	0048	01	Boiler #12 - BFG	6.65	lb/MMcf	7,106	MMcf	23.63	included in line 19	-	-	-	-
10	0048	91	Boiler #12 - NG	0.6	lb/MMcf	218	MMcf	0.07	included in line 18	-	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	141.3	lb/Mgal	1.00	Mgal	0.07	included in line 20	-	-	-	-
12	0038	01	BOF Preheaters/Dryers - NG	0.6	lb/MMcf	283	MMcf	0.08	included in line 18	-	-	-	-
13	0007 & 0012	01	"A & B" Blast Furnace - Casthouse	0.2006	lb/ton proc.	2,059,557	tons proc.	206.57	3,165,000	tons proc.	422.00	215.43	Est. Annual Max
14	0005 & 0010	01	"A & B" Blast Furnace - Uncap. roof	0.0104	lb/ton proc.	2,059,557	tons proc.	10.71	3,165,000	tons proc.	21.94	11.23	Est. Annual Max
15	----	--	Iron Spout Baghouse	0.0073	lb/ton proc.	2,059,557	tons proc.	7.52	3,165,000	tons proc.	13.89	6.37	Est. Annual Max
16	113	1	Blast Furnace Slag Pits	0.0100	lb/ton	2,059,557	tons proc.	10.30	3,165,000	tons proc.	15.83	5.53	
17	0071 & 0119	01	Continuous Casters #1 & #2 - NG	0.6	lb/MMcf	57	MMcf	0.02	included in line 18	-	-	-	
18			Natural Gas	0.6	lb/MMcf	1,145	MMcf	-	1,145	MMcf	0.34	0.00	
19			Blast Furnace Gas	6.65	lb/MMcf	121,039	MMcf	-	185,030	MMcf	615.22	212.77	
20			Fuel Oil	141.3	lb/Mgal	16	Mgal	-	365	Mgal	25.79	24.66	
	TOTALS:							**639.03**			**1,115.01**	**475.98**	
			Contemporaneous Changes									(0.13)	
			Net Change									***475.85***	

TABLE 3-3
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - SO2

Projected Emissions Based On: Blast Furnace @ 8,671NTPD
BOF @ 9,808 NTPD

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy	COMMENTS
1	0004	01	"A" Blast Furnace Stoves - BFG	6.65	lb/MMcf	22,774	MMcf	75.72	included in line 19	-	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	6.65	lb/MMcf	22,203	MMcf	73.82	included in line 19	-	-	-	-
3	0008	01	Blast Furnace Gas Flare - BFG	6.65	lb/MMcf	26,132	MMcf	86.89	included in line 19	-	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	6.65	lb/MMcf	37,501	MMcf	124.69	included in line 19	-	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	0.6	lb/MMcf	361	MMcf	0.11	included in line 18	-	-	-	-
6	0044	01	Boiler #11 - BFG	6.65	lb/MMcf	5,323	MMcf	17.70	included in line 19	-	-	-	-
7	0044	91	Boiler #11 - NG	0.6	lb/MMcf	226	MMcf	0.07	included in line 18	-	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	141.3	lb/Mgal	15.00	Mgal	1.06	included in line 20	-	-	-	-
9	0048	01	Boiler #12 - BFG	6.65	lb/MMcf	7,106	MMcf	23.63	included in line 19	-	-	-	-
10	0048	91	Boiler #12 - NG	0.6	lb/MMcf	218	MMcf	0.07	included in line 18	-	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	141.3	lb/Mgal	1.00	Mgal	0.07	included in line 20	-	-	-	-
12	0038	01	BOF Preheaters/Dryers - NG	0.6	lb/MMcf	283	MMcf	0.08	included in line 18	-	-	-	-
13	0007 & 0012	01	"A & B" Blast Furnace - Casthouse	0.2006	lb/ton proc.	2,059,557	tons proc.	206.57	3,165,000	tons proc.	422.00	215.43	Est. Annual Max
14	0005 & 0010	01	"A & B" Blast Furnace - Uncap. roof	0.0104	lb/ton proc.	2,059,557	tons proc.	10.71	3,165,000	tons proc.	21.94	11.23	Est. Annual Max
15	---	--	Iron Spout Baghouse	0.0073	lb/ton proc.	2,059,557	tons proc.	7.52	3,165,000	tons proc.	13.89	6.37	Est. Annual Max
16	113	1	Blast Furnace Slag Pits	0.0100	lb/ton	2,059,557	tons proc.	10.30	3,165,000	tons proc.	15.83	5.53	
17	0071 & 0119	01	Continuous Casters #1 & #2 - NG	0.6	lb/MMcf	57	MMcf	0.02	included in line 18	-	-	-	
18			Natural Gas	0.6	lb/MMcf	1,145	MMcf	-	1,145	MMcf	0.34	0.00	
19			Blast Furnace Gas	6.65	lb/MMcf	121,039	MMcf	-	185,030	MMcf	615.22	212.77	
20			Fuel Oil	141.3	lb/Mgal	16	Mgal	-	365	Mgal	25.79	24.66	
	TOTALS:							**639.03**			**1,115.01**	**475.98**	
			Contemporaneous Changes								(0.13)	~~(0.18)~~	
			Net Change								475.85	~~475.80~~	

Projected Emissions Based On: Blast Furnace @ 5,571NTPD
BOF @ 9,808 NTPD

TABLE 3-4
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - PM-10

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTEO THRUPUT	UNITS	PROJECTED EMISSION FACTOR	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
3	0008	01	Blast Furnace Gas Flare - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
6	0044	01	Boiler #11 - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
7	0044	91	Boiler #11 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
8	0044	92	Boiler #11 - Fuel Oil	9.72	lb/Mgal	Included in line 40	Mgal	-	Included in line 40	-			-	-
9	0048	01	Boiler #12 - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
10	0048	91	Boiler #12 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
11	0048	92	Boiler #12 - Fuel Oil	9.72	lb/Mgal	Included in line 48	Mgal	-	Included in line 48	-			-	-
12	0033	01	BOF 2 Vessels	0.16	lb/ton proc.	2,413,406	tons proc.	193.07	8,760	hours	60	lbs/hr	262.80	69.73
13	0038	01	BOF Preheaters/Dryers - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
14	0005 & 0010	01	"A" & "B" Blast Furnace - Uncap. Fugitives	0.0155	lb/ton proc.	2,059,557	tons proc.	15.96	3,165,000	tons proc.			24.53	8.57
15	0006 & 0011	01	"A" & "B" Blast Furnace - Charging	0.0024	lb/ton pellets charged	2,803,241	tons proc.	3.36	4,308,581	tons proc.			5.17	1.81
16	0007 & 0012	01	"A" & "B" Blast Furnace - Baghouse Stack	0.0703	lb/ton proc.	2,059,557	tons proc.	72.35	3,165,000	tons proc.			111.19	38.83
17	0034	01	BOF Roof Monitor	0.287	lb/ton proc.	2,413,406	tons proc.	346.20	3,580,000	tons proc.	0.066144		118.40	(227.81)
18	0037	01	Flux Conv. & Xfer Pts., Bin Floor - BOF	0.0016	lb/ton proc.	2,413,406	tons proc.	1.93	3,580,000	tons proc.			2.86	0.93
19	0040	01	Hot Metal Chging Ladle Slag Skimmer	0.0050	lb/ton proc.	2,059,557	tons proc.	5.17	3,165,000	tons proc.			7.94	2.77

Projected Emissions Based On: Blast Furnace @ 8,671NTPD
BOF @ 9,808 NTPD

TABLE 3-4
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - PM-10

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED EMISSION FACTOR	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
3	0008	01	Blast Furnace Gas Flare - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
6	0044	01	Boiler #11 - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
7	0044	91	Boiler #11 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
8	0044	92	Boiler #11 - Fuel Oil	9.72	lb/Mgal	Included in line 40	Mgal	-	Included in line 40	-			-	-
9	0048	01	Boiler #12 - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
10	0048	91	Boiler #12 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
11	0048	92	Boiler #12 - Fuel Oil	9.72	lb/Mgal	Included in line 48	Mgal	-	Included in line 48	-			-	-
12	0033	01	BOF 2 Vessels	0.16	lb/ton proc.	2,413,406	tons proc.	193.07	8,760	hours	60	lbs/hr	262.80	69.73
13	0038	01	BOF Preheaters/Dryers - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
14	0005 & 0010	01	"A" & "B" Blast Furnace - Uncap. Fugitives	0.0155	lb/ton proc.	2,059,557	tons proc.	15.96	3,165,000	tons proc.			24.53	8.57
15	0006 & 0011	01	"A" & "B" Blast Furnace - Charging	0.0024	lb/ton pellets charged	2,803,241	tons proc.	3.36	4,308,581	tons proc.			5.17	1.81
16	0007 & 0012	01	"A" & "B" Blast Furnace - Baghouse Stack	0.0703	lb/ton proc.	2,059,557	tons proc.	72.35	3,165,000	tons proc.			111.19	38.83
17	0034	01	BOF Roof Monitor	0.287	lb/ton proc.	2,413,406	tons proc.	346.20	3,580,000	tons proc.	0.066144		118.40	(227.81)
18	0037	01	Flux Conv. & Xfer Pts., Bin Floor - BOF	0.0016	lb/ton proc.	2,413,406	tons proc.	1.93	3,580,000	tons proc.			2.86	0.93
19	0040	01	Hot Metal Chging Ladle Slag Skimmer	0.0050	lb/ton proc.	2,059,557	tons proc.	5.17	3,165,000	tons proc.			7.94	2.77

Projected Emissions Baaed On: Blast Furnace @ 8,971NTPD
BOF @ 9,808 NTPD

TABLE 3-4
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - PM-10

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED EMISSION FACTOR	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
20	0070 & 0120	01	Caster Mold - Casters #1 & #2	0.006	lb/ton prod.	2,413,406	tons prod.	7.24	3,580,000	ton prod.			10.74	3.50
21	0071 & 0119	01	Cont. Casters #1 & #2 - Spray Chamber	0.00852	lb/ton proc.	2,413,406	tons prod.	10.28	3,580,000	ton prod.			15.25	4.97
22	0071 & 0119	01	Continuous Casters #1 & #2 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
23	0072 & 0118	01	Slab Cutoff - Casters #1 & #2	0.0071	lb/ton proc.	2,413,406	tons prod.	8.57	3,580,000	ton prod.			12.71	4.14
	73	1	Slab Ripping - Casters #1 & #2	0.00722	lb/ton proc.	2,413,406	tons prod.	8.71	3,580,000	ton prod.			12.92	4.21
25	0103, 0104 & 0121	01	LMF Argon Stirring #1 & #2, Material Handling Tripper	0.00715	lb/ton proc.	2,413,406	tons prod.	8.63	3,580,000	ton prod.			12.80	4.17
26	0105 & 0106	01	Deslagging Station & Material HS	0.00355	lb/ton proc.	2,413,406	tons prod.	4.28	3,580,000	ton prod.			6.35	2.07
27			BOF Hopper Baghouse	0.00032	lb/ton proc.	2,413,406	tons proc.	0.39	3,580,000	tons proc.			0.57	0.18
28	0107 & 0035	01	Desulf. Station (inside BOF shop) & Xfer Pit	0.03721	lb/ton proc.	2,059,557	tons prod.	38.32	3,165,000	ton prod.			58.88	20.57
29	0113	01	Blast Furnace Slag Pits	0.00417	lb/ton proc.	2,059,557	tons slag	4.29	3,165,000	ton prod.			6.60	2.30
30	9003	01	Iron Pellet Screen	0.00279	lb/ton pellets charged	2,803,241	tons proc.	3.91	4,308,581	tons proc.			6.01	2.10
31		01	Iron Spout Baghouse	0.02548	lb/ton proc.	2,059,557	tons proc.	26.24	3,165,000	tons proc.			40.32	14.08
32			Road Fugitive Emissions	Included in Contemporaeous Changes. See Appendix F						-				0.00
33			Material Handling	Included in Contemporaeous Changes. See Appendix F						-				0.00
34			Unpaved Parking Lots					-		-			-	-
35			Paved Parking Lots					-		-			-	-
36			Natural Gas	5.1	lb/MMcf	1,145	MMcf	2.92	1,145	MMcf			2.92	0.00
37			Blast Furnace Gas	2.9	lb/MMcf	121,039	MMcf	175.51	185,030	MMcf			268.29	92.79
38			Fuel Oil	9.72	lb/Mgal	16	Mgal	0.08	365	Mgal			1.77	1.70
	TOTALS:							**937.42**					**989.04**	**51.62**
			Contemporaneous Changes											(37.31)
			Net Change											***14.31***

Note: Actual Emissions = Base Year Throughput * Emission Factor / 2000

Projected Actual Emissions = Projected Throughput * Emission Factor / 2000
except -
BOF Vessels Projected Actual Emissions = 60 lb/hr * 8760 hrs
BOF Roof Monitor Projected Actual Emissions = Projected Emission Factor * Projected Throughput

Projected Emissions Based On: Blast Furnace @ 8,671NTPD
BOF @ 9,808 NTPD

TABLE 3-4
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - PM-10

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED EMISSION FACTOR	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
20	0070 & 0120	01	Caster Mold - Casters #1 & #2	0.006	lb/ton prod.	2,413,406	tons prod.	7.24	3,580,000	ton prod.			10.74	3.50
21	0071 & 0119	01	Cont. Casters #1 & #2 - Spray Chamber	0.00852	lb/ton proc.	2,413,406	tons prod.	10.28	3,580,000	ton prod.			15.25	4.97
22	0071 & 0119	01	Continuous Casters #1 & #2 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
23	0072 & 0118	01	Slab Cutoff - Casters #1 & #2	0.0071	lb/ton proc.	2,413,406	tons prod.	8.57	3,580,000	ton prod.			12.71	4.14
	73	1	Slab Ripping - Casters #1 & #2	0.00722	lb/ton proc.	2,413,406	tons prod.	8.71	3,580,000	ton prod.			12.92	4.21
25	0103, 0104 & 0121	01	Argon Stirring #1 & #2, Material Handling Tripper	0.00715	lb/ton proc.	2,413,406	tons prod.	8.63	3,580,000	ton prod.			12.80	4.17
26	0105 & 0106	01	Deslagging Station & Material HS	0.00355	lb/ton proc.	2,413,406	tons prod.	4.28	3,580,000	ton prod.			6.35	2.07
27			BOF Hopper Baghouse	0.00032	lb/ton proc.	2,413,406	tons proc.	0.39	3,580,000	tons proc.			0.57	0.18
28	0107 & 0035	01	Desulf. Station (inside BOF shop) & Xfer Pit	0.03721	lb/ton proc.	2,059,557	tons prod.	38.32	3,165,000	ton prod.			58.88	20.57
29	0113	01	Blast Furnace Slag Pits	0.00417	lb/ton proc.	2,059,557	tons slag	4.29	3,165,000	ton prod.			6.60	2.30
30	9003	01	Iron Pellet Screen	0.00279	lb/ton pellets charged	2,803,241	tons proc.	3.91	4,308,581	tons proc.			6.01	2.10
31		01	Iron Spout Baghouse	0.02548	lb/ton proc.	2,059,557	tons proc.	26.24	3,165,000	tons proc.			40.32	14.08
32			Road Fugitive Emissions	Included in Contemporaeous Changes. See Appendix F						-				0.00
33			Material Handling	Included in Contemporaeous Changes. See Appendix F						-				0.00
34			Unpaved Parking Lots					-		-			-	-
35			Paved Parking Lots					-		-			-	-
36			Natural Gas	5.1	lb/MMcf	1,145	MMcf	2.92	1,145	MMcf			2.92	0.00
37			Blast Furnace Gas	2.9	lb/MMcf	121,039	MMcf	175.51	185,030	MMcf			268.29	92.79
38			Fuel Oil	9.72	lb/Mgal	16	Mgal	0.08	365	Mgal			1.77	1.70
	TOTALS:							937.42					989.04	51.62
			Contemporaneous Changes											37.16 (37.54)
			Net Change											14.46 ~~14.08~~

Note: Actual Emissions = Base Year Throughput * Emission Factor / 2000

Projected Actual Emissions = Projected Throughput * Emission Factor / 2000
except -
BOF Vessels Projected Actual Emissions = 60 lb/hr * 8760 hrs
BOF Roof Monitor Projected Actual Emissions = Projected Emission Factor * Projected Throughput

TABLE 3-5

GRANITE CITY DIVISION of NATIONAL STEEL

NETTING ANALYSIS SUMMARY - TSP

Projected Emissions Based On: Blast Furnace @ [illegible]71NTPD
BOF @ 9,808 NTPD

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED EMISSION FACTOR	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
3	0008	01	Blast Furnace Gas Flare - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
6	0044	01	Boiler #11 - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
7	0044	91	Boiler #11 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
8	0044	92	Boiler #11 - Fuel Oil	9.72	lb/Mgal	Included in line 40	Mgal	-	Included in line 40	-			-	-
9	0048	01	Boiler #12 - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
10	0048	91	Boiler #12 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
11	0048	92	Boiler #12 - Fuel Oil	9.72	lb/Mgal	Included in line 48	Mgal	-	Included in line 48	-			-	-
12	0033	01	BOF 2 Vessels	0.16	lb/ton proc.	2,413,406	tons proc.	193.07	8,760	hours	60	lbs/hr	262.80	69.73
13	0038	01	BOF Preheaters/Dryers - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
14	0005 & 0010	01	"A" & "B" Blast Furnace - Uncap. Fugitives	0.031	lb/ton proc.	2,059,557	tons proc.	31.92	3,165,000	tons proc.			49.06	17.13
15	0006 & 0011	01	"A" & "B" Blast Furnace - Charging	0.0024	lb/ton pellets charged	2,803,241	tons proc.	3.36	4,308,581	tons proc.			5.17	1.81
16	0007 & 0012	01	"A" & "B" Blast Furnace - Baghouse Stack	0.0703	lb/ton proc.	2,059,557	tons proc.	72.35	3,165,000	tons proc.			111.19	38.83
17	0034	01	BOF Roof Monitor	0.428	lb/ton proc.	2,413,406	tons proc.	516.72	3,580,000	tons proc.	0.0987		176.71	(340.01)
18	0037	01	Flux Conv. & Xfer Pts., Bin Floor - BOF	0.0016	lb/ton proc.	2,413,406	tons proc.	1.93	3,580,000	tons proc.			2.86	0.93
19	0040	01	Hot Metal Chging Ladle Slag Skimmer	0.0050	lb/ton proc.	2,059,557	tons proc.	5.17	3,165,000	tons proc.			7.94	2.77

Projected Emissions Based On: Blast Furnace @ [illegible]1NTPD
BOF @ 9,808 NTPD

TABLE 3-5
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - TSP

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED EMISSION FACTOR	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
20	0070 & 0120	01	Caster Mold - Casters #1 & #2	0.006	lb/ton prod.	2,413,406	tons prod.	7.24	3,580,000	ton prod.			10.74	3.50
21	0071 & 0119	01	Cont. Casters #1 & #2 - Spray Chamber	0.00852	lb/ton proc.	2,413,406	tons prod.	10.28	3,580,000	ton prod.			15.25	4.97
22	0071 & 0119	01	Continuous Casters #1 & #2 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
23	0072 & 0118	01	Slab Cutoff - Casters #1 & #2	0.0071	lb/ton proc.	2,413,406	tons prod.	8.57	3,580,000	ton prod.			12.71	4.14
	73	1	Slab Ripping - Casters #1 & #2	0.00722	lb/ton proc.	2,413,406	tons prod.	8.71	3,580,000	ton prod.			12.92	4.21
25	0103, 0104 & 0121	01	Argon Stirring #1 & #2, Material Handling Tripper	0.00715	lb/ton proc.	2,413,406	tons prod.	8.63	3,580,000	ton prod.			12.80	4.17
26	0105 & 0106	01	Deslagging Station & Material HS	0.00355	lb/ton proc.	2,413,406	tons prod.	4.28	3,580,000	ton prod.			6.35	2.07
27			BOF Hopper Baghouse	0.00032	lb/ton proc.	2,413,406	tons proc.	0.39	3,580,000	tons proc.			0.57	0.18
28	0107 & 0035	01	Desulf. Station (inside BOF shop) & Xfer Pit	0.03721	lb/ton proc.	2,059,557	tons prod.	38.32	3,165,000	ton prod.			58.88	20.57
29	0113	01	Blast Furnace Slag Pits	0.00417	lb/ton proc.	2,059,557	tons slag	4.29	3,165,000	ton prod.			6.60	2.30
30	9003	01	Iron Pellet Screen	0.00279	lb/ton pellets charged	2,803,241	tons proc.	3.91	4,308,581	tons proc.			6.01	2.10
31		01	Iron Spout Baghouse	0.02548	lb/ton proc.	2,059,557	tons proc.	26.24	3,165,000	tons proc.			40.32	14.08
32			Road Fugitive Emissions	Included in Contemporaeous Changes. See Appendix F						-				0.00
33			Material Handling	Included in Contemporaeous Changes. See Appendix F						-				0.00
34			Unpaved Parking Lots					-		-			-	-
35			Paved Parking Lots					-		-			-	-
36			Natural Gas	5.1	lb/MMcf	1,145	MMcf	2.92	1,145	MMcf			2.92	0.00
37			Blast Furnace Gas	2.9	lb/MMcf	121,039	MMcf	175.51	185,030	MMcf			268.29	92.79
38			Fuel Oil	9.72	lb/Mgal	16	Mgal	0.08	365	Mgal			1.77	1.70
	TOTALS:							1,123.90					1,071.89	(52.01)
			Contemporaneous Changes											(37.16)
			Net Change											***(89.17)***

Note: Actual Emissions = Base Year Throughput * Emission Factor / 2000

Projected Actual Emissions = Projected Throughput * Emission Factor / 2000
except -
BOF Vessels Projected Actual Emissions = 60 lb/hr * 8760 hrs
BOF Roof Monitor Projected Actual Emissions = Projected Emission Factor * Projected Throughput

Projected Emissions Based On: Blast Furnace @ 8,671NTPD
BOF @ 9,808 NTPD

TABLE 3-5
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - TSP

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED EMISSION FACTOR	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
3	0008	01	Blast Furnace Gas Flare - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
6	0044	01	Boiler #11 - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
7	0044	91	Boiler #11 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
8	0044	92	Boiler #11 - Fuel Oil	9.72	lb/Mgal	Included in line 40	Mgal	-	Included in line 40	-			-	-
9	0048	01	Boiler #12 - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
10	0048	91	Boiler #12 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
11	0048	92	Boiler #12 - Fuel Oil	9.72	lb/Mgal	Included in line 48	Mgal	-	Included in line 48	-			-	-
12	0033	01	BOF 2 Vessels	0.16	lb/ton proc.	2,413,406	tons proc.	193.07	8,760	hours	60	lbs/hr	262.80	69.73
13	0038	01	BOF Preheaters/Dryers - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
14	0005 & 0010	01	"A" & "B" Blast Furnace - Uncap. Fugitives	.03 0.0155	lb/ton proc.	2,059,557	tons proc.	15.96	3,165,000	tons proc.			24.53	8.57
15	0006 & 0011	01	"A" & "B" Blast Furnace - Charging	0.0024	lb/ton pellets charged	2,803,241	tons proc.	3.36	4,308,581	tons proc.			5.17	1.81
16	0007 & 0012	01	"A" & "B" Blast Furnace - Baghouse Stack	0.0703	lb/ton proc.	2,059,557	tons proc.	72.35	3,165,000	tons proc.			111.19	38.83
17	0034	01	BOF Roof Monitor	0.428	lb/ton proc.	2,413,406	tons proc.	516.72	3,580,000	tons proc.	0.0987		176.71	(340.01)
18	0037	01	Flux Conv. & Xfer Pts., Bin Floor - BOF	0.0016	lb/ton proc.	2,413,406	tons proc.	1.93	3,580,000	tons proc.			2.86	0.93
19	0040	01	Hot Metal Chging Ladle Slag Skimmer	0.0050	lb/ton proc.	2,059,557	tons proc.	5.17	3,165,000	tons proc.			7.94	2.77

Projected Emissions Based On: Blast Furnace @ 8,671NTPD
BOF @ 9,808 NTPD

TABLE 3-5
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - TSP

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED EMISSION FACTOR	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
20	0070 & 0120	01	Caster Mold - Casters #1 & #2	0.006	lb/ton prod.	2,413,406	tons prod.	7.24	3,580,000	ton prod.			10.74	3.50
21	0071 & 0119	01	Cont. Casters #1 & #2 - Spray Chamber	0.00852	lb/ton proc.	2,413,406	tons prod.	10.28	3,580,000	ton prod.			15.25	4.97
22	0071 & 0119	01	Continuous Casters #1 & #2 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
23	0072 & 0118	01	Slab Cutoff - Casters #1 & #2	0.0071	lb/ton proc.	2,413,406	tons prod.	8.57	3,580,000	ton prod.			12.71	4.14
	73	1	Slab Ripping - Casters #1 & #2	0.00722	lb/ton proc.	2,413,406	tons prod.	8.71	3,580,000	ton prod.			12.92	4.21
25	0103, 0104 & 0121	01	Argon Stirring #1 & #2, Material Handling Tripper	0.00715	lb/ton proc.	2,413,406	tons prod.	8.63	3,580,000	ton prod.			12.80	4.17
26	0105 & 0106	01	Deslagging Station & Material HS	0.00355	lb/ton proc.	2,413,406	tons prod.	4.28	3,580,000	ton prod.			6.35	2.07
27			BOF Hopper Baghouse	0.00032	lb/ton proc.	2,413,406	tons proc.	0.39	3,580,000	tons proc.			0.57	0.18
28	0107 & 0035	01	Desulf. Station (inside BOF shop) & Xfer Pit	0.03721	lb/ton proc.	2,059,557	tons prod.	38.32	3,165,000	ton prod.			58.88	20.57
29	0113	01	Blast Furnace Slag Pits	0.00417	lb/ton proc.	2,059,557	tons slag	4.29	3,165,000	ton prod.			6.60	2.30
30	9003	01	Iron Pellet Screen	0.00279	lb/ton pellets charged	2,803,241	tons proc.	3.91	4,308,581	tons proc.			6.01	2.10
31		01	Iron Spout Baghouse	0.02548	lb/ton proc.	2,059,557	tons proc.	26.24	3,165,000	tons proc.			40.32	14.08
32			Road Fugitive Emissions	Included in Contemporaneous Changes. See Appendix F						-				0.00
33			Material Handling	Included in Contemporaneous Changes. See Appendix F						-				0.00
34			Unpaved Parking Lots					-		-			-	-
35			Paved Parking Lots					-		-			-	-
36			Natural Gas	5.1	lb/MMcf	1,145	MMcf	2.92	1,145	MMcf			2.92	0.00
37			Blast Furnace Gas	2.9	lb/MMcf	121,039	MMcf	175.51	185,030	MMcf			268.29	92.79
38			Fuel Oil	9.72	lb/Mgal	16	Mgal	0.08	365	Mgal			1.77	1.70
	TOTALS:							**1,107.94**					1,047.36	(60.58)
			Contemporaneous Changes										(37.16)	~~(37.39)~~
			Net Change										(97.74)	~~(97.97)~~

Note: Actual Emissions = Base Year Throughput * Emission Factor / 2000

Projected Actual Emissions = Projected Throughput * Emission Factor / 2000
except -
BOF Vessels Projected Actual Emissions = 60 lb/hr * 8760 hrs
BOF Roof Monitor Projected Actual Emissions = Projected Emission Factor * Projected Throughput

Projected Emissions Based On: Blast Furnace @8,[illegible]1 NTPD
BOF @ 9,808 NTPD

TABLE 3-6
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - VOM

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	0.0	lb/MMcf	22,774	MMcf	0.00	included in line 18	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	0.0	lb/MMcf	22,203	MMcf	0.00	included in line 18	-	-	-
3	0008	01	Blast Furnace Gas Flare - BFG	0.0	lb/MMcf	26,132	MMcf	0.00	included in line 18	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	0.0	lb/MMcf	37,501	MMcf	0.00	included in line 18	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	2.8	lb/MMcf	361	MMcf	0.51	included in line 17	-	-	-
6	0044	01	Boiler #11 - BFG	0.0	lb/MMcf	5,323	MMcf	0.00	included in line 18	-	-	-
7	0044	91	Boiler #11 - NG	1.4	lb/MMcf	226	MMcf	0.16	included in line 17	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	0.28	lb/Mgal	15.00	Mgal	0.00	included in line 19	-	-	-
9	0048	01	Boiler #12 - BFG	0.0	lb/MMcf	7,106	MMcf	0.00	included in line 18	-	-	-
10	0048	91	Boiler #12 - NG	1.4	lb/MMcf	218	MMcf	0.15	included in line 17	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	0.28	lb/Mgal	1.00	Mgal	0.00	included in line 19	-	-	-
12	0033	01	BOF Preheaters/Dryers - NG	2.8	lb/MMcf	283	MMcf	0.40	included in line 17	-	-	-
13	0007 & 0012	01	"A & B" Blast Furnace - Casthouse	0.0946	lb/ton proc.	2,059,557	tons proc.	97.40	3,165,000	tons proc.	149.68	-
14	0005 & 0010	01	"A & B" Blast Furnace - Uncap. roof	0.0047	lb/ton proc.	2,059,557	tons proc.	4.83	3,165,000	tons proc.	7.42	-
15	0033	01	2 BOF Vessels	0.0060	lb/ton proc.	2,413,406	tons proc.	7.24	3,580,000	tons proc.	10.74	-
16	0035	01	Transfer Pits	0.0010	lb/ton proc.	2,059,557	tons proc.	1.03	3,165,000	tons proc.	1.58	-
17	0071 & 0119	01	Continuous Casters #1 & #2 - NG	2.8	lb/MMcf	57	MMcf	0.08	included in line 17	-	-	-
18			Natural Gas	2.8	lb/MMcf	-	MMcf	-	1,145	MMcf	1.60	-
19			Blast Furnace Gas	0.0	lb/MMcf	-	MMcf	-	185,030	MMcf	0.00	-
20			Fuel Oil	0.28	lb/Mgal	-	Mgal	-	365	lb/Mgal	0.05	-
	TOTALS:							111.80			171.08	59.28
			Contemporaneous Changes									(31.23)
			Net Change									***28.05***

Projected Emissions Based On: Blast Furnace @8,671 NTPD
BOF @ 9,808 NTPD

TABLE 3-6
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - VOM

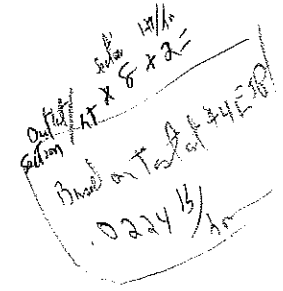
LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	0.0	lb/MMcf	22,774	MMcf	0.00	included in line 18	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	0.0	lb/MMcf	22,203	MMcf	0.00	included in line 18	-	-	-
3	0008	01	Blast Furnace Gas Flare - BFG	0.0	lb/MMcf	26,132	MMcf	0.00	included in line 18	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	0.0	lb/MMcf	37,501	MMcf	0.00	included in line 18	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	2.8	lb/MMcf	361	MMcf	0.51	included in line 17	-	-	-
6	0044	01	Boiler #11 - BFG	0.0	lb/MMcf	5,323	MMcf	0.00	included in line 18	-	-	-
7	0044	91	Boiler #11 - NG	1.4	lb/MMcf	226	MMcf	0.16	included in line 17	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	0.28	lb/Mgal	15.00	Mgal	0.00	included in line 19	-	-	-
9	0048	01	Boiler #12 - BFG	0.0	lb/MMcf	7,106	MMcf	0.00	included in line 18	-	-	-
10	0048	91	Boiler #12 - NG	1.4	lb/MMcf	218	MMcf	0.15	included in line 17	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	0.28	lb/Mgal	1.00	Mgal	0.00	included in line 19	-	-	-
12	0033	01	BOF Preheaters/Dryers - NG	2.8	lb/MMcf	283	MMcf	0.40	included in line 17	-	-	-
13	0007 & 0012	01	"A & B" Blast Furnace - Casthouse	0.0946	lb/ton proc.	2,059,557	tons proc.	97.40	3,165,000	tons proc.	149.68	-
14	0005 & 0010	01	"A & B" Blast Furnace - Uncap. roof	0.0047	lb/ton proc.	2,059,557	tons proc.	4.83	3,165,000	tons proc.	7.42	-
15	0033	01	2 BOF Vessels	0.0060	lb/ton proc.	2,413,406	tons proc.	7.24	3,580,000	tons proc.	10.74	-
16	0035	01	Transfer Pits	0.0010	lb/ton proc.	2,059,557	tons proc.	1.03	3,165,000	tons proc.	1.58	-
17	0071 & 0119	01	Continuous Casters #1 & #2 - NG	2.8	lb/MMcf	57	MMcf	0.08	included in line 17	-	-	-
18			Natural Gas	2.8	lb/MMcf	-	MMcf	-	1,145	MMcf	1.60	-
19			Blast Furnace Gas	0.0	lb/MMcf	-	MMcf	-	185,030	MMcf	0.00	-
20			Fuel Oil	0.28	lb/Mgal	-	Mgal	-	365	lb/Mgal	0.05	-
	TOTALS:							**111.80**			**171.08**	**59.28**

Contemporaneous Changes
Net Change

(31.23) (31.70)
28.05 ~~27.58~~

Projected Emissions Based On: Blast Furnace @ 8,671NTPD
BOF @ 9,808 NTPD

TABLE 3-7
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - Pb



LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	EMISSION RATE lb/hr	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION TPY	PROJECTED THRUPUT OR PRODUCTION RATIO	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0044	03	Boiler #11 - Fuel Oil	0.01600000	lb/Mgal	0.01600000	15.00	Mgal	0.0001	included in line 19	-	-	-
2	0048	03	Boiler #12 - Fuel Oil	0.01600000	lb/Mgal	0.01600000	1.00	Mgal	0.0000	included in line 19	-	-	-
3	0005	01	"A" Blast Furnace - Uncap. Fugitives	0.00039000	lb/hr	0.00039000	8760	hours	0.0017	1.537	tons proc.	0.00262550	-
4	0006	01	"A" Blast Furnace - Charging	0.00055000	lb/hr	0.00055000	8760	hours	0.0024	1.537	tons proc.	0.00370263	-
5	0007	01	"A" Blast Furnace - Baghouse Stack	0.00022000	lb/hr	0.00022000	8760	hours	0.0010	1.537	tons proc.	0.00148105	-
6	0010	01	"B" Blast Furnace - Uncap. Fugitives	0.00036700	lb/hr	0.00036700	8760	hours	0.0016	1.537	tons proc.	0.00247067	-
7	0011	01	"B" Blast Furnace - Charging	0.00053700	lb/hr	0.00053700	8360	hours	0.0024	1.537	tons proc.	0.00361512	-
8	0012	01	"B" Blast Furnace - Baghouse Stack	0.00021400	lb/hr	0.00021400	8360	hours	0.0009	1.537	tons proc.	0.00144066	-
9	0033	01	BOF 2 Vessels Stack	0.19337500	lb/hr	0.19337500	8760	hours	0.8470	1.483	tons prod.	1.25607505	0.2858
10	0034	01	BOF Roof Monitor	0.01290000	lb/hr	0.01290000	8760	hours	0.0565	1.483	tons prod.	0.08379247	-
11	0035	01	Hot Metal Reladling - Xfer Pit	0.00002320	lb/hr	0.00002320	8760	hours	0.0001	1.483	tons prod.	0.00015070	-
12	0037	01	Flux Conv. & Xfer Pts., Bin Floor - BOF	0.00000062	lb/hr	0.00000062	8760	hours	0.0000	1.483	tons prod.	0.00000405	-
13	0040	01	Hot Metal Chging Ladle Slag Skimmer	0.00002250	lb/hr	0.00002250	8760	hours	0.0001	1.483	tons prod.	0.00014615	-
14	0103	01	Argon Stirring #1 & #2	0.00020200	lb/hr	0.00020200	8760	hours	0.0009	1.483	tons prod.	0.00131210	-
15	0105	01	Deslagging Station	0.00240000	lb/hr	0.00240000	8760	hours	0.0105	1.483	tons prod.	0.01558930	-
16	0107	01	Desulf. Station (inside BOF shop)	0.01330000	lb/hr	0.01330000	8760	hours	0.0583	1.483	tons prod.	0.08639068	-
17	0120	01	Caster Mold - Casters	0.00113000	lb/hr	0.00113000	8760	hours	0.0049	1.483	tons prod.	0.00733996	-
18			Boilers -Waste Oil	0.33600000	lb/Mgals		-	-	-	365	Mgals	0.06132000	-
	TOTAL					0.26			0.988			1.527	0.539
			Contemporaneous Changes										0.000
			Net Change										***0.539***

TABLE 5-1
AMBIENT SIGNIFICANT IMPACT LEVELS IN CLASS II AREAS ($\mu g/m^3$)

	Averaging Periods				
Pollutant	1-hour	3-hour	8-hour	24-hour	Annual
CO	2,000	---	500	---	---
SO_2	---	25	---	5	1

TABLE 5-2
NATIONAL AMBIENT AIR QUALITY STANDARD (NAAQS) LEVELS ($\mu g/m^3$)

	Averaging Periods				
Pollutant	1-hour	3-hour	8-hour	24-hour	Annual
CO	40,000	---	10,000	---	---
SO_2	---	1,300	---	365	80

TABLE 5-3
CLASS II PSD INCREMENT LEVELS ($\mu g/m^3$)

	Averaging Period		
Pollutant	3-hour	24-hour	Annual
SO_2	512	91	20

TABLE 5-4
DE MINIMIS PRECONSTRUCTION MONITORING IMPACT LEVELS ($\mu g/m^3$)

	Averaging Periods				
Pollutant	1-hour	3-hour	8-hour	24-hour	Annual
CO	---	---	575	---	---
SO_2	---	---	---	13	---

TABLE 5-5
SOURCE DATA PARAMETERS

Source Name	Source ID#	East	North	Stack Height	Exit Temp.	Exit Velocity	Diameter
		(m)	(m)	(m)	(K)	(m/s)	(m)
Casthouse Baghouse	17000	749675	4286481	19.32	339	20.33	3.35
Iron Spout Baghouse	17005	749780	4286540	16.76	416	20.70	0.76
Blast Furnace Stove B	17010	749730	4286485	68.58	533	18.56	2.74
Boiler House 1 (Boilers 1-7)	17020	749815	4286590	68.58	460	4.85	4.11
Blast Furnace Stove A	17030	749880	4286560	66.14	533	26.84	2.13
Boiler 11	17040	749945	4286640	46.33	510	11.88	2.13
Boiler 12	17050	749945	4286640	46.33	510	10.64	2.13
Boiler House 1 (Boilers 8-10)	17060	749760	4286660	60.96	460	3.44	3.20
A Underfire Battery	17110	750170	4286730	9.15	529	3.31	2.74
B Underfire Battery	17120	750180	4286730	9.15	529	4.79	2.74
Slab Furnace #1	17130	747740	4286570	33.53	616	18.96	2.07
Slab Furnace #2	17140	747770	4286570	33.53	616	18.96	2.07
Slab Furnace #3	17150	747750	4286550	33.53	616	18.96	2.07
Slab Furnace #4	17340	747680	4286530	44.50	644	8.15	4.20
By-Products Flare	17260	750050	4286770	32.00	1273	20.00	1.94
BOF Ladle Preheater/Dryer	30030	748430	4286320	Volume Source			
BOF	21760	748360	4286450	48.80	561	16.00	5.49
Continuous Caster #1	22100	748560	4286320	34.69	339	8.29	1.98
Continuous Caster #2	22292	748630	4286410	40.23	339	17.52	2.23

TABLE 5-6
SIGNIFICANT IMPACT MODELING RESULTS
INDIVIDUAL AND WORST-CASE COMBINED IMPACTS - CO

	Chi/Q impacts		Blast Furnace Gas			No. 6 Fuel Oil			Other			Totals	
Source	1-hour	8-hour	Emission Rate	1-hour Impact	8-hour Impact	Emission Rate	1-hour Impact	8-hour Impact	Emission Rate	1-hour Impact	8-hour Impact	1-hour Impact	8-hour Impact
	(ug/m3)	(ug/m3)	(g/sec)	(ug/m3)	(ug/m3)	(g/sec)	(ug/m3)	(ug/m3)	(g/sec)	(ug/m3)	(ug/m3)	(ug/m3)	(ug/m3)
Cont. Caster #1	47.5527	17.8091	0.0	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.0	0.0
Cont. Caster #2	73.3953	17.1240	0.0	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.0	0.0
Blast Furnace Stove A	1.1997	0.4702	17.8	21.4	8.4	0.00	0.0	0.0	0.00	0.0	0.0	21.4	8.4
Blast Furnace Stove B	1.0404	0.4282	17.8	18.5	7.6	0.00	0.0	0.0	0.00	0.0	0.0	18.5	7.6
Boiler House 1-7	1.7836	0.6565	17.8	31.8	11.7	0.03	0.0	0.0	0.00	0.0	0.0	31.8	11.7
Boiler House 8-10	3.5287	1.3240	17.8	62.8	23.6	0.03	0.1	0.0	0.00	0.0	0.0	62.9	23.6
Boiler 11	4.7301	1.7913	17.8	84.2	31.9	0.03	0.1	0.0	0.00	0.0	0.0	84.4	31.9
Boiler 12	5.1308	1.9338	17.8	91.4	34.4	0.03	0.1	0.0	0.00	0.0	0.0	91.5	34.5
Flare	0.4857	0.1362	17.8	8.6	2.4	0.00	0.0	0.0	0.00	0.0	0.0	8.6	2.4
BOF-Ladle	125.6553	51.4169	17.8	2,237.8	915.7	0.00	0.0	0.0	0.00	0.0	0.0	2,237.8	915.7
Max. Combustion Impact	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2,237.8	915.7
BOF	17.6553	4.1854	0.0	0.0	0.0	0.00	0.0	0.0	207.17	3,657.6	867.1	3,657.6	867.1
Maximum Impact Levels (1):												**5,895.4**	**1,782.8**
Significance Levels:												**2,000.0**	**500.0**

(1) Maximum impact level equals the sum of the maximum combustion impact and the impact from non-combustion sources (Basic Oxygen Furnace).

BFG Short Term Emission Rate Calculation:

Proj. BFG Usage:	211,334	MMcf/yr
Base BFG Usage:	121,039	MMcf/yr
Net Increase:	90,295	MMcf/yr
CO EF:	13.7	lb/MMcf
Incremental CO Emissions:	618.52	tons/yr
Incremental CO Emission Rate:	17.81	g/sec

No. 6 F.O. Short Term Emission Rate Calculation:

Proj. F.O. Usage:	365	Mgal/yr
Base F.O. Usage:	16	Mgal/yr
Net Increase:	349	Mgal/yr
CO EF:	5.0	lb/MMcf
CO Emissions:	0.87	tons/yr
CO Emission Rate	0.03	g/sec

Other Short Term Emission Rate Calculation:

BOF

Proj. Production:	4,015,000	tons/yr
Base Production:	2,413,406	tons/yr
Net Increase:	1,601,594	tons/yr
CO EF:	8.993	lb/ton
CO Emissions:	7,201.57	tons/yr
CO Emission Rate	207.17	g/sec

SR 2377

TABLE 5-7
SIGNIFICANT IMPACT MODELING RESULTS
INDIVIDUAL AND WORST-CASE COMBINED IMPACTS - SO2

	Chi/Q impacts			Blast Furnace Gas					No. 6 Fuel Oil			
Source	3-hour	24-hour	Annual	3 & 24-hr Emission Rate	Annual Emission Rate	3-hour Impact	24-hour Impact	Annual Impact	Emission Rate	3-hour Impact	24-hour Impact	Annual Impact
	(ug/m3)	(ug/m3)	(ug/m3)	(g/sec)	(g/sec)	(ug/m3)	(ug/m3)	(ug/m3)	(g/sec)	(ug/m3)	(ug/m3)	(ug/m3)
Blast Furnace Stove A	0.7395	0.1662	0.0136	8.53	6.12	6.3	1.4	0.1	0.00	0.0	0.0	0.0
Blast Furnace Stove B	0.7237	0.1680	0.0117	8.53	6.12	6.2	1.4	0.1	0.00	0.0	0.0	0.0
Boiler House 1-7	1.1529	0.2987	0.0229	8.53	6.12	9.8	2.5	0.1	0.71	0.0	0.0	0.0
Boiler House 8-10	2.5074	0.6452	0.0508	8.53	6.12	21.4	5.5	0.3	0.71	0.0	0.0	0.0
Boiler 11	4.1542	1.4305	0.0889	8.53	6.12	35.4	12.2	0.5	0.71	0.0	0.0	0.1
Boiler 12	4.4142	1.5511	0.1062	8.53	6.12	37.6	13.2	0.7	0.71	0.0	0.0	0.1
Flare	0.3159	0.0794	0.0063	8.53	6.12	2.7	0.7	0.0	0.00	0.0	0.0	0.0
A&B BF - Casthouse	14.6877	4.2607	0.0955	0.00	0.00	0.0	0.0	0.0	0.00	0.0	0.0	0.0
A&B BF - Uncap. Fug	186.4113	58.3531	7.5129	0.00	0.00	0.0	0.0	0.0	0.00	0.0	0.0	0.0
Iron Spout Baghouse	168.4563	48.4854	6.1389	0.00	0.00	0.0	0.0	0.0	0.00	0.0	0.0	0.0
Slag Pit #1	692.3306	147.4141	12.0020	0.00	0.00	0.0	0.0	0.0	0.00	0.0	0.0	0.0
Slag Pit #2	546.4022	129.1282	12.7399	0.00	0.00	0.0	0.0	0.0	0.00	0.0	0.0	0.0
Slag Pit #3	540.8122	127.0257	13.3671	0.00	0.00	0.0	0.0	0.0	0.00	0.0	0.0	0.0
Slag Pit #4	568.7669	144.8420	14.1285	0.00	0.00	0.0	0.0	0.0	0.00	0.0	0.0	0.0
Slag Pit #5	597.7734	155.6524	14.7405	0.00	0.00	0.0	0.0	0.0	0.00	0.0	0.0	0.0
Slag Pit #6	469.1691	158.0640	15.6250	0.00	0.00	0.0	0.0	0.0	0.00	0.0	0.0	0.0
Maximum Impact Levels:												
Significance Levels:												
Class II PSD Increments:												

BFG Emission Rate Calculation:

		3 & 24-hr	Annual
Proj. BFG Usage:	(MMcf/yr)	210,167	185,030
Base BFG Usage:	(MMcf/yr)	121,039	121,039
Net Increase:	(MMcf/yr)	89,128	63,991
SO2 EF:	(lb/MMcf)	6.65	6.65
SO2 Emissions:	(tons/yr)	296.35	212.77
SO2 Emission Rate	(g/sec)	8.53	6.12

No. 6 F.O. Emission Rate Calculation:

		Annual
Proj. F.O. Usage:	(Mgal/yr)	365
Base F.O. Usage:	(Mgal/yr)	16
Net Increase:	(Mgal/yr)	349
SO2 EF:	(lb/Mgal)	141.3
SO2 Emissions:	(tons/yr)	24.66
SO2 Emission Rate	(g/sec)	0.71

SR 2378

TABLE 5-7
SIGNIFICANT IMPACT MODELING RESULTS
INDIVIDUAL AND WORST-CASE COMBINED IMPACTS - SO2

	Chi/Q impacts			Other					Totals		
Source	3-hour	24-hour	Annual	3 & 24-hr Emission Rate	Annual Emission Rate	3-hour Impact	24-hour Impact	Annual Impact	3-hour Impact	24-hour Impact	Annual Impact
	(ug/m3)	(ug/m3)	(ug/m3)	(g/sec)	(g/sec)	(ug/m3)	(ug/m3)	(ug/m3)	(ug/m3)	(ug/m3)	(ug/m3)
Blast Furnace Stove A	0.7395	0.1662	0.0136	0.00	0.00	0.0	0.0	0.0	6.3	1.4	0.1
Blast Furnace Stove B	0.7237	0.1680	0.0117	0.00	0.00	0.0	0.0	0.0	6.2	1.4	0.1
Boiler House 1-7	1.1529	0.2987	0.0229	0.00	0.00	0.0	0.0	0.0	9.8	2.5	0.2
Boiler House 8-10	2.5074	0.6452	0.0508	0.00	0.00	0.0	0.0	0.0	21.4	5.5	0.3
Boiler 11	4.1542	1.4305	0.0889	0.00	0.00	0.0	0.0	0.0	35.4	12.2	0.6
Boiler 12	4.4142	1.5511	0.1062	0.00	0.00	0.0	0.0	0.0	37.6	13.2	0.7
Flare	0.3159	0.0794	0.0063	0.00	0.00	0.0	0.0	0.0	2.7	0.7	0.0
A&B BF - Casthouse	14.6877	4.2607	0.0955	6.20	6.20	91.0	26.4	0.6	91.0	26.4	0.6
A&B BF - Uncap. Fug	186.4113	58.3531	7.5129	0.32	0.32	60.2	18.9	2.4	60.2	18.9	2.4
Iron Spout Baghouse	168.4563	48.4854	6.1389	0.18	0.18	30.9	8.9	1.1	30.9	8.9	1.1
Slag Pit #1	692.3306	147.4141	12.0020	0.04	0.03	25.5	5.4	0.3	25.5	5.4	0.3
Slag Pit #2	546.4022	129.1282	12.7399	0.04	0.03	20.1	4.7	0.3	20.1	4.7	0.3
Slag Pit #3	540.8122	127.0257	13.3671	0.04	0.03	19.9	4.7	0.4	19.9	4.7	0.4
Slag Pit #4	568.7669	144.8420	14.1285	0.04	0.03	20.9	5.3	0.4	20.9	5.3	0.4
Slag Pit #5	597.7734	155.6524	14.7405	0.04	0.03	22.0	5.7	0.4	22.0	5.7	0.4
Slag Pit #6	469.1691	158.0640	15.6250	0.04	0.03	17.3	5.8	0.4	17.3	5.8	0.4
Maximum Impact Levels:									**345.3**	**99.1**	**7.1**
Significance Levels:									**25.0**	**5.0**	**1.0**
Class II PSD Increments:									**512.0**	**91.0**	**20.0**

Other Emission Rate Calculations:

A&B Blast Furnace Casthouse	**Annual**
Proj. SO2 Emissions (tons/yr)	422.00
Base SO2 Emissions: (tons/yr)	206.57
Net SO2 Emissions: (tons/yr)	215.43
Net SO2 Emissions: (g/sec)	6.197

Iron Spout Baghouse	**Annual**
Proj. SO2 Emissions: (tons/yr)	13.89
Base SO2 Emissions: (tons/yr)	7.52
Net SO2 Emissions: (tons/yr)	6.37
Net SO2 Emissions: (g/sec)	0.183

A&B B.F. Uncap. Roof Fugs.	**Annual**
Proj. SO2 Emissions (tons/yr)	21.94
Base SO2 Emissions: (tons/yr)	10.71
Net SO2 Emissions: (tons/yr)	11.23
Net SO2 Emissions: (g/sec)	0.323

Slag Pits	**3 & 24-hr**	**Annual**
Proj. SO2 Emissions: (tons/yr)	17.97	15.82
Base SO2 Emissions: (tons/yr)	10.30	10.30
Net SO2 Emissions: (tons/yr)	7.67	5.52
Net SO2 Emissions: (g/sec)	0.22	0.16
Net SO2 Emissions: (g/sec/pit)	0.04	0.03

SR 2379

TABLE 5-8
NAAQS MODELING RESULTS
INDIVIDUAL AND WORST-CASE COMBINED IMPACTS - CO

	Chi/Q impacts		Blast Furnace Gas			Natural Gas			Coke Oven Gas		
Source	1-hour	8-hour	Emission Rate	1-hour Impact	8-hour Impact	Emission Rate	1-hour Impact	8-hour Impact	Emission Rate	1-hour Impact	8-hour Impact
	(ug/m3)	(ug/m3)	(g/sec)	(ug/m3)	(ug/m3)	(g/sec)	(ug/m3)	(ug/m3)	(g/sec)	(ug/m3)	(ug/m3)
BOF	17.6553	5.3327	0.00	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0
Cont. Caster #1	47.5527	17.8091	0.00	0.0	0.0	2.89	137.3	51.4	0.00	0.0	0.0
Cont. Caster #2	82.7923	17.1650	0.00	0.0	0.0	2.89	239.0	49.5	0.00	0.0	0.0
Blast Furnace Stove A	1.1997	0.4734	41.41	49.7	19.6	2.89	3.5	1.4	2.52	3.0	1.2
Blast Furnace Stove B	1.2430	0.4282	41.41	51.5	17.7	2.89	3.6	1.2	2.52	3.1	1.1
Boiler House 1-7	1.8212	0.8147	41.41	75.4	33.7	2.89	5.3	2.4	2.52	4.6	2.1
Boiler House 8-10	4.2527	1.8400	41.41	176.1	76.2	2.89	12.3	5.3	2.52	10.7	4.6
Boiler 11	6.6510	2.2235	41.41	275.4	92.1	2.89	19.2	6.4	2.52	16.8	5.6
Boiler 12	7.1537	2.5136	41.41	296.3	104.1	2.89	20.6	7.3	2.52	18.0	6.3
Flare	0.6122	0.1645	41.41	25.4	6.8	0.00	0.0	0.0	0.00	0.0	0.0
Slab Furnace 1	25.9116	10.1473	0.00	0.0	0.0	2.89	74.8	29.3	0.00	0.0	0.0
Slab Furnace 2	24.3797	8.1820	0.00	0.0	0.0	2.89	70.4	23.6	0.00	0.0	0.0
Slab Furnace 3	28.2578	10.0804	0.00	0.0	0.0	2.89	81.6	29.1	0.00	0.0	0.0
Slab Furnace 4	11.6485	2.3372	0.00	0.0	0.0	2.89	33.6	6.7	0.00	0.0	0.0
"A" Underfire	21.4379	7.9854	0.00	0.0	0.0	0.00	0.0	0.0	2.52	54.0	20.1
"B" Underfire	12.0289	5.9158	0.00	0.0	0.0	0.00	0.0	0.0	2.52	30.3	14.9
BOF-Ladle	229.5923	51.4169	0.00	0.0	0.0	2.89	662.7	148.4	2.52	578.6	129.6
Maximum Combined Impact Levels:											
Background CO Concentrations:											
Total CO Concentration:											
Ambient Air Quality Standard:											

BFG Emission Rate Calculation:

		1 & 8-hr
Proj. BFG Usage:	(MMcf/yr)	210,167
CO EF:	(lb/MMcf)	13.7
CO Emissions:	(tons/yr)	1,439.64
CO Emission Rate:	(g/sec)	41.41

COG Emission Rate Calculation:

		1 & 8-hr
Proj. COG Usage:	(MMcf/yr)	9,522
CO EF:	(lb/MMcf)	18.4
CO Emissions:	(tons/yr)	87.60
CO Emission Rate:	(g/sec)	2.52

Nat. Gas Emission Rate Calculation:

		1 & 8-hr
Proj. NG Usage:	(MMcf/yr)	5,017
CO EF:	(lb/MMcf)	40.0
CO Emissions:	(tons/yr)	100.34
CO Emission Rate:	(g/sec)	2.89

SR 2380

TABLE 5-8
NAAQS MODELING RESULTS
INDIVIDUAL AND WORST-CASE COMBINED IMPACTS - CO

	Chi/Q impacts		No. 6 Fuel Oil			Other			Totals	
Source	1-hour	8-hour	Emission Rate	1-hour Impact	8-hour Impact	Emission Rate	1-hour Impact	8-hour Impact	1-hour Impact	8-hour Impact
	(ug/m3)	(ug/m3)	(g/sec)	(ug/m3)	(ug/m3)	(g/sec)	(ug/m3)	(ug/m3)	(ug/m3)	(ug/m3)
BOF	17.6553	5.3327	0.00	0.0	0.0	519.35	9,169.2	2,769.5	9,169.2	2,769.5
Cont. Caster #1	47.5527	17.8091	0.00	0.0	0.0	0.00	0.0	0.0	137.3	51.4
Cont. Caster #2	82.7923	17.1650	0.00	0.0	0.0	0.00	0.0	0.0	239.0	49.5
Blast Furnace Stove A	1.1997	0.4734	0.00	0.0	0.0	0.00	0.0	0.0	49.7	19.6
Blast Furnace Stove B	1.2430	0.4282	0.00	0.0	0.0	0.00	0.0	0.0	51.5	17.7
Boiler House 1-7	1.8212	0.8147	0.00	0.0	0.0	0.00	0.0	0.0	75.4	33.7
Boiler House 8-10	4.2527	1.8400	0.00	0.0	0.0	0.00	0.0	0.0	176.1	76.2
Boiler 11	6.6510	2.2235	0.03	0.2	0.1	0.00	0.0	0.0	275.4	92.1
Boiler 12	7.1537	2.5136	0.03	0.2	0.1	0.00	0.0	0.0	296.3	104.1
Flare	0.6122	0.1645	0.00	0.0	0.0	0.00	0.0	0.0	25.4	6.8
Slab Furnace 1	25.9116	10.1473	0.00	0.0	0.0	0.00	0.0	0.0	74.8	29.3
Slab Furnace 2	24.3797	8.1820	0.00	0.0	0.0	0.00	0.0	0.0	70.4	23.6
Slab Furnace 3	28.2578	10.0804	0.00	0.0	0.0	0.00	0.0	0.0	81.6	29.1
Slab Furnace 4	11.6485	2.3372	0.00	0.0	0.0	0.00	0.0	0.0	33.6	6.7
"A" Underfire	21.4379	7.9854	0.00	0.0	0.0	0.00	0.0	0.0	54.0	20.1
"B" Underfire	12.0289	5.9158	0.00	0.0	0.0	0.00	0.0	0.0	30.3	14.9
BOF-Ladle	229.5923	51.4169	0.00	0.0	0.0	0.00	0.0	0.0	662.7	148.4
Maximum Combined Impact Levels:									**9,831.9**	**2,917.9**
Background CO Concentrations:									**9,200.0**	**4,255.0**
Total CO Concentration:									**19,031.9**	**7,172.9**
Ambient Air Quality Standard:									**40,000.0**	**10,000.0**

No. 6 F.O. Emission Rate Calculation:

		1 & 8-hr
Proj. F.O. Usage:	Mgal/yr	365
CO EF:	lb/Mgal	5.0
CO Emissions:	tons/yr	0.91
CO Emission Rate	g/sec	0.03

Other Emission Rate Calculations:

BOF		1 & 8-hr
Proj. Production:	tons/yr	4,015,000
CO EF:	lb/ton	8.993
CO Emissions:	tons/yr	18,053.45
CO Emission Rate	g/sec	519.35

SR 2381

TABLE 5-9
REFINED MODELING RESULTS - PSD INCREMENT ANALYSIS
24-HOUR IMPACTS

Case #	Description	Maximum 24-hour Impact	Year	Class II PSD Increment
		(ug/m3)		(ug/m3)
1	BF Stove A + 9 Process Sources	32.5	1982	91.0
2	BF Stove B + 9 Process Sources	32.5	1982	91.0
3	Boilers 1-7 + 9 Process Sources	32.5	1982	91.0
4	Boilers 8-10 + 9 Process Sources	32.5	1982	91.0
5	Boiler 11 + 9 Process Sources	32.5	1982	91.0
6	Boiler 12 + 9 Process Sources	32.6	1984	91.0
7	By-Products Flare + 9 Process Sources	32.5	1982	91.0

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

SULFUR DIOXIDE EMISSION TEST PROGRAM
BLAST FURNACE IRON SPOUT BAGHOUSE EXHAUST STACK

GRANITE CITY STEEL DIVISION
NATIONAL STEEL CORPORATION
GRANITE CITY, ILLINOIS

ARI PROJECT NO. 436-47
NATIONAL STEEL CORP. P.O. #30-320892

REPORT PREPARED FOR:

GRANITE CITY STEEL DIVISION
NATIONAL STEEL CORPORATION
20TH AND STATE STREETS
GRANITE CITY, ILLINOIS

REPORT PREPARED BY:

ARI ENVIRONMENTAL, INC.
951 OLD RAND ROAD UNIT 106
WAUCONDA, ILLINOIS 60084
(708) 487-1580

JULY 1, 1993 TEST

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

II. TESTING AND ANALYTICAL PROCEDURES

Overview

ARI Environmental, Inc. was retained by the Granite City Steel Division of the National Steel Corporation in Granite City, Illinois to conduct a sulfur dioxide compliance test program on the Blast Furnace Iron Spout Baghouse exhaust stack on July 1, 1993.

Methodology

Sampling was conducted following USEPA Methods 1-4 and 6 as detailed in the Code of Federal Regulations, CFR40, Part 60, 1992 and the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, Stationary Source Specific Methods.

Sample Location (USEPA Method 1)

Samples were taken from two 3" diameter test ports located on on the stack exhaust. The test ports were located eight diameters downstream and two diameters upstream from the last flow disturbances. The stack diameter at this sampling location was 82 inches.

Gas Flow and Temperature (USEPA Method 2)

Velocity and volume flow was determined following USEPA Method 2. Velocity and temperature readings were taken on each of 8 points on two traverses for a total of 16 points.

Velocity traverses in the stack were made with a type "S" pitot tube. The velocity head was read on a Dwyer inclined vertical manometer to the nearest 0.01 in H_2O. Temperature measurements in the stack were made with a Chromel-Alumel thermocouple and connected to an Omega Model 170 digital direct read-out potentiometer accurate to approximately 1% of the absolute stack temperature.

Stack Gas CO_2, O_2 and N_2 Content (USEPA Method 3)

The stack gas molecular weight was determined following EPA Method 3. Gas samples were collected in a 60 liter Tedlar bag using ARI's integrated bag collection system and analyzed for CO_2, O_2 and N_2 (by difference) using a Hays Orsat type gas analyzer after each sampling run.

Stack Gas Moisture Content (USEPA Method 4)

Moisture sampling was conducted simultaneously with the sulfur dioxide sampling per USEPA Method 4 using large EPA Method 5 impingers.

Sulfur Dioxide Determination (USEPA Method 6)

Sulfur dioxide sampling was conducted in accordance with EPA Method 6 using large EPA Method 5 impingers.

The first impinger contained 100 mls of 80% IPA to collect SO_3. The second, third and fourth impingers contained 100 mls of 10% hydrogen peroxide. The fifth impinger contained 200 grams of silica gel.

The test repetition times varied with each batch cycle time. The test times were 77, 83 and 67 minutes for runs 1 through 3, respectively.

A final leak check and 20 minute purge were conducted at the completion of each run.

The SO_2 samples were analyzed at ARI's laboratory using standard titrations to a thorin endpoint with barium chloride as specified in EPA Method 6.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

SULFUR DIOXIDE EMISSION TEST PROGRAM
BLAST FURNACE IRON SPOUT BAGHOUSE EXHAUST STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

SUMMARY OF EMISSION TEST RESULTS

TABLE: III-1

COMPANY: Granite City Steel Division: Granite City, Illinois

LOCATION: Blast Furnace Iron Spout Baghouse Exhaust Stack

TEST DATE: July 1, 1993

TEST RUN:	1	2	3	
TEST TIME:	0904-1021	1117-1240	1338-1445	Average
STACK GAS				
Temperature, °F	123.3	124.2	123.6	123.7
Velocity, fps	71.7	68.6	68.1	69.5
Volume flow, acfm	157,818.4	150,970.0	149,783.1	152,857.2
Volume flow, dscfh	8,318,765.7	7,944,645.5	7,905,846.1	8,066,419.1
Moisture, % by vol	0.7	1.1	0.9	0.9
CO_2, % by volume	0.5	0.7	0.7	0.7
O_2, % by volume	20.1	20.1	20.1	20.1
SULFUR DIOXIDE				
Concentration				
lbs/dscf x 10^{-5}	0.0492	0.0429	0.0373	0.0431
ppmv db	3.0	2.6	2.2	2.6
Emission rate				
lbs/hr	4.1	3.4	3.0	3.5

SR 2386

BLAST FURNACE IRON SPOUT BAGHOUSE
EMISSION TEST - JULY 1, 1993

Production Data	Tons per Cast	Time Per Cast (hrs)
Run #1	624	1.25
Run #2	544	1.375
Run #3	630	1.125
Average	599	1.25

SO_2

$$\frac{1.25 \text{ hr./cast} \times 3.5 \text{ lb./hr. } SO_2}{599 \text{ tons/cast}} = 0.0073 \text{ lb./ton}$$

EMTEST.JTB

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

EMISSION TEST PROGRAM
BLAST FURNACE CAST HOUSE BAGHOUSE EXHAUST STACK
SIMULTANEOUS OVERLAP CASTING OPERATION

GRANITE CITY STEEL DIVISION
NATIONAL STEEL CORPORATION
GRANITE CITY, ILLINOIS

ARI PROJECT NO. 436-46
NATIONAL STEEL CORP. P.O. #30-320892

REPORT PREPARED FOR:

GRANITE CITY STEEL DIVISION
NATIONAL STEEL CORPORATION
20TH AND STATE STREETS
GRANITE CITY, ILLINOIS

REPORT PREPARED BY:

ARI ENVIRONMENTAL, INC.
951 OLD RAND ROAD UNIT 106
WAUCONDA, ILLINOIS 60084
(708) 487-1580

JULY 1, 1993 TEST

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

National Steel

Granite City Division
National Steel Corporation
20th & State Streets
Granite City, Illinois 62040
(618) 451-3456

August 3, 1993

CERTIFIED MAIL NO. P 111 549 790
RETURN RECEIPT REQUESTED

Illinois Environmental Protection Agency
Division of Air Pollution Control
Attn. Source Emission Test Specialist
Intercontinental Center
1701 1st Avenue
Maywood, Illinois 60153

Dear Sir:

Subject: July 1, 1993 Blast Furnace Simultaneous Cast Emissions Compliance Test results for the Casthouse and Iron Spout Baghouses.

Attached please find "The Final Report" regarding the July 1st emission test as required by special conditions 4e, g, and h of the Construction Permit for the Blast Furnace and Basic Oxygen Furnace Production Increase (application no. 92090104) for Granite City Division.

Compliance was achieved in accordance with USEPA Methods 1-5, 6, 6c, 7e, 9, and 25a. The attached information indicates the following emissions rates:

BLAST FURNACE CASTHOUSE BAGHOUSE

Emissions Type	Avg. Conc.	Limit
Particulate	.003 gr/dscf	.010 gr/dscf
Sulfur Dioxide	96.1 lbs/hr	n/a
Nitrogen Oxide	6.9 lbs/hr	n/a
VOM (as C_1)	40.6 lbs/hr	n/a

BLAST FURNACE IRON SPOUT BAGHOUSE

Emissions Type	Avg. Conc.	Limit
Sulfur Dioxide	3.5 lbs/hr	n/a

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

II. TESTING AND ANALYTICAL PROCEDURES

Overview

ARI Environmental, Inc. was retained by the Granite City Steel Division of the National Steel Corporation in Granite City, Illinois to conduct an emission compliance test program on the Blast Furnace Cast House Baghouse exhaust stack on July 1, 1993.

The purpose of this formal test program was to determine total particulate, sulfur dioxide (SO_2), nitrogen oxides (as NO_2) and volatile organic compounds (as C_1) emissions over the duration of simultaneous casting operations.

Methodology

Sampling was conducted following USEPA Methods 1-5, 6C, 7E and 25A as detailed in the Code of Federal Regulations, CFR40, Part 60, 1992 and the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, Stationary Source Specific Methods.

Sample Location (USEPA Method 1)

Samples were taken from four 3" diameter test ports located on the stack exhaust. The test ports were located two diameters downstream and one-half diameters upstream from the last flow disturbances. The stack diameter at this location was 132.0 inches.

Gas Flow and Temperature (USEPA Method 2)

Velocity and volume flow was determined following USEPA Method 2. Velocity and temperature readings were taken on each of 6 points on four traverses for a total of 24 points.

Velocity traverses in the stack were made with a type "S" pitot tube. The velocity head was read on a Dwyer inclined vertical manometer to the nearest 0.01 in H_2O. Temperature measurements in the stack were made with a Chromel-Alumel thermocouple and connected to an Omega Model 170 digital direct read-out potentiometer accurate to approximately 1% of the absolute stack temperature.

Stack Gas CO_2, O_2 and N_2 Content (USEPA Method 3)

The stack gas molecular weight was determined following EPA Method 3. Gas samples were collected in a 60 liter Tedlar bag using ARI's integrated bag collection system and analyzed for CO_2, O_2 and N_2 (by difference) using a Hays Orsat type gas analyzer after each sampling run.

Stack Gas Moisture Content

Moisture sampling was conducted simultaneously with the particulate sampling in the back half of the Method 5 sampling train per USEPA Method 4.

Stack Particulate Sampling Train

The particulate sampling train used during the test series was an Andersen Samplers, Incorporated Method 5 sampling train. The major components are described below:

1. Nozzle - Type 316 stainless steel with sharp tapered leading edge.

2. Probe - Heated glass lined probe with attached pitot tube and stack temperature thermocouple connected to a heated filter holder.

3. Andersen Samplers, Incorporated Sample Case and Control Module - as per EPA Method 5 test specifications.

Sampling Train Assembly

The sample train was assembled as follows:

1. A stainless steel nozzle was selected, sized to maintain isokinetic sampling and attached to the heated glass lined probe.

2. A preweighed filter was placed in the filter holder and its number noted on the data sheets.

3. 100 mls of deionized distilled water was placed in the first and second impinger.

4. The third impinger was assembled dry.

5. 200 grams of dry silica gel was placed in the fourth impinger.

6. The clean glassware and entire sampling train was then assembled at the sampling location.

Sampling Train Leak Check Procedures (Pre and Post)

1. The pump was started.

2. The course flow adjustment valve was opened.

3. Flow through the dry gas meter was checked.

4. The probe inlet was plugged.

5. The fine flow adjustment valve was adjusted to yield a vacuum gauge reading of 15 in Hg.

6. If the flow exceeded .02 ACFM, the pump was shut off and all connections were rechecked for tightness and the leak test procedure was repeated until acceptable results were obtained.

Pitot Tube Leak Check Procedure

1. A positive (or negative) pressure was created in the pitot line to be checked.

2. The line was then plugged to hold the pressure and the magnehelic gauge was monitored to watch for any change in the manometer fluid level.

3. If the fluid level changed, the system was rechecked for leaks and the leak check procedure was repeated until no leaks were found.

Particulate Sampling Procedure

Crushed ice was added to the impinger compartment, the nozzle was uncapped and the probe was introduced into the stack to the first sampling point. The dry gas meter reading was recorded and sampling was started. At each point, a pitot reading was made and the sampling rate was adjusted using K-Factor calculations which were based on preliminary temperature, pressure and moisture estimates. When sampling at the last point in the port was completed, the pump was turned off and the probe was carefully removed from that port.

Initially the sampling was conducted for 2.5 minutes on each of the 24 points. When the simultaneous casting operation exceeded the time required to complete the full four port sampling run of 60 minutes, sampling was continued for 2.5 minutes per traverse point while traversing the stack in reverse order. The total sampling times were 77, 82.5 and 67.5 minutes for runs 1, 2 and 3 respectively.

A final leak test was performed on the sampling train as previously described. The umbilical cord was disconnected and the sample case and probe were then disassembled.

Particulate Sample Recovery

1. The filter was removed from the heated filter holder and placed in a clean Petrie dish and labeled as Container #1.

2. A brush was used to clean the nozzle and other fittings as required. The acetone washings from the inner surfaces of the nozzle, and upstream portion of the filter holder were collected in a bottle and labeled as Container #2.

3. The contents of impinger #4 were transferred to a clean bottle to be weighed at a later time for moisture content and was labeled as Container #3.

4. The contents of impingers #1, #2, and #3 were placed in a graduated cylinder to measure the total volume of water collected.

Particulate Sample Analysis

1. Container #1 - At ARI's laboratory, the container was opened and placed in a desiccator and allowed to dry to a constant weight. Each filter and any loose matter were then weighed to the nearest 0.1 mg.

2. Container #2 - At ARI's laboratory, the contents of this container were transferred to a tared beaker and allowed to evaporate at room temperature in a fume hood. It was then placed in a desiccator and weighed on an analytical balance to the nearest 0.1 mg.

3. Container #3 - The contents of this container were transferred to a tared beaker and the weight of the silica gel was determined. The difference between this final weight and 200 grams was the total moisture collected by the silica gel.

4. The net weight gain recorded for Containers #1 and #2 were summed to yield the total solid particulates collected.

Sulfur Dioxide Determination (USEPA Method 6C)

Sulfur dioxide sampling was conducted following EPA Method 6C protocols. A Western Research Model 721 ATM Photometric SO_2 monitor was used during the testing. Results were recorded on ARI's data logger and computer system.

ARI's sampling system consisted of a heated probe with in-stack filter in each stack followed by a 3-way calibration valve connected to a heated Teflon sample line connected to a 3-way valve at ground level. The Teflon sample line was connected to an ice-cooled condenser to remove moisture followed by a Teflon lined pump. A sample manifold was connected to the exhaust side of the pump with intake lines for ARI's SO_2 and NO_x monitors.

Certified SO_2 calibration standards and zero air were used to calibrate the monitor. The gas standards were introduced directly into the three way valve at the end of the heated sample probe.

Specifically, gas standards of zero air, 491 ppm and 910 ppm SO_2 in N_2 were used for calibration. The SO_2 monitor span was set at 1000 ppm during the testing.

A pre-test and post-test measurement system bias test and calibration error test was done after each test repetition. The average zero and calibration drift values obtained during each test run on the monitor were used to correct the data for each test run.

Nitrogen Oxides Determination (USEPA Method 7E)

Continuous nitrogen oxides (as NO_2) sampling was conducted following EPA Method 7E. The NO_x monitor used was ARI's TECO Model 10 monitor. Data was recorded on ARI's data logger and computer system. Calibration gas and zero air was introduced directly into the 3-way valve for calibration of the NO_x monitor.

A converter efficiency test and response time test were conducted prior to beginning the testing following EPA Method 20 procedures.

A pre-test and post-test measurement system bias test and calibration error test were performed using certified master gas calibration standards of 57.0 ppm, 142.8 ppm and 217.7 ppm NO_x in N_2. The monitor span was set at 250 ppm. Zero and calibration drift test results were well within 3% of span for each calibration gas. The average zero and calibration drift values obtained during each test run on each monitor were used to correct the data for that test run.

Determination of Total VOC (USEPA Method 25A)

Total volatile organic compounds sampling and analysis were conducted on-site on the stack exhaust using a Ratfisch Model RS-55 Total Hydrocarbon Analyzer. The monitor was calibrated using propane as the VOC standard. The VOC concentration was converted to a C_1 basis using the factor of 3 as listed in USEPA Method 25A. The analyzer utilizes a continuous heated FID which keeps the sample gas stream above its dewpoint.

The sampling systems consisted of the following:

1) Stainless steel probe with instack filter holder.

2) 3-way calibration valve and line located at the probe.

3) Heated Teflon line (>250°F) from the probe to the analyzer.

The Ratfisch analyzer was operated at the following conditions:

Oven temperature	:	150°C
Sample backpressure	:	200 m bar
Air	:	11.5 psi
Hydrogen	:	6.0 psi
Response time	:	30 seconds
Chart speed	:	10 cm/hr
Data logger	:	15 sec. - 1 minute average
Span	:	1000 ppm propane

Zero gas and USEPA protocol 1 certified propane standards in N_2 gas standards were used for calibration of the instrument. The calibration gases were introduced at the 3-way calibration valve located at the end of each sample probe. Calibration gases used were 253.9 ppm, 467.1 ppm and 844.2 ppm propane in N_2.

Emission Calculations

The particulate, sulfur dioxide and nitrogen oxides (as NO_2) emission rates in lbs/hr were calculated for each run by multiplying the measured particulate, sulfur dioxide and nitrogen oxides concentrations (lbs/dscf) by the stack gas volumetric flow rate (dscfh).

The volatile organic compound emission rate in lbs/hr were calculated for each run by multiplying the measured VOC concentration (lbs/scf wb) by the stack gas volumetric flow rate (scfh wb).

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

EMISSION TEST PROGRAM
BLAST FURNACE CAST HOUSE BAGHOUSE EXHAUST STACK
SIMULTANEOUS OVERLAP CASTING OPERATION
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS
SUMMARY OF EMISSION TEST RESULTS

TABLE: III-1
COMPANY: Granite City Steel Division: Granite City, Illinois
LOCATION: Blast Furnace Cast House Baghouse Exhaust Stack
TEST DATE: 7/01/93 (Simultaneous casting during each run)

TEST RUN:	1	2	3	Average
TEST TIME:	0904-1021	1117-1240	1338-1445	
STACK GAS				
Temperature, F	112.3	117.3	121.9	117.1
Velocity, fps	73.8	73.8	74.0	73.9
Volume flow, acfm	421,019.1	420,607.0	421,692.9	421,106.3
Volume flow, scfm db	374,039.0	370,068.6	367,931.7	370,679.8
Volume flow, scfh wb	22,849,051.7	22,629,550.0	22,508,057.9	22,662,219.9
Volume flow, dscfh	22,442,338.6	22,204,114.9	22,075,903.9	22,240,785.6
Moisture, % by vol	1.8	1.9	1.9	1.9
CO_2, % by volume	0.0	0.0	0.0	0.0
O_2, % by volume	20.9	20.9	20.9	20.9
PARTICULATE SAMPLE				
Time, min.	75.0	82.5	67.5	75.0
Volume, dscf	53.8	61.2	50.4	55.1
Solids collected, mg	10.6	12.6	11.8	11.7
Isokinetic ratio, %	95.2	99.5	100.7	98.4
PARTICULATES				
Concentration				
gr/dscf	0.003	0.003	0.004	0.003
x 10^{-6} lbs/dscf	0.435	0.454	0.516	0.468
Emission rate				
lbs/hr	9.752	10.071	11.388	10.404
SULFUR DIOXIDE				
Concentration				
ppmv db	21.6	29.7	26.7	26.0
x 10^{-6} lbs/dscf	3.595	4.939	4.436	4.323
Emission rate				
lbs/hr	80.7	109.7	97.9	96.1
NITROGEN OXIDES (as NO_2)				
Concentration				
ppmv, db	2.9	2.6	2.3	2.6
x 10^{-6} lbs/dscf	0.351	0.306	0.274	0.310
Emission rate				
lbs/hr	7.9	6.8	6.0	6.9
VOC (as C_1)				
Concentration				
ppmv wb	57.1	57.0	58.3	57.5
x 10^{-6} lbs/scf wb	1.778	1.777	1.815	1.790
Emission rate				
lbs/hr	40.6	40.2	40.9	40.6

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

FORMAL EMISSION TEST PROGRAM
BOF PRECIPITATOR EXHAUST STACK

GRANITE CITY STEEL DIVISION
NATIONAL STEEL CORPORATION
GRANITE CITY, ILLINOIS

ARI PROJECT NO. 436-53
GRANITE CITY P.O. 30-25149

REPORT PREPARED FOR:

GRANITE CITY STEEL DIVISION
NATIONAL STEEL CORPORATION
20TH AND STATE STREETS
GRANITE CITY, ILLINOIS

REPORT PREPARED BY:

ARI ENVIRONMENTAL, INC.
951 OLD RAND ROAD UNIT 106
WAUCONDA, ILLINOIS 60084
(708) 487-1580

AUGUST 27-28, 1993 TEST

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

I. TESTING AND ANALYTICAL PROCEDURES

Overview

ARI Environmental, Inc. was retained by the Granite City Steel Division of the National Steel Corporation in Granite City, Illinois to conduct a formal emission test program on the exhaust stack associated with the electrostatic precipitator serving the basic oxygen furnace on August 27-28, 1993.

Testing was conducted on August 27, 1993 with the fan flow rate set at 650,000 cfm on the electrostatic precipitator. As a result ofa delayed ignition condition which occurred at the beginning of the blow on the second run, a fourth run was conducted.

Testing was conducted on August 28, 1993 with the fan flow rate set at 680,000 cfm. Three sample runs were done at this condition.

Methodology

Sampling was conducted following USEPA Methods 1-5, 7E and 10 as detailed in the Code of Federal Regulations, CFR40, Part 60, 1992 and the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, Stationary Source Specific Methods.

Sample Location (USEPA Method 1)

Samples were taken from four 3" diameter test ports located on the stack exhaust. The test ports were located two diameters downstream and one-half diameters upstream from the last flow disturbances. The stack diameter at this location was 147.75 inches.

Gas Flow and Temperature (USEPA Method 2)

Velocity and volume flow was determined following USEPA Method 2. Velocity and temperature readings were taken on each of 6 points on four traverses for a total of 24 points.

Velocity traverses in the stack were made with a type "S" pitot tube. The velocity head was read on a Dwyer inclined vertical manometer to the nearest 0.01 in H_2O. Temperature measurements in the stack were made with a Chromel-Alumel thermocouple and connected to an Omega Model 170 digital direct read-out potentiometer accurate to approximately 1% of the absolute stack temperature.

Stack Gas O_2 and CO_2 Determination (USEPA Method 3A)

Continuous oxygen sampling was conducted in accordance with EPA Method 3A using ARI's OFC Infrared Industries Model IR-2000 oxygen monitor. The monitor results were recorded on a strip chart recorder and ARI's datalogger system.

ARI's sampling system consisted of a heated probe with in-stack filter followed by a 3-way calibration valve connected to a heated Teflon sample line. The Teflon sample line was connected to an ice-cooled condenser to remove moisture followed by a Teflon lined pump. A sample manifold was connected to the exhaust side of the pump with intake lines for ARI's O_2, CO_2, NO_x and CO monitors.

Certified gas standards of zero air, nitrogen and 12.1 O_2 in N_2 calibration gases were introduced at the three-way calibration valve located at the end of the sample probe for calibration of the O_2 monitor. The O_2 monitor span was set at 25% during the testing.

Continuous carbon dioxide sampling was conducted using ARI's Horiba NDIR Model 2000 carbon dioxide monitor. The monitor results were recorded on a strip chart recorder and ARI's datalogger system.

Certified gas standards of nitrogen, 8.2 and 12.9 CO_2 in N_2 calibration gases were used to calibrate the monitor. The CO_2 monitor span was set at 15% during the testing.

Stack Gas Moisture Content

Moisture sampling was conducted simultaneously with the particulate sampling in the back half of the Method 5 sampling trains per USEPA Method 4.

Total Particulate Determination (USEPA Method 5)

Particulate emission sampling was conducted using two Method 5 sampling trains in order to complete each sampling run within a specified time frame and to allow continuous sampling throughout a complete emissions cycle without sampling downtime due to sampling port changes.

Sampling was conducted for 1.5 minutes per point at each of 24 points (six points per port and four ports). The sampling rate during each run was adjusted to compensate for the changes in stack gas temperature and moisture content throughout the cycle to maintain isokinetic sampling. The sampling time for each run varied based on the duration of the cycle. The first 36 minutes consisted of initially sampling the 24 points. Backwards traversing was then performed at each point at 1½ minutes per point until the process cycle was completed.

Stack Particulate Sampling Train

The particulate sampling train used during the test series was an Andersen Samplers, Incorporated Method 5 sampling train. The major components are described below:

1. Nozzle - Type 316 stainless steel with sharp tapered leading edge.

2. Probe - Heated glass lined probe with attached pitot tube and stack temperature thermocouple connected to a heated filter holder.

3. Andersen Samplers, Incorporated Sample Case and Control Module - as per EPA Method 5 test specifications.

Sampling Train Assembly

The sample train was assembled as follows:

1. A stainless steel nozzle was selected, sized to maintain isokinetic sampling and attached to the heated glass lined probe.

2. A preweighed filter was placed in the filter holder and its number noted on the data sheets.

3. 100 mls of deionized distilled water was placed in the first and second impinger.

4. The third impinger was assembled dry.

5. 200 grams of dry silica gel was placed in the fourth impinger.

6. The clean glassware and entire sampling train was then assembled at the sampling location.

Sampling Train Leak Check Procedures (Pre and Post)

1. The pump was started.

2. The course flow adjustment valve was opened.

3. Flow through the dry gas meter was checked.

4. The probe inlet was plugged.

5. The fine flow adjustment valve was adjusted to yield a vacuum gauge reading of 15 in Hg.

6. If the flow exceeded .02 ACFM, the pump was shut off and all connections were rechecked for tightness and the leak test procedure was repeated until acceptable results were obtained.

Pitot Tube Leak Check Procedure

1. A positive (or negative) pressure was created in the pitot line to be checked.

2. The line was then plugged to hold the pressure and the magnehelic gauge was monitored to watch for any change in the manometer fluid level.

3. If the fluid level changed, the system was rechecked for leaks and the leak check procedure was repeated until no leaks were found.

Particulate Sampling Procedure

Crushed ice was added to the impinger compartment, the nozzle was uncapped and the probe was introduced into the stack to the first sampling point. The dry gas meter reading was recorded and sampling was started. At each point, a pitot reading was made and the sampling rate was adjusted using K-Factor calculations which were based on preliminary temperature, pressure and moisture estimates. When sampling at the last point in the port was completed, the pump was turned off and the probe was carefully removed from that port.

The two sampling trains were positioned at their respective port locations with the "A" train serving the South and West ports and the "B" train serving the East and North ports.

At the beginning of each cycle, sampling was started in the South port. Sampling was conducted for 1½ minutes at each of six points in the first port. At the completion of nine minutes of sampling, the second sampling train in the East port was immediately started and sampling conducted in the second port identical to the first. This process was repeated for the North and West ports with sampling and traversing continued backwards from the last sample point (24) until the cycle time was completed. Sampling was conducted continuously throughout the entire cycle.

The sampling rate during each run was adjusted to compensate for the changes in stack gas temperature and moisture content throughout the cycle to maintain isokinetic sampling rate at all times.

A final leak test was performed on the sampling train as previously described. The umbilical cord was disconnected and the sample case and probe were then disassembled.

Particulate Sample Recovery

1. The filter was removed from the heated filter holder and placed in a clean Petrie dish and labeled as Container #1.

2. A brush was used to clean the nozzle and other fittings as required. The acetone washings from the inner surfaces of the nozzle, and upstream portion of the filter holder were collected in a bottle and labeled as Container #2.

3. The contents of impinger #4 were transferred to a clean bottle to be weighed at a later time for moisture content and was labeled as Container #3.

4. The contents of impingers #1, #2, and #3 were placed in a graduated cylinder to measure the total volume of water collected.

Particulate Sample Analysis

1. Container #1 - At ARI's laboratory, the container was opened and placed in a desiccator and allowed to dry to a constant weight. Each filter and any loose matter were then weighed to the nearest 0.1 mg.

2. Container #2 - At ARI's laboratory, the contents of this container were transferred to a tared beaker and allowed to evaporate at room temperature in a fume hood. It was then placed in a desiccator and weighed on an analytical balance to the nearest 0.1 mg.

3. Container #3 - The contents of this container were transferred to a tared beaker and the weight of the silica gel was determined. The difference between this final weight and 200 grams was the total moisture collected by the silica gel.

4. The net weight gain recorded for Containers #1 and #2 were summed to yield the total solid particulates collected.

Nitrogen Oxides Determination (USEPA Method 7E)

Continuous NO_x sampling was conducted following EPA Method 7E. The NO_x monitor used was ARI's TECO Model 10 NO_x monitor. Data was recorded on a dual pen strip chart recorder and ARI's datalogger system. Calibration gas and zero was introduced directly into the 3-way valve for calibration of the NO_x monitor.

A converter efficiency test and response time test were conducted prior to beginning the testing following EPA Method 20 procedures.

A pretest and post-test measurement system bias test and calibration error test were performed using certified master gas NO_x calibration standards of 57.0 ppm, 142.8 ppm and 217.7 ppm NO_x. The NO_x monitor span was set at 250 ppm. Zero and calibration drift test results were well within 3% of span for each calibration gas. The average zero and calibration drift values obtained during each test run on each monitor were used to correct the data for that test run.

Carbon Monoxide Determination (USEPA Method 10)

Continuous carbon monoxide sampling was conducted in accordance with USEPA Method 10. A TECO Model 48 Gas Filter Correlation CO monitor was used for CO analysis. Results were recorded out on a dual pen strip chart recorder and recorded on ARI's datalogger system.

Certified CO calibration standards and zero air were used to calibrate the CO monitor. The gas standards were introduced directly into the three way valve at the end of the heated sample probe.

CO calibration standards of 5,750, 8,748 and 18,600 in N_2 were used to calibrate the CO monitor. The CO monitor span was set at 20,000 ppm during the testing.

A pretest and post-test measurement system bias test and calibration error test was done after each test repetition. The average zero and calibration drift values obtained during each test run on the monitor were used to correct the data for that test run.

Emission Calculations

The stack particulate emission rate (lbs/cycle) for each of the sampling runs was determined by summing the particulate emission rates (lbs/run) determined for each of the two sampling trains "A" and "B" used during each sampling run. This combined total represented the total stack particulate emissions for each complete BOF emissions cycle.

The total nitrogen oxides and carbon monoxide emission rates were calculated by summing the stack flow rate for each run and calculating the emission rate (lb/run) by multiplying the total flow rate (dscf/run) by the nitrogen oxides and carbon monoxide concentrations (lb/dscf).

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

FORMAL EMISSION TEST PROGRAM
BOF PRECIPITATOR EXHAUST STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

SUMMARY OF EMISSION TEST RESULTS

TABLE: III-1
COMPANY: Granite City Steel Division: Granite City, Illinois
LOCATION: BOF Precipitator Exhaust Stack
FAN FLOW: 650,000 cfm

TEST DATE: 8/27/93
TEST RUN: 1
TEST TIME: 0911-0957
BLOW TIME: 0919-0938

SAMPLING TRAIN:	A	B
STACK GAS		
Temperature, °F	311.1	313.4
Velocity, fps	76.4	79.7
Volume flow, acfm	545,611.4	569,697.6
Volume flow, scfm db	303,519.9	309,880.3
Volume flow, dscf/run	8,195,036.9	5,577,845.4
Moisture, % by vol	18.1	19.7
CO_2, % by volume	3.8	3.8
O_2, % by volume	18.6	18.6
PARTICULATE SAMPLE		
Time, min.	27.0	18.0
Volume, dscf	13.834	9.418
Particulate collected, mg	11.1	5.8
Isokinetic ratio, %	104.9	105.0
PARTICULATES		
Concentration gr/dscf	0.0124	0.0095
x 10^{-6} lbs/dscf	1.764	1.351
Emission rate lbs/run	14.46	7.54
lbs/cycle (total)	22.00	

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

FORMAL EMISSION TEST PROGRAM
BOF PRECIPITATOR EXHAUST STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

SUMMARY OF EMISSION TEST RESULTS

TABLE: III-2
COMPANY: Granite City Steel Division: Granite City, Illinois
LOCATION: BOF Precipitator Exhaust Stack
FAN FLOW: 650,000 cfm

TEST DATE: 8/27/93
TEST RUN: 3
TEST TIME: 1230-1310
BLOW TIME: 1237-1254

SAMPLING TRAIN:	A	B
STACK GAS		
Temperature, °F	314.2	318.2
Velocity, fps	76.0	82.8
Volume flow, acfm	542,645.7	591,510.8
Volume flow, scfm db	293,391.8	313,670.5
Volume flow, dscf/run	6,601,314.8	5,646,068.2
Moisture, % by vol	20.1	21.2
CO_2, % by volume	4.1	4.1
O_2, % by volume	18.6	18.6
PARTICULATE SAMPLE		
Time, min.	22.5	18.0
Volume, dscf	11.607	9.274
Particulate collected, mg	9.2	5.7
Isokinetic ratio, %	109.3	101.6
PARTICULATES		
Concentration		
gr/dscf	0.0122	0.0094
x 10^{-6} lbs/dscf	1.746	1.346
Emission rate		
lbs/run	11.52	7.60
lbs/cycle (total)	19.12	

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

FORMAL EMISSION TEST PROGRAM
BOF PRECIPITATOR EXHAUST STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

SUMMARY OF EMISSION TEST RESULTS

TABLE: III-3
COMPANY: Granite City Steel Division: Granite City, Illinois
LOCATION: BOF Precipitator Exhaust Stack
FAN FLOW: 650,000 cfm

TEST DATE: 8/27/93
TEST RUN: 4
TEST TIME: 1413-1451
BLOW TIME: 1419-1438

SAMPLING TRAIN:	A	B
STACK GAS		
Temperature, °F	310.1	317.8
Velocity, fps	78.7	85.0
Volume flow, acfm	561,878.6	607,439.9
Volume flow, scfm db	326,542.8	326,660.2
Volume flow, dscf/run	5,877,771.3	5,879,882.7
Moisture, % by vol	14.6	20.1
CO_2, % by volume	4.5	4.5
O_2, % by volume	18.1	18.1
PARTICULATE SAMPLE		
Time, min.	18.0	18.0
Volume, dscf	10.499	10.284
Particulate collected, mg	11.1	12.4
Isokinetic ratio, %	102.4	108.8
PARTICULATES		
Concentration gr/dscf	0.0162	0.0185
x 10^{-6} lbs/dscf	2.321	2.648
Emission rate lbs/run	13.64	15.57
lbs/cycle (total)	29.21	

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

FORMAL EMISSION TEST PROGRAM
BOF PRECIPITATOR EXHAUST STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

SUMMARY OF EMISSION TEST RESULTS

TABLE: III-4
COMPANY: Granite City Steel Division: Granite City, Illinois
LOCATION: BOF Precipitator Exhaust Stack
FAN FLOW: 680,000 cfm

TEST DATE: 8/28/93
TEST RUN: 5
TEST TIME: 0900-0952
BLOW TIME: 0918-0936

SAMPLING TRAIN:	A	B
STACK GAS		
Temperature, °F	298.7	286.4
Velocity, fps	65.8	77.7
Volume flow, acfm	470,344.8	555,137.6
Volume flow, scfm db	278,873.4	341,610.9
Volume flow, dscf/run	7,529,581.0	6,148,995.5
Moisture, % by vol	14.4	12.6
CO_2, % by volume	3.4	3.4
O_2, % by volume	18.8	18.8
PARTICULATE SAMPLE		
Time, min.	27.0	18.0
Volume, dscf	12.272	9.758
Particulate collected, mg	12.3	15.4
Isokinetic ratio, %	101.4	98.7
PARTICULATES		
Concentration		
gr/dscf	0.0155	0.0244
x 10^{-6} lbs/dscf	2.210	3.480
Emission rate		
lbs/run	16.64	21.40
lbs/cycle (total)	38.04	

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

NORMAL EMISSION TEST PROGRAM
BOF PRECIPITATOR EXHAUST STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

SUMMARY OF EMISSION TEST RESULTS

TABLE: III-5
COMPANY: Granite City Steel Division: Granite City, Illinois
LOCATION: BOF Precipitator Exhaust Stack
FAN FLOW: 680,000 cfm

TEST DATE: 8/28/93
TEST RUN: 6
TEST TIME: 1041-1124
BLOW TIME: 1048-1107

SAMPLING TRAIN:	A	B
STACK GAS		
Temperature, °F	311.4	318.3
Velocity, fps	78.8	85.3
Volume flow, acfm	562,592.7	609,377.7
Volume flow, scfm db	326,274.4	329,363.3
Volume flow, dscf/run	8,319,997.0	5,928,539.0
Moisture, % by vol	14.9	20.0
CO_2, % by volume	4.0	4.0
O_2, % by volume	18.0	18.0
PARTICULATE SAMPLE		
Time, min.	25.5	18.0
Volume, dscf	13.973	9.619
Particulate collected, mg	14.0	16.9
Isokinetic ratio, %	104.3	100.9
PARTICULATES		
Concentration gr/dscf	0.0155	0.0271
x 10^{-6} lbs/dscf	2.209	3.874
Emission rate lbs/run	18.38	22.97
lbs/cycle (total)	41.35	

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

FORMAL EMISSION TEST PROGRAM
BOF PRECIPITATOR EXHAUST STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

SUMMARY OF EMISSION TEST RESULTS

TABLE: III-6
COMPANY: Granite City Steel Division: Granite City, Illinois
LOCATION: BOF Precipitator Exhaust Stack
FAN FLOW: 680,000 cfm

TEST DATE: 8/28/93
TEST RUN: 7
TEST TIME: 1220-1300
BLOW TIME: 1229-1248

SAMPLING TRAIN:	A	B
STACK GAS		
Temperature, °F	313.5	316.8
Velocity, fps	83.2	85.0
Volume flow, acfm	594,638.8	607,381.3
Volume flow, scfm db	339.110.5	334,795.4
Volume flow, dscf/run	7,629,986.0	6,026,316.5
Moisture, % by vol	16.1	18.5
CO_2, % by volume	3.5	3.5
O_2, % by volume	18.6	18.6
PARTICULATE SAMPLE		
Time, min.	22.5	18.0
Volume, dscf	12.530	9.928
Particulate collected, mg	12.2	16.0
Isokinetic ratio, %	102.1	102.4
PARTICULATES		
Concentration gr/dscf	0.0150	0.0249
x 10^{-6} lbs/dscf	2.147	3.554
Emission rate lbs/run	16.38	21.42
lbs/cycle (total)	37.80	

Electronic Filing: Received, Clerk's Office 06/12/2024 - PCB 2024-077

FORMAL PARTICULATE EMISSION TEST PROGRAM
BOF PRECIPITATOR EXHAUST STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

SUMMARY OF EMISSION TEST RESULTS

TABLE: III-7

TEST DATE:	8/27/93	8/27/93	8/27/93
TEST TIME:	0911-0957	1230-1310	1413-1451
FAN FLOW, CFM:	650,000	650,000	650,000
TEST RUN:	1	3	4
Volume flow, dscf	13,772,882	12,247,383	11,757,654
Nitrogen Oxides (as NO_2)			
Concentration ppmv db	6.2	5.7	6.2
Emission rate, lbs/run	10.2	8.4	8.8
Carbon Monoxide			
Concentration ppmv db	2,133	2,165	2,663
Emission rate, lbs/run	2,135.5	1,926.6	2,275.8

Back Up Info - Not part of Application

EMISSION TEST PROGRAM
BLAST FURNACE CAST HOUSE BAGHOUSE EXHAUST STACK
SIMULTANEOUS OVERLAP CASTING OPERATION
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

SUMMARY OF EMISSION TEST RESULTS

TABLE: III-1
COMPANY: Granite City Steel Division: Granite City, Illinois
LOCATION: Blast Furnace Cast House Baghouse Exhaust Stack
TEST DATE: 7/01/93 (Simultaneous casting during each run)

TEST RUN:	1	2	3	Average
TEST TIME:	0904-1021	1117-1240	1338-1445	
STACK GAS				
Temperature, F	112.3	117.3	121.9	117.1
Velocity, fps	73.8	73.8	74.0	73.9
Volume flow, acfm	421,019.1	420,607.0	421,692.9	421,106.3
Volume flow, scfm db	374,039.0	370,068.6	367,931.7	370,679.8
Volume flow, scfh wb	22,849,051.7	22,629,550.0	22,508,057.9	22,662,219.9
Volume flow, dscfh	22,442,338.6	22,204,114.9	22,075,903.9	22,240,785.6
Moisture, % by vol	1.8	1.9	1.9	1.9
CO_2, % by volume	0.0	0.0	0.0	0.0
O_2, % by volume	20.9	20.9	20.9	20.9
PARTICULATE SAMPLE				
Time, min.	75.0	82.5	67.5	75.0
Volume, dscf	53.8	61.2	50.4	55.1
Solids collected, mg	10.6	12.6	11.8	11.7
Isokinetic ratio, %	95.2	99.5	100.7	98.4
PARTICULATES				
Concentration				
gr/dscf	0.003	0.003	0.004	0.003
x 10^{-6} lbs/dscf	0.435	0.454	0.516	0.468
Emission rate				
lbs/hr	9.752	10.071	11.388	10.404
				Grant Width 0.0195 lb/Ton Actual 0.0217
SULFUR DIOXIDE				
Concentration				
ppmv db	21.6	29.7	26.7	26.0
x 10^{-6} lbs/dscf	3.595	4.939	4.436	4.323
Emission rate				
lbs/hr	80.7	109.7	97.9	96.1
				E 0.1801 lb/Ton A 0.2006
NITROGEN OXIDES (as NO_2)				
Concentration				
ppmv, db	2.9	2.6	2.3	2.6
x 10^{-6} lbs/dscf	0.351	0.306	0.274	0.310
Emission rate				
lbs/hr	7.9	6.8	6.0	6.9
				E 0.0129 lb/Ton A 0.0144
VOC (as C_1)				
Concentration				
ppmv wb	57.1	57.0	58.3	57.5
x 10^{-6} lbs/scf wb	1.778	1.777	1.815	1.790
Emission rate				
lbs/hr	40.6	40.2	40.9	40.6
				0.0761 lb/Ton 0.0847

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Blast Furnace Casthouse Test

	Estimated	Actual	
14219	350	280	0805 – 0915 = 1 [illegible]
14220	220	180	1015 – 1130
14221	330	335	1235 – 1330
avg	300	265	
19092	420	344	0805 – 0925
19093	340	364	1015 – 1145
19094	340	295	1240 – 1350
avg	367 9.752	334 ~~10.071 11.388 10.404~~	" lb/Ton

PM_{10}					E	A
①	1.25 ×	9.752 =	12.19 lbs / (350 + 420) =		.0158	.0195
②	1.375 ×	10.071 =	13.85 lbs / (220 + 340) =		.0247	.0255
③	1.125 ×	11.388 =	12.81 lbs / (330 + 340) =		.0191	.0203
avg	1.25 ×	10.404 =	13.01 lbs / (300 + 367) =		.0195	.0217

	SO_2	E	A	E	A
①	1.25 × 80.7 = 100.88	(770)	(624)	.1310	.1617
②	1.375 × 109.7 = 150.84	(560)	(544)	.2694	.2773

avg ... (600 + 561) = .0195 .02...

	SO_2	E	A	E	A
①	1.25 × 80.7 = 100.88	(770) +	(624)	.1310	.1617
②	1.375 × 109.7 = 150.84	(560) +	(544)	.2694	.2773
③	1.125 × 97.9 = 110.14	(670) +	(630)	.1644	.1748
avg	1.25 × 96.1 = 120.13	(667) +	(599)	.1801	.2006

= 616 ~~1175~~ NTPH
= 407 ~~503~~ NTPH
1300 / 1.125 = 594 ~~1156~~ NTPH
534 ~~1013~~ NTPH

	NO_x	E		E	A
①	1.25 × 7.9 = 9.875	(770)	(624)	.0128	.0158
②	1.375 × 6.8 = 9.350	(560)	(544)	.0167	.0172
③	1.125 × 6.0 = 6.750	(670)	(630)	.0101	.0107
avg	1.25 × 6.9 = 8.625	(667)	(599)	.0129	.0144

	VOC	E	A	E	A
①	1.25 × 40.6 = 50.75	(770)	(624)	.0659	.0813
②	1.375 × 40.2 = 55.28	(560)	(544)	.0987	.1016
③	1.125 × 40.9 = 46.01	(670)	(630)	.0687	.0730
avg	1.25 × 40.6 = 50.75	(667)	(599)	.0761	.0847

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

RECEIVED
APR 21 1989
DFOC

PARTICULATE EMISSION COMPLIANCE TEST
BOF PRECIPITATOR EXHAUST STACK

GRANITE CITY STEEL DIVISION
NATIONAL STEEL CORPORATION
GRANITE CITY, ILLINOIS

ARI PROJECT 436-11
GRANITE CITY P.O. 30-917230

REPORT PREPARED FOR:

GRANITE CITY STEEL DIVISION
NATIONAL STEEL CORPORATION
20TH AND STATE STREETS
GRANITE CITY, ILLINOIS 62040

REPORT PREPARED BY:

ARI ENVIRONMENTAL, INC.
3407 N. RIDGE AVENUE
ARLINGTON HEIGHTS, ILLINOIS 60004
(312) 259-6991

MARCH 30, 1989 TEST

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

PARTICULATE EMISSION COMPLIANCE TEST
BOF PRECIPITATOR EXHAUST STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

SUMMARY OF EMISSION TEST RESULTS

TABLE: III-1

COMPANY: Granite City Steel Division: Granite City, Illinois

LOCATION: BOF Precipitator Stack

TEST DATE: 3-30-89

TEST RUN: 1

SAMPLING TRAIN:	"A" South and West Ports	"B" North and East Ports
STACK GAS		
Temperature, °F	244.7	225.1
Velocity, fps	82.2	69.8
Volume flow, acfm	587,556	498,843
Volume flow, scfm	432,181	377,553
Volume flow, dscf/run	6,611,591	9,099,112
Moisture, % by volume	15.0	10.7
CO_2, % by volume	3.9	3.9
O_2, % by volume	17.0	17.0
PARTICULATE SAMPLE		
Time, min.	18.0	27.0
Volume, dscf	10.66	14.09
Particulate collected, mg	19.0	15.8
Isokinetic ratio, %	99.6	95.6
PARTICULATES		
Concentration		
gr/dscf	0.0275	0.0173
x 10^{-6} lbs/dscf	3.93	2.47
Emissions		
lbs/run	25.98	22.51
lbs/cycle (total)	48.49	

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

PARTICULATE EMISSION COMPLIANCE TEST
BOF PRECIPITATOR EXHAUST STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

SUMMARY OF EMISSION TEST RESULTS

TABLE: III-2

COMPANY: Granite City Steel Division: Granite City, Illinois

LOCATION: BOF Precipitator Stack

TEST DATE: 3-30-89

TEST RUN: 2

SAMPLING TRAIN:	"A" South and West Ports	"B" North and East Ports
STACK GAS		
Temperature, °F	226.7	219.3
Velocity, fps	77.7	62.9
Volume flow, acfm	555,142	449,598
Volume flow, scfm	419,099	343,269
Volume flow, dscf/run	7,523,166	8,438,755
Moisture, % by volume	14.5	9.0
CO_2, % by volume	3.8	3.8
O_2, % by volume	17.0	17.0
PARTICULATE SAMPLE		
Time, min.	21.0	27.0
Volume, dscf	12.74	13.41
Particulate collected, mg	16.0	16.2
Isokinetic ratio, %	104.6	98.1
PARTICULATES		
Concentration gr/dscf	0.0194	0.0186
x 10^{-6} lbs/dscf	2.77	2.66
Emissions lbs/run	20.83	22.48
lbs/cycle (total)	43.31	

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

PARTICULATE EMISSION COMPLIANCE TEST
BOF PRECIPITATOR EXHAUST STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

SUMMARY OF EMISSION TEST RESULTS

TABLE: III-3

COMPANY: Granite City Steel Division: Granite City, Illinois

LOCATION: BOF Precipitator Stack

TEST DATE: 3-30-89

TEST RUN: 3

SAMPLING TRAIN:	"A" South and West Ports	"B" North and East Ports
STACK GAS		
Temperature, °F	218.5	220.4
Velocity, fps	69.4	69.7
Volume flow, acfm	495,472	497,800
Volume flow, scfm	378,687	379,341
Volume flow, dscf/run	7,822,464	9,410,534
Moisture, % by volume	13.9	8.1
CO_2, % by volume	3.8	3.8
O_2, % by volume	16.9	16.9
ARTICULATE SAMPLE		
Time, min.	24.0	27.0
Volume, dscf	12.80	14.9
Particulate collected, mg	24.6	6.2
Isokinetic ratio, %	101.0	97.8
PARTICULATES		
Concentration gr/dscf	0.0297	0.0064
x 10^{-6} lbs/dscf	4.24	0.92
Emissions lbs/run	33.16	8.63
lbs/cycle (total)	41.79	

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

PARTICULATE EMISSION COMPLIANCE TEST
BOF PRECIPITATOR EXHAUST STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

SUMMARY OF EMISSION TEST RESULTS

TABLE: III-2

COMPANY: Granite City Steel Division: Granite City, Illinois

LOCATION: BOF Precipitator Stack

TEST DATE: 7/11/90

TEST RUN: 2 Compliance

SAMPLING TRAIN:	"A" South and West Ports	"B" North and East Ports
STACK GAS		
Temperature, °F	248.5	249.3
Velocity, fps	75.688	57.967
Volume flow, acfm	540,705	414,109
Volume flow, scfm	393,930	301,812
Volume flow, dscf/run	6,810,769	7,276,183
Moisture, % by volume	17.67	10.71
CO_2, % by volume	3.2	3.2
O_2, % by volume	18.2	18.2
PARTICULATE SAMPLE		
Time, min.	21	27
Volume, dscf	11.407	11.777
Particulate collected, mg	13.1	8.8
Isokinetic ratio, %	103.5	100.0
PARTICULATES		
Concentration		
gr/dscf	0.0177	0.0115
x 10^{-6} lbs/dscf	2.532	1.648
Emissions		
lbs/run	17.25	11.77
lbs/cycle (total)	29.02	

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

PARTICULATE EMISSION COMPLIANCE TEST
BOF PRECIPITATOR EXHAUST STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

SUMMARY OF EMISSION TEST RESULTS

TABLE: III-3

COMPANY: Granite City Steel Division: Granite City, Illinois

LOCATION: BOF Precipitator Stack

TEST DATE: 7/11/90

TEST RUN: 3 Compliance

SAMPLING TRAIN:	"A" South and West Ports	"B" North and East Ports
STACK GAS		
Temperature, °F	240.8	252.4
Velocity, fps	66.486	73.564
Volume flow, acfm	474,967	525,532
Volume flow, scfm	293,005	380,716
Volume flow, dscf/run	7,911,135	8,995,404
Moisture, % by volume	16.30	12.49
CO_2, % by volume	3.1	3.1
O_2, % by volume	18.5	18.5
PARTICULATE SAMPLE		
Time, min.	27	27
Volume, dscf	13.057	15.170
Particulate collected, mg	6.7	12.3
Isokinetic ratio, %	102.0	104.2
PARTICULATES		
Concentration		
gr/dscf	0.0079	0.0125
x 10^{-6} lbs/dscf	1.1315	1.7878
Emissions		
lbs/run	8.95	16.08
lbs/cycle (total)	25.03	

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

NO_x EMISSION TEST
#12 BOILER STACK
GRANITE CITY STEEL DIVISION
NATIONAL STEEL CORPORATION
GRANITE CITY, ILLINOIS

ARI PROJECT NO. 436-34

REPORT PREPARED FOR:

GRANITE CITY STEEL DIVISION
NATIONAL STEEL CORPORATION
20TH & STATE STREETS
GRANITE CITY, ILLINOIS

REPORT PREPARED BY:

ARI ENVIRONMENTAL, INC.
951 OLD RAND ROAD, UNIT 106
WAUCONDA, ILLINOIS 60084
(708) 487-1580

NOVEMBER 4, 1992 TEST

DEC 28 '94 02:30PM GCS ENVIRONMENTAL P.2

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

NO_x EMISSION TEST
#12 BOILER STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

I. INTRODUCTION AND SUMMARY

ARI Environmental, Inc. was retained by the Granite City Steel Division of the National Steel Corporation located ~~in~~ Granite City, Illinois to conduct a nitrogen oxide emission test on the #12 Boiler exhaust stack on November 4, 1992.

The run was completed on November 4, 1992 when the boiler was operating with natural gas.

Test methods followed those as detailed in the Code of Federal Regulations, CFR40, Part 60, Appendix A; and the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, Stationary Source Specific Methods.

Testing was conducted boy Mr. M. Barton, Mr. D. Chapman and Mr. E. Kelly of ARI Environmental. Mr. Jeff Blaies of Granite City Steel was present to coordinate the tests and monitor the process conditions.

This report summarizes the test procedures and results of the test. Included, as appendices, is a documentation of all field test data, calculation summary data, strip chart data and logger data.

The results of the test are summarized below:

#12 Boiler (Natural Gas)

	Run #1
Nitrogen Oxide (as NO_2)	
Concentration, ppmv	73.7
Emission rate, lbs./hr.	32.276

DEC 28 '94 02:30PM GCS ENVIRONMENTAL

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

II. TESTING AND ANALYTICAL PROCEDURES

Overview

ARI Environmental, Inc. was retained by the Granite City Steel Division of the National Steel Corporation in Granite City, Illinois to conduct a nitrogen oxide emission test on the #12 Boiler exhaust stack November 4, 1992.

Methodology

Sampling was conducted following USEPA Methods 1-4, 6C, 7E and 10 as detailed in the Code of Federal Regulations, CFR40, Part 60, 1991 and the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, Stationary Source Specific Methods.

Sample Location (USEPA Method 1)

Samples were taken from two 3" diameter test ports located on the stack exhaust. The test ports were located five diameters downstream and five diameters upstream from the last flow disturbances. The stack diameter at this location was 90.5 inches.

Gas Flow and Temperature (USEPA Method 2)

Velocity and volume flow was determined following USEPA Method 2. Velocity and temperature readings were taken on each of 8 points on two traverses for a total of 16 points.

Velocity traverses in the stack were made with a type "S" pitot tube. The velocity head was read on a Dwyer inclined vertical manometer to the nearest 0.01 in H_2O. Temperature measurements in the stack were made with a Chromel-Alumel thermocouple and connected to an Omega Model 170 digital direct read-out potentiometer accurate to approximately 1% of the absolute stack temperature.

Stack Gas CO_2, O_2 and N_2 Content (USEPA Method 3)

The stack gas molecular weight was determined following EPA Method 3. Gas samples were collected in a 60 liter Tedlar bag using ARI's integrated bag collection system and analyzed for CO_2, O_2 and N_2 (by difference) using a Hays Orsat type gas analyzer after each sampling run.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Stack Gas Moisture Content (USEPA Method 4)

Moisture sampling was conducted following EPA Method 4 on the exhaust stack.

Nitrogen Oxides Determination (USEPA Method 7E)

Continuous NO_x sampling was conducted following EPA Method 7E. The NO_x monitor used was ARI's TECO Model 10 NO_x monitor. Data was recorded on a pen strip chart recorder and ARI's data logger system. Calibration gas and zero air was introduced directly into the 3-way valve for calibration of the NO_x monitor.

The average zero and calibration drift values obtained during each test run on each monitor were used to correct the data for that test run.

DEC 28 '94 02:32PM GCS ENVIRONMENTAL P.5

SR 2428

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

NO_x EMISSION TEST
#12 BOILER STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

SUMMARY OF EMISSION TEST RESULTS

TABLE: III-2

COMPANY: Granite City Steel Division: Granite City, Illinois

LOCATION: #12 Boiler Stack (Natural Gas)

TEST DATE: November 4, 1992
TEST TIME: 1223-1333

STACK GAS

Temperature, °F	300.6
Velocity, fps	35.4
Volume flow, acfm	94,999.5
Volume flow, scfm db	61,131.2
Volume flow, dscfh	3,667,873.2
Moisture, % by volume	6.7
CO_2, % by volume	8.1

NITROGEN OXIDES (as NO_2)

Concentration	
ppmv, db	73.7
x 10^{-6} lbs./dscf	8.8
Emission rate	
lbs./hr.	32.276

EMTEST.LS

DEC 28 '94 02:32PM GCS ENVIRONMENTAL P.6

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

NO_x EMISSION TEST
12 BOILER STACK
NOVEMBER 4, 1992

Natural Gas Usage 117 MMBTU/hr.

$$\frac{32.276 \text{ lb./hr. } NO_x}{117 \text{ MMBTU/hr.}} = 0.3 \text{ lb./MMBTU } NO_x$$

0.3 lb./MMBTU x 1019 BTU/$ft.^3$ = 306 lb./MM $ft.^3$ NO_x

DEC 28 '94 02:33PM GCS ENVIRONMENTAL P.7

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

NO_x EMISSION TEST
#12 BOILER STACK
GRANITE CITY STEEL DIVISION
NATIONAL STEEL CORPORATION
GRANITE CITY, ILLINOIS

ARI PROJECT NO. 436-38

REPORT PREPARED FOR:

GRANITE CITY STEEL DIVISION
NATIONAL STEEL CORPORATION
20TH & STATE STREETS
GRANITE CITY, ILLINOIS

REPORT PREPARED BY:

ARI ENVIRONMENTAL, INC.
951 OLD RAND ROAD, UNIT 106
WAUCONDA, ILLINOIS 60084
(708) 487-1580

FEBRUARY 1, 1993 TEST

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

NO_x EMISSION TEST
#12 BOILER STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

I. INTRODUCTION AND SUMMARY

ARI Environmental, Inc. was retained by the Granite City Steel Division of the National Steel Corporation located in Granite City, Illinois to conduct a nitrogen oxide emission test program on the #12 Boiler exhaust stack on February 1, 1993.

The run was completed on February 1, 1993 with the Boiler operating with blast furnace gas.

Test methods followed those as detailed in the Code of Federal Regulations, CFR40, Part 60, Appendix A; and the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, Stationary Source Specific Methods.

Testing was conducted boy Mr. M. Ames, Mr. M. Barton, Mr. D. Chapman and Mr. J. Whitaker of ARI Environmental. Mr. Jeff Blaies of Granite City Steel was present to coordinate the tests and monitor the process conditions.

This report summarizes the test procedures and results of this test. Included, as appendices, is a documentation of all field test data, calculation summary data, strip chart data and logger data.

The results of the test are summarized below:

#12 Boiler

	Blast Furnace Gas
Nitrogen Oxide (as NO_2)	
Concentration, ppmv	15.2
Emission rate, lbs./hr.	7.373

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

II. TESTING AND ANALYTICAL PROCEDURES

Overview

ARI Environmental, Inc. was retained by the Granite City Steel Division of the National Steel Corporation in Granite City, Illinois to conduct a nitrogen oxide emission test on the #12 Boiler exhaust stack February 1, 1993.

Methodology

Sampling was conducted following USEPA Methods 1-4, and 7E as detailed in the Code of Federal Regulations, CFR40, Part 60, 1992 and the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, Stationary Source Specific Methods.

Sample Location (USEPA Method 1)

Samples were taken from two 3" diameter test ports located on the stack exhaust. The test ports were located five diameters downstream and five diameters upstream from the last flow disturbances. The stack diameter at this location was 90.5 inches.

Gas Flow and Temperature (USEPA Method 2)

Velocity and volume flow was determined following USEPA Method 2. Velocity and temperature readings were taken on each of 8 points on two traverses for a total of 16 points.

Velocity traverses in the stack were made with a type "S" pitot tube. The velocity head was read on a Dwyer inclined vertical manometer to the nearest 0.01 in H_2O. Temperature measurements in the stack were made with a Chromel-Alumel thermocouple and connected to an Omega Model 170 digital direct read-out potentiometer accurate to approximately 1% of the absolute stack temperature.

Stack Gas CO_2, O_2 and N_2 Content (USEPA Method 3)

The stack gas molecular weight was determined following EPA Method 3. Gas samples were collected in a 60 liter Tedlar bag using ARI's integrated bag collection system and analyzed for CO_2, O_2 and N_2 (by difference) using a Hays Orsat type gas analyzer after each sampling run.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Stack Gas CO_2 and O_2 Determination (USEPA Method 3A)

Continuous carbon dioxide and oxygen sampling was conducted on the exhaust stack in accordance with EPA Method 3A using ARI's Horiba PIR-2000 carbon dioxide analyzer and OFC Infrared Industries Model IR-2000 oxygen monitor. The monitor's results were recorded on ARI's data logger system.

Calibration gas and zero air were introduced directly into the 3-way valve located at the end of the sample probe. The CO_2 monitor span was set at 15% and the O_2 monitor was set at 25% during the testing.

Stack Gas Moisture Content (USEPA Method 4)

Moisture sampling was conducted following EPA Method 4 on the exhaust stack.

Nitrogen Oxides Determination (USEPA Method 7E)

Continuous NO_x sampling was conducted following EPA Method 7E. The NO_x monitor used was ARI's TECO Model 10 NO_x monitor. Data was recorded on a pen strip chart recorder and ARI's data logger system. Calibration gas and zero air was introduced directly into the 3-way valve for calibration of the NO_x monitor.

The average zero and calibration drift values obtained during each test run on each monitor were used to correct the data for that test run.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

NO_x EMISSION TEST
#12 BOILER STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS
SUMMARY OF EMISSION TEST RESULTS

TABLE: III-1

COMPANY: Granite City Steel Division: Granite City, Illinois

LOCATION: #12 Boiler Stack

TEST DATE: 02/01/93
TEST TIME: 1520-1620
CONDITION: Blast Furnace Gas

STACK GAS

Temperature, °F	469.8
Velocity, fps	48.0
Volume flow, acfm	128,744.0
Volume flow, scfm db	67,898.0
Volume flow, dscfh	4,073,882.7
Moisture, % by volume	7.3
CO_2, % by volume	12.6
O_2, % by volume	8.4

NITROGEN OXIDES (as NO_2)

Concentration	
ppmv, db	15.2
x 10^{-6} lbs./dscf	1.810
Emission rate	
lbs./hr.	7.373

EMTEST.LS

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

NO_x EMISSION TEST
12 BOILER STACK
FEBRUARY 1, 1993

Blast Furnace Gas Fuel Usage Rate 112.4 MMBTU/hr.

$$\frac{7.373 \text{ lb./hr. } NO_x}{112.4 \text{ MMBTU/hr.}} = 0.066 \text{ lb./MMBTU}$$

$.066 \text{ lb./MMBTU} \times 80 \text{ BTU/ft.}^3 = 5.28 \text{ lb./MM ft.}^3 \ NO_x$

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

NO_x EMISSION TEST
#4 SLAB FURNACE
STACK EMISSION TEST
MAY 19, 1992

Mark

Introduction and Summary of Results

On March 19, 1992 the exhaust gas from #4 Slab Furnace was tested for NO_x concentration while burning natural gas. Test Methods followed those detailed in the Code of Federal Regulations, CFR 40, Part 60, Appendix A: and the Quality Assurance Handbook for Air Pollution Measurement. System, Volume III, Stationary Source Specific Methods. The results of the test indicate an average emission rate of .393 lb. NO_x per mmbtu.

Overview

In order to determine the NO_x emissions generated during #4 Slab Furnace was fired on natural gas. Based upon the amount of fuel used during the test and the NO_x lb./hr. obtained by testing the NO_x lb./mmbtu are determined.

Test Methodology and Equipment

Sampling was conducted following USEPA Method 7E. The NO_x monitor used was AIR's TECO Model 10 NO_x monitor. Data was recorded on a dual pen strip chart recorder. Calibration gas and zero air was introduced directly into the 3-way valve for calibration of the NO_x monitor.

The average zero and calibration drift valves obtained during each test run on each monitor were used to correct the data for that test run.

Results

Average concentration of NO_x during the tests are as follows:

Run one	=	96.561 lb./hr.
Run two	=	96.256 lb./hr.
Run three	=	100.960 lb./hr.
Average	=	97.925 lb./hr.

Average fuel usage rate = 250.67 mmbtu/hr.

97.925 lb. NO_x/hr./250.67 mmbtu/hr. = 0.393 lb./mmbtu

$0.393\ lb/mmBtu \times 1019\ Btu/ft^3 = 401\ lb/mmFt^3$

SONOCO

~~NOS1990~~.JNR

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

II. TESTING AND ANALYTICAL PROCEDURES

Overview

ARI Environmental, Inc. was retained by Granite City Steel Division of the National Steel Corporation in Granite City, Illinois to conduct a sulfur dioxide, nitrogen oxide and carbon monoxide test program on the #4 Slab Furnace exhaust stack on March 19, 1992.

Methodology

Sampling was conducted following USEPA Method 1-4, 6C, 7E and 10 as detailed in the Code of Federal Regulations CFR40, Part 60, 1991 and Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, Stationary Source Specific Methods.

Sample Location (USEPA Method 1)

Samples were taken from four 3" diameter test ports located on the stack exhaust. The test ports were located three diameters downstream and three diameters upstream from the last flow disturbances. The stack diameter at this location was 180 inches.

Gas Flow and Temperature (USEPA Method 2)

Velocity and volume flow was determined following USEPA Method 2. Velocity and temperature readings were taken on each of 4 points on four traverses for a total of 16 points.

Velocity traverses in the stack were made with a type "S" pitot tube. The velocity head was read on a Dwyer inclined vertical manometer to the nearest 0.01 in H_2O. Temperature measurements in the stack were made with a Chromel-Alumel thermocouple and connected to an Omega Model 170 digital direct read-out potentiometer accurate to approximately 1% of the absolute stack temperature.

Temperature measurements were determined using a Chromel-Alumel thermocouple connected to an Omega digital direct read-out potentiometer accurate to approximately 1% of the absolute stack temperature.

Stack Gas CO_2, O_2 and N_2 Content (USEPA Method 3)

The stack gas molecular weight was determined following EPA Method 3. Gas samples were collected in a 60 liter Tedlar bag using ARI's integrated bag collection system and analyzed for CO_2, O_2 and N_2 (by difference) using a Hays Orsat type gas analyzer after each sampling run.

SR 2440

Stack Gas Moisture Content (USEPA Method 4)

Moisture sampling was conducted following EPA Method 4 on the exhaust stack.

Sulfur Dioxide Determination - Instrument Method (USEPA Method 6C)

Sulfur dioxide sampling and analyses were performed ~~on~~ a one-hour continuous basis in accordance with USPEA Method 6C.

A Western Research Model 5R UV monitor was used for the testing zero air and calibration gases were introduced into the 3 way calibration valve located at the end of the heated sample probe.

Nitrogen Oxides Determination (USEPA Method 7E)

Continuous NO_x sampling was conducted following EPA Method 7E. The NO_x monitor used was ARI's TECO Model 10 NO_x monitor. Data was recorded on a dual pen strip chart recorder. Calibration gas and zero was introduced directly into the 3-way valve for calibration of the NO_x monitor.

Carbon Monoxide Determination (USPEA Method 10)

Carbon monoxide sampling and analyses were conducted continuously in accordance with USPEA Method 10. A TECO Model 48 Gas Filter Correlation CO monitor was used for CO analysis. Results were printed out on a dual pen strip chart recorder.

Certified CO calibration standards and zero air were used to calibrate the CO monitor which were introduced directly into the three way valve at the end of the heated sample probe.

SO_2, NO_x, CO EMISSION TEST PROGRAM
#4 SLAB FURNACE EXHAUST STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

SUMMARY OF EMISSION TEST RESULTS

TABLE: III-1

COMPANY: Granite City Steel Division: Granite City, Illinois

LOCATION: Slab Furnace No. 4 Exhaust Stack

TEST DATE: 3/19/92

TEST RUN:	1	2	3	Avg
TEST TIME:	1522-1622	1639-1739	1757-1857	
STACK GAS				
Temperature, ^oF	776.5	789.8	791.1	785.8
Velocity, fps	22.6	23.2	22.7	22.8
Volume flow, acfm	239,771	246,125	240,463	242,120
Volume Flow, scfm, db	89,105	90,503	88,524	89,377
Volume flow, dscfh	5,346,298	5,430,194	5,311,457	5,362,650
Moisture, % by volume	11.4	11.4	11.2	11.3
CO_2, % by volume	6.5	6.6	6.6	6.6
O_2, % by volume	9.1	9.2	9.1	9.1
Sulfur Dioxide				
Concentration ppmv db	14.1	15.8	16.1	15.3
x 10^{-6} lbs/dscf	2.3	2.6	2.7	2.5
Emission Rate lbs/hr	12.484	14.214	14.231	13.643
Carbon Monoxide				
Concentration ppmv,db	5.8	6.3	5.8	6.0
x 10^{-6} lbs/dscf	0.4	0.5	0.4	0.4
Emission Rate lbs/hr	2.263	2.496	2.243	2.3
Nitrogen Oxides (As NO_2)				
Concentration ppmv, db	151.3	148.5	159.2	153.0
x 10^{-6} lbs/dscf	18.1	17.7	19.0	18.3
Emission Rate lbs/hr	96.561	96.256	100.960	97.9

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

SUMMARY OF EMISSION TEST RESULTS

TABLE: III-1

COMPANY: Granite City Steel Division: Granite City, Illinois

LOCATION: Blast Furnace Iron Spout Baghouse Exhaust Stack

TEST DATE: July 1, 1993

TEST RUN:	1	2	3	
TEST TIME:	0904-1021	1117-1240	1338-1445	Average
STACK GAS				
Temperature, °F	123.3	124.2	123.6	123.7
Velocity, fps	71.7	68.6	68.1	69.5
Volume flow, acfm	157,818.4	150,970.0	149,783.1	152,857.2
Volume flow, dscfh	8,318,765.7	7,944,645.5	7,905,846.1	8,066,419.1
Moisture, % by vol	0.7	1.1	0.9	0.9
CO_2, % by volume	0.5	0.7	0.7	0.7
O_2, % by volume	20.1	20.1	20.1	20.1
SULFUR DIOXIDE				
Concentration				
lbs/dscf x 10^{-5}	0.0492	0.0429	0.0373	0.0431
ppmv db	3.0	2.6	2.2	2.6
Emission rate				
lbs/hr	4.1	3.4	3.0	3.5
	— 1.25 hrs	1.375	1.125	

134,440 dscfm

SO_2 $3.5\ lb/hr \times 1.25\ hr = \frac{4.375\ lb/test}{667\ Tons/test} = .0066\ lb/Ton\ SO_2$

$3.5\ lb/hr \times 1.25 = \frac{4.375\ lb/test}{599\ Tons} = .0073\ lb/Ton\ SO_2$

APPENDIX A

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-037**
Printed on Recycled Paper
9/09/92

Table 2-1. Emissions Summary, Granite City Steel, August 31 and September 1, 1992

	Run 1	Run 2	Run 3	Avg.
Time	1400-1508	742-846	1003-1105	--
Stack Temperature (°F)	129.1	117.8	123.0	123.3
Sample Volume (dscf)	45.456	46.512	47.936	46.635
Moisture (%)	1.63	1.76	4.64	2.67
CO_2 (%)	0	0	0	0.0
O_2 (%)	20.9	20.9	20.9	20.9
Velocity (ft/sec)	44.58	44.36	46.60	45.18
ACFM	98,099	97,614	102,532	99,415
DSCFM	86,370	87,584	88,512	87,489
Total Particulate Catch				
PM (mg)	6.4	10.6	8.2	8.4
gr/dscf	0.002168	0.003509	0.002634	0.002770
lb/hr	1.61	2.64	2.00	2.08

Source: ESE, 1992.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

APPENDIX A
SOURCE TEST RESULTS

BLAST FURNACE IRON SPOUT BAGHOUSE EXHAUST STACK
SO_2 EMISSION TEST
JULY 1, 1993

BLAST FURNACE CAST HOUSE BAGHOUSE EXHAUST STACK
SO_2, NO_X, AND VOM EMISSION TEST
JULY 1, 1993

BOF PRECIPITATOR EXHAUST STACK
TSP, NO_X, AND CO EMISSION TEST
AUGUST 27-28, 1993

TSP EMISSION TEST
MARCH 30, 1989

TSP EMISSION TEST
JULY 11, 1990

#12 BOILER STACK
NO_X EMISSION TEST
NOVEMBER 4, 1992

#12 BOILER STACK
NO_X EMISSION TEST
FEBRUARY 1, 1993

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

APPENDIX B

BOF DUST - LEAD CONTENT

Test Date	06/21/89	990 ppm
	09/17/90	1,289 ppm
	10/20/92	1,091 ppm
Average		1,123 ppm

See following test results.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

TESTING LABORATORIES inc.
Engineers
Metallurgists
2350 Seventh Blvd. • St. Louis, Missouri 63104
314/771-7111

Report No. 89-6-4479

June 21, 1989

Examination of furnace dust sample submitted 6/8/89.

Granite City Steel
20th & State Streets
Granite City, IL 62040

P.O.: 309233656
Attn: Mr. Doug Stracke

TEST REPORT

Basic Oxygen Furnace

Lead, ppm	990

Analysis on as received basis.

Respectfully submitted,

Allan M. Siegel

Allan M. Siegel, P.E.
Director

LN - 152057-58
LB - 32730
RW/sas

Inv. #30504

Electronic Filing: Received, Clerk's Office 06/12/2024 ** PCB 2024-077

ENVIRONMETRICS
2345 Millpark Drive
Maryland Heights, MO 63043
(314) 427-0550

GRANITE CITY STEEL
20TH & SHERMAN
GRANITE CITY, IL 62040

ATTN: TOM MAHL

PO: 30-030071T
INVOICE: 10091

BOF ESP Oust

RECEIVED
SEP 28 1990
DEOO

ANALYSIS RESULTS

SAMPLE ID: 19008038
LAB ID: 9008915

TEST PERFORMED	METHOD OF ANALYSIS	RESULTS
	SW-846 6010	TOTAL
		ppm
LEAD		1,289

SEPTEMBER 17, 1990

WAYNE L. COOPER
LABORATORY DIRECTOR

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

DTC Laboratories, Inc.

An Environmental Testing and Consulting Service Company

4590 INDUSTRIAL DRIVE
SPRINGFIELD, ILLINOIS 62703
FAX: (217) 529-8485
(217) 529-9191

A N A L Y T I C A L R E P O R T

CLIENT: Granite City Steel
DATE RECEIVED: 10-14-92
SAMPLE DESCRIPTION: #19210028 BOF Precipitator Dust
LOG NO.: 3244-92
REPORT DATE: 10-20-92

	RESULT
LEAD	1090.75 mg/kg (PPM)

Victor J. Gairani
Laboratory Manager

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

APPENDIX C
EMISSION FACTOR CALCULATION
BOF ROOF MONITOR (Emissions Source 0034)

Base Period Emission Factor

Uncontrolled, at source, PM emission factors per AP-42 and AIRS:

- charge = 0.6 lbs PM / ton hot metal at BOF
- refine = 28.5 lbs PM / ton steel at BOF
- tap = 0.92 lbs PM / ton steel at BOF
- PM_{10}/TSP ratio = 0.67 (Table 7.5-2 AP-42, Top Blown Furnace)

Production in tons per year:

Iron = 2,059,557 Steel = 2,413,406

PM_{10} from BOF roof:

Process Step	*Base Period Actual Emissions (tons/year)*	*Base Period Actual Emissions (lbs/hr)*	*Emission Rate (lbs/ton steel)*	*Assumed Hood Capture Efficiency (%)*
Charge	41.4	9.45	0.3431	90
Refine	239,4	52.61	0.19095	99
Tap	74.4	16.98	0.06164	90
Total	346.2	79.04	0.2869	

(346.2 tpy * 2000lb/ton)/2,413,406tons steel = 0.2869 lb PM_{10}/ton steel

Emission Factor with Production Increase

Many improvements have been made to the BOF ESP control system since it was originally installed. These improvements include but are not limited to secondary emission hoods and doghouse enclosures, steam injection, air/water lances for moisture control and electronic voltage controllers for the ESP. A fume suppression system was installed in April, 1992 for additional control of tapping emissions.

Granite City has employed the use of formal problem-solving techniques as part of an ongoing effort to optimize the performance of the ESP system. The following are some of the improvements which have been implemented or will be implemented:

- 4th Quarter 1993 - #1 field wire replacement
- January 1995 - #2 field wire replacement
- July 1996 - #3 and #4 field wire replacement
- March 1995 - installed double dump valves on all ESP hoppers
- 3rd Quarter 1995 - replaced Automatic Voltage Controllers for all ESPs
- 2nd Quarter 1995 - replaced inefficient transformer rectifiers
- 3rd Quarter 1995 - replaced rubber boots on top of ESP to minimize water and air infiltration
- 2nd Quarter 1995 - replaced transition pieces at top of evaporation chambers
- 2nd Quarter 1995 - repaired downcomer and ductwork air leaks
- January 1995 - relocated steam injection to downcomer

In addition to all of these improvements, in June of 1995, a forth ESP was added at a cost of approximately $7,000,000. This addition to the existing ESP control system is intended to ensure compliance at the increased production rates proposed in this application.

Figure C-1 at the end of this Appendix shows the BOF gas cleaning system as it will be for the increased production rate.

The roof monitor emission rate that will be achieved at the increased production rate is shown below.

Uncontrolled, at source, PM emission factors per AP-42 and AIRS:

- charge = 0.6 lbs PM / ton hot metal at BOF
- refine = 28.5 lbs PM / ton steel at BOF
- tap = 0.92 lbs PM / ton steel at BOF
- PM_{10}/TSP ratio = 0.67 (Table 7.5-2 AP-42, Top Blown Furnace)

Production in tons per year:

Iron = 3,165,000 Steel = 3,580,000

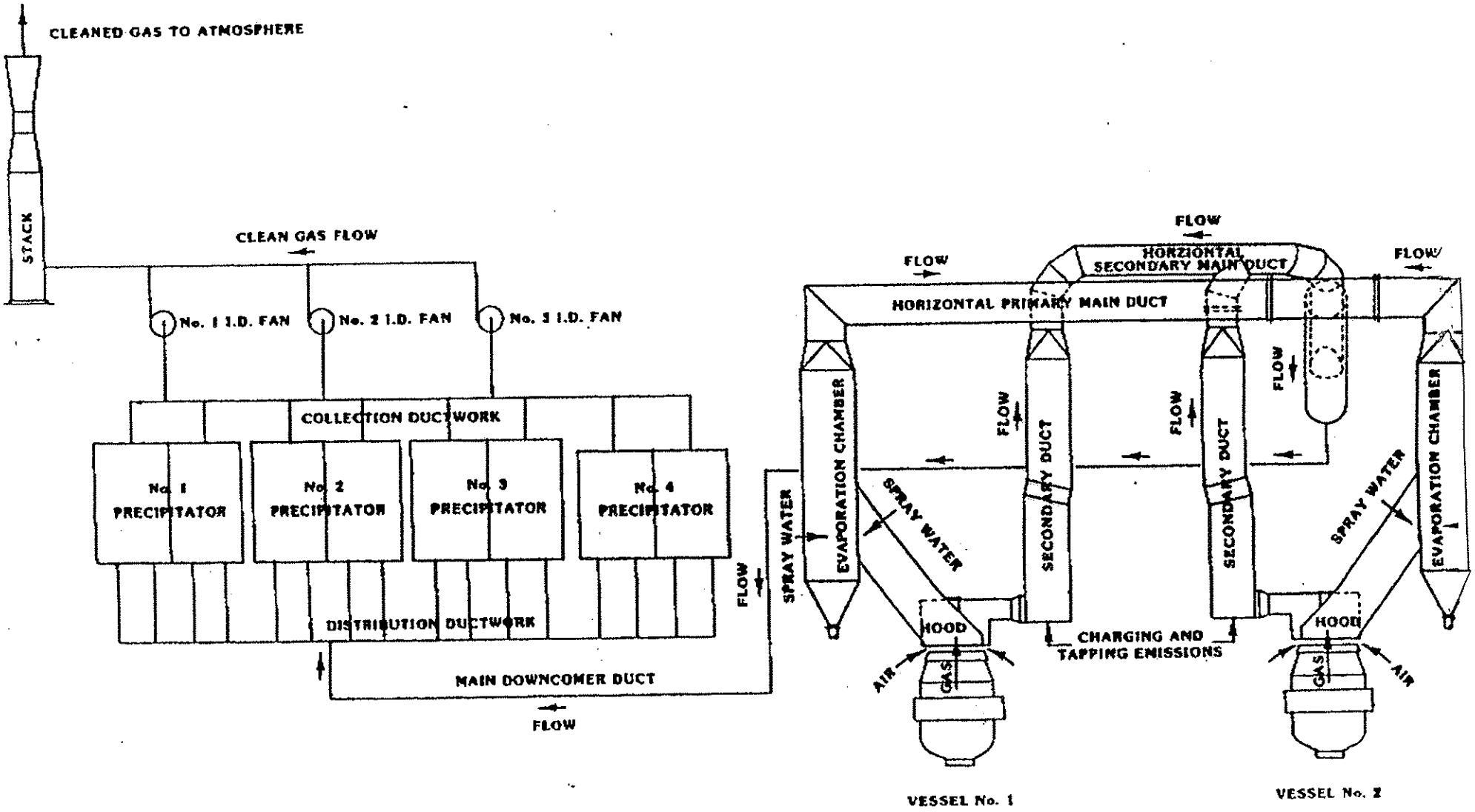
PM_{10} from BOF roof:

Process Step	*Production Increase Emissions (tons/year)*	*Production Increase Emissions (lbs/hr)*	*Emission Rate-- (lbs/ton steel)*	*Assumed Hood Capture Efficiency (%)*
Charge	31.8	7.26	0.01777	95 **
Refine	34.2	7.8	0.019095	99.9 **
Tap	52.4	11.97	0.029279	95 **
Total	118.4	27.03	0.066145	

(118.4 tpy * 2000lb/ton)/3,580,000tons steel = 0. 066145lb PM_{10}/ton steel

** Increased capture and control efficiency due to installation of 4th ESP and system improvements

FIGURE C-1



BOF GAS CLEANING SYSTEM

GRANITE CITY STEEL

SR 2453

Granite City Division of National Steel Corporation
Blast Furnace and BOF Production

BOF PRODUCTION (net tons/month)									
month	1986	1987	1988	1989	1990	1991	1992	1993	1994
1	173,972	111,383	190,588	112,096	207,516	176,208	205,846	202,208	182,626
2	120,008	95,872	166,852	109,648	184,568	157,456	196,156	183,411	201,262
3	162,006	189,720	137,144	180,017	211,206	163,633	205,846	205,652	226,972
4	176,100	182,040	185,160	178,410	205,182	184,658	198,229	200,932	211,520
5	173,507	181,102	201,965	195,672	212,644	202,159	205,258	213,685	218,556
6	174,540	184,380	186,960	188,820	199,833	195,417	184,015	209,603	211,124
7	174,716	188,449	193,409	201,438	208,108	170,827	202,551	216,556	213,900
8	170,872	183,334	187,426	125,767	208,627	207,474	213,186	217,920	
9	160,680	183,570	185,160	205,350	183,596	198,852	136,526	211,498	
10	157,914	183,086	195,858	202,213	204,291	194,996	151,808	218,585	
11	175,260	191,670	184,800	185,430	203,250	199,712	207,000	210,646	
12	132,556	188,201	153,760	176,390	192,767	203,843	156,635	205,000	
total	1,952,131	2,062,807	2,169,082	2,061,251	2,421,588	2,255,235	2,263,056	2,495,696	

BLAST FURNACE PRODUCTION (net tons/month)									
month	1986	1987	1988	1989	1990	1991	1992	1993	1994
1	143,437	89,931	153,171	93,682	164,925	150,713	173,739	170,141	157,484
2	98,392	77,756	135,772	91,616	148,404	133,608	162,818	154,107	175,540
3	132,711	151,559	113,491	150,474	169,449	143,364	173,613	173,453	196,360
4	143,340	91,380	148,890	147,690	167,318	161,388	168,325	173,707	182,527
5	139,345	150,970	161,169	159,898	173,396	174,700	174,661	178,714	187,766
6	140,610	155,220	153,840	154,800	162,136	166,374	157,507	175,806	184,430
7	141,577	154,535	156,302	163,928	169,738	149,959	174,651	183,744	186,723
8	139,407	152,210	150,784	104,656	170,399	178,011	182,629	187,742	
9	134,490	150,480	156,090	165,780	148,870	172,407	114,551	179,321	
10	132,494	151,621	156,984	160,518	167,405	168,123	125,780	185,734	
11	135,900	154,350	150,210	150,780	167,573	170,330	175,665	178,574	
12	107,012	152,737	124,434	150,319	160,251	173,513	129,677	178,938	
total	1,588,715	1,632,749	1,761,137	1,694,141	1,969,864	1,942,490	1,913,616	2,119,981	

SR 2454

GCS – 1994 SHIPMENTS, PRODUCTION and INVENTORIES

108 Report (Revised)

As of: Date: 1/10/95

SHIPMENTS:	(Act) 12/31/93	(Act) JAN.	(Act) FEB.	(Act) MAR.	(Act) APR.	(Act) MAY	(Act) JUNE	(Act) JUL	(Act) AUG.	(Act) SEP.	(Act) OCT.	(Act) NOV.	(Act) DEC.	1Q / 94	2Q / 94	3Q / 94	4Q / 94	1994
Prime Trade Total	1696318	123427	119226	151491	138900	145914	160031	146685	163166	161466	161771	171602	165342	394144	444845	471319	498715	1809023
t Rolled – Total	1260428	91447	90111	110185	103997	109235	115990	109006	121215	119951	117776	129869	117278	291743	329222	350172	364923	1336060
–Prime	1192995	85501	84089	101269	98507	103415	105317	99727	113431	112802	111622	125883	111695	270859	307239	325960	349400	1253458
–Limited Warranty	67433	5946	6022	8916	5490	5820	10673	9279	7784	7149	6154	3986	5383	20884	21983	24212	15523	82602
Cold Rolled – Total	22199	925	1431	1648	2855	1659	1263	2751	2338	2638	3753	2781	5620	4004	5777	7725	12154	29660
–Prime	22041	925	1431	1648	2855	1564	1263	2751	2338	2638	3753	2781	5620	4004	5682	7725	12154	29565
–Limited Warranty	158	0	0	0	0	95	0	0	0	0	0	0	0	0	95	0	0	95
Galvanized – Total	413691	31055	27684	39658	32048	35020	42778	34928	39615	38879	40242	38952	42444	98397	109846	113422	121638	443303
–REGULAR Prime	350335	27543	25639	36695	28221	30879	37957	30587	34054	33610	35166	35303	38755	89877	97057	98251	109224	394409
–BLDG PROD.	58870	3237	1843	2473	3356	3423	4187	3922	4308	4712	3960	3248	2650	7553	10968	12942	9858	41319
–Limited Warranty	4486	275	202	490	471	718	634	419	1253	557	1116	401	1039	967	1823	2229	2556	7575
Slab Sales–Primes	12327	0	0	205	98	118	137	277	157	307	0	181	184	205	353	741	365	1664
–Lim Wty	0	0	189	0	0	0	0	0	0	0			0	189	0	0	0	189
Secondary	75504	4708	5945	6063	4517	4920	4651	6228	5021	6194	3820	4764	5369	16716	14088	17443	13953	62200
(Mill Cobbles In Above)	(8075)	(0)	(0)	(0)	(0)	(0)	(0)	(166)	(0)	(67)	(67)	(20)	(0)	(0)	(0)	(233)	(87)	(320)
Trade Total	1784149	128135	125360	157759	143515	150952	164819	153190	168346	167967	165591	176547	170895	411254	459286	489503	513033	1873076
GCS –> MW BAND	520932	34483	42675	52864	56283	62149	46076	33041	31933	31925	37320	30131	23732	130022	164508	96899	91183	482612
GCS –> MW HR P&O		0	118	0	0	0	0	0	0	0	0	0	0	118	0	0	0	118
	520932	34483	42793	52864	56283	62149	46076	33041	31933	31925	37320	30131	23732	130140	164508	96899	91183	482730
GCS –> GLD SLAB	92620	15063	10043	1184	0	0	0	0	0	0	0	0	0	26290	0	0	0	26290
Total Shipments	2397701	177681	178196	211807	199798	213101	210895	186231	200279	199892	202911	206678	194627	567684	623794	586402	604216	2382096

Transfers into GCS:	12/31/93	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JUL	AUG.	SEP.	OCT.	NOV.	DEC.	1Q / 94	2Q / 94	3Q / 94	4Q / 94	1994
GLD –> GCS SLAB	33129	750	4467	3382	5338	1681	5587	16885	5761	1794	1508	4358	2160	8599	12606	24440	8026	53671
GLD –> GCS COIL	20900	0	0	0	0	0	0	0	0	0	377	200	161	0	0	0	738	738
Tot Transf Into GCS	54029	750	4467	3382	5338	1681	5587	16885	5761	1794	1885	4558	2321	8599	12606	24440	8764	54409

PRODUCTION (p & ss)	12/31/93	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JUL	AUG.	SEP.	OCT.	NOV.	DEC.	1Q / 94	2Q / 94	3Q / 94	4Q / 94	1994
BF (NT/D)	(5808)	(5080)	(6269)	(6334)	(6084)	(6058)	(6148)	(6049)	(5115)	(5045)	(6554)	(6523)	(6490)	(5882)	(6096)	(5407)	(6522)	(5977)
BF NTs	2119921	157494	175543	196360	182527	187786	184430	187509	158574	151351	203168	195679	201181	529397	554743	497434	600028	2181602
BOF (NT/D)	(6835)	(5891)	(7188)	(7322)	(7051)	(7050)	(7037)	(6900)	(5776)	(6004)	(7747)	(7530)	(7505)	(6787)	(7046)	(6229)	(7595)	
BOF NTs	2494799	182625	201262	226972	211523	218555	211124	213899	179063	180120	240160	225905	232641	610859	641202	573082	698706	2523849
NSTEEL*	2480697	181134	200008	224804	208871	216498	209900	212408	177113	178559	238624	223937	231470	605946	635269	568080	694031	2503326
#1 CASTER	1090458	74690	90741	103873	92419	98761	93543	92796	73696	77651	115802	108984	109391	269304	284723	244143	334177	1132347
#2 CASTER	1332862	101808	105417	115642	113541	113428	112789	115265	100240	96912	118583	111052	117277	322867	339758	312417	346912	1321954
H.S.M.	2253062	190892	188495	179683	210090	226533	214447	212215	178981	183545	203454	200042	209242	559070	651070	584721	612738	2407599
72" LINE	361993	26813	28085	31131	26418	30297	34920	35029	36466	28632	30559	28314	31762	86029	91635	100127	90635	368426
PICKLE LINE	478658	34658	40044	38206	45887	36292	39715	34366	45304	36270	38087	47297	45071	112908	121894	115940	130455	481197
COLD MILL	396414	33987	37638	36283	38678	30799	32105	32077	37364	35163	36447	39751	47368	107908	101562	104604	123566	437660
#6 GALV. LINE	193330	14699	18152	14271	16580	17008	16546	13526	17566	16198	21151	19725	20691	47122	50134	47290	61567	206113
7A GALV. LINE	225943	21687	20377	21911	19905	17980	19593	22041	21250	16282	20306	20877	20258	63975	57478	59573	61441	242467

INVENTORY:	12/31/93	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JUL	AUG.	SEP.	OCT.	NOV.	DEC.
Slab Total	117099	85746	78837	116482	110603	90610	82131	89779	86070	63956	92121	112309	128418
MASTER SLAB	18518	9911	10457	17099	19305	14486	15621	11593	14565	7950	14300	16795	32577
FINISHED SLAB	98581	75835	68380	99383	91298	76124	66510	78186	71505	56006	77821	95514	95841
Applied	66485	49520	40749	75230	66298	50507	40456	43957	44213	36666	54321	69414	68441
Unapplied	32096	26315	27631	24153	25000	25617	26054	34229	27292	19340	23500	26100	27400
Band Total	24774	33414	36284	28254	18338	28761	30573	36559	28652	35001	31884	30835	38708
72 INCH	12002	18222	18925	7784	9978	9907	11261	15380	11624	14587	13912	15766	19075
PICKLE	12772	15192	17359	20470	8360	18854	19312	21179	17028	20414	17772	15069	19633
In–process Total	12226	12482	12746	13775	20275	18798	19839	15858	18859	18402	10182	13380	11548
COLD MILL	3237	2236	2027	1306	1783	3026	4637	3624	5392	4273	3734	6638	2525
#6 LINE	3323	4736	3389	3904	8450	5886	6704	4313	5267	5013	2561	2439	3494
7A LINE	3012	1724	2791	3598	4984	5605	4340	4357	4983	6105	1684	2171	2716
Roll Former	2654	3786	4539	4967	5058	4281	4158	3564	3217	3011	2223	2132	2813
Working Inventory Total	154099	131642	127867	158511	149216	138169	132543	142196	133581	117359	133987	156524	178674
FINISHED INV.TOTAL	135346	149186	168045	142319	153849	156516	154211	175835	157749	144156	153646	141673	147194
PRIME–Finished	130763	143795	160277	132398	144576	146949	143218	167637	148455	135675	143574	131348	135992
Hot Rolled	86513	94311	101128	79591	88334	89524	93510	118793	100152	93620	103177	87170	96400
d Rolled	362	412	850	959	1009	1394	1462	255	149	817	181	293	342
/anized	43888	49072	58299	51848	55233	56031	48246	48589	48154	41038	40216	43885	39250
SECONDARY–Finished	4583	5391	7768	9921	9273	9567	10993	8198	9294	8481	10072	10325	11202
–Disposition	2482	2725	3939	5130	4261	3887	4569	4354	4341	4179	4238	3278	3581
–Secondary	2101	2666	3829	4791	5012	5680	6424	3844	4953	4302	5834	7047	7621
Inventory Total	289445	280828	295912	300830	303065	294685	286754	318031	291330	261515	287633	298197	325868

GCS – 1996 SHIPMENTS, PRODUCTION and INVENTORIES

100 Report
Date: 1/8/96

SHIPMENTS:	1994	(Act) JAN.	(Act) FEB.	(Act) MAR.	(Act) APR.	(Act) MAY	(Act) JUNE	(Act) JUL.	(Act) AUG.	(Act) SEP.	(Act) OCT.	(Act) NOV.	(Act) DEC.	1Q / 95	2Q / 95	3Q / 95	4Q / 95	1995
Prime Trade Total	1809023	165449	153034	182152	149604	153716	157445	144801	175935	178604	162465	170724	159345	500635	460765	499340	492534	1953274
Hot Rolled – Total	1336080	119659	115397	142430	112754	115335	120606	108387	140222	138824	122737	127594	123605	377486	348695	387433	373936	1487550
–Prime	1253458	114294	111884	137015	108783	111167	114654	104300	137434	133020	115609	120499	118615	363193	334604	374754	354723	1427274
–Limited Warranty	82602	5365	3513	5415	3971	4168	5952	4087	2788	5804	7128	7095	4990	14293	14091	12679	19213	60276
Cold Rolled – Total	29660	1955	1531	917	590	1588	366	214	0	0	38	20	301	4403	2544	214	359	7520
–Prime	29565	1955	1531	917	590	1588	366	214	0	0	38	20	600	4403	2544	214	658	7819
–Limited Warranty	95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Galvanized – Total	443303	43835	36106	38805	36260	36793	36473	36200	35713	39780	39690	43110	35439	118746	109526	111693	118239	458204
–REGULAR Prime	394409	40622	33211	35450	33634	33655	32629	33135	32054	34700	35795	39476	32271	109283	99918	99889	107542	416632
–BLDG PROD.	41319	2276	2023	2409	2322	2590	3234	2548	3348	3973	3354	3071	2516	6708	8146	9869	8941	33664
–Limited Warranty	7575	937	872	946	304	548	610	517	311	1107	541	563	652	2755	1462	1935	1756	7908
Slab Sales–Primes	1664	191	48	0	267	210	88	41	279	140	198	36	109	239	565	460	343	1607
–Lim Wty	189	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Secondary	62200	7836	4788	5106	4749	5891	6452	5461	7733	6136	6991	6796	4099	17730	17092	19330	17876	72028
(Mill Cobbles in Above)	(320)																	
Trade Total	1873076	173476	157870	187258	154620	159817	163965	150303	183947	184880	169654	177556	163543	518604	478422	519130	510753	2026909
GCS –––> MW BAND	482612	34475	28941	35127	44356	39810	16386	21115	22469	39681	52896	51749	35308	98543	100552	83265	139953	422313
GCS –––> MW HR P&O	118	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	482730	34475	28941	35127	44356	39810	16386	21115	22469	39681	52896	51749	35308	98543	100552	83265	139953	422313
GCS –––> GLD SLAB	26290	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Shipments	2382096	207951	186811	222385	198976	199627	180371	171418	206416	224561	222550	229305	198851	617147	578974	602395	650706	2449222

Transfers into GCS:	1994	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	1Q / 95	2Q / 95	3Q / 95	4Q / 95	1995
PURCHASED SLABS	0	28705	0	0	28289	0	0	0	0	0	0	0	0	28705	28289	0	0	56994
GLD –––> GCS SLAB	53671	1543	5234	21200	23022	18053	2809	4028	2961	2568	2728	215	492	27977	43884	9557	3435	84853
GLD –––> GCS COIL	736	78	147	355	349	162	819	12324	3772	309	521	63	73	580	1330	16405	677	18992
Tot Transf into GCS	54409	30326	5381	21555	51660	18215	3628	16352	6733	2877	3249	298	565	57262	73503	25962	4112	160839

PRODUCTION (p & ss)	1994	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	1Q / 95	2Q / 95	3Q / 95	4Q / 95	1995
BF (NT/D)	(5977)	(6302)	(6464)	(6552)	(4541)	(3697)	(3935)	(4971)	(6513)	(5589)	(6793)	(6138)	(6703)	(6438)	(4054)	(5692)	(6549)	(5684)
BF NTs	2161602	195360	180985	203105	136240	114596	118043	154109	201899	167655	210568	184146	207787	579451	368879	523663	602501	2074494
BOF (NT/D)		(7231)	(7748)	(7749)	(5600)	(4307)	(4734)	(6039)	(7746)	(6730)	(8042)	(7301)	(7804)	(7571)	(4874)	(6839)	(7720)	
BOF NTs	2523849	224177	216957	240226	168013	133508	142009	187208	240121	201885	249297	219026	241917	681360	443530	629214	710240	2464344
"RAW STEEL"	2503326	221715	215498	238434	166501	132479	140945	185523	239059	199449	247053	217427	239578	675647	439925	624031	704058	2443661
#1 CASTER	1132347	106103	101741	109970	50319	14981	44045	62227	114923	81427	118084	104533	116175	317814	109345	258577	338792	1024528
#2 CASTER	1321954	110716	106979	123259	112125	113558	94852	117362	118650	112929	125349	109156	119351	342954	320535	348941	353856	1366286
H.S.M.	2407599	213359	204585	245933	200273	205443	179081	180866	205001	212541	207665	225374	207504	663877	584797	598408	640543	2487625
72" LINE	368426	35398	28285	30285	33452	39316	38647	42093	34188	37439	39609	26413	26858	93968	111415	113720	92880	411983
PICKLE LINE	461197	53311	38390	44810	41274	46553	42257	18875	23370	38725	36296	43350	37296	136511	130084	80970	116942	464507
COLD MILL	437660	43273	35695	43572	35417	42898	36774	16578	22100	37938	35744	36383	37669	122540	115089	76616	109796	424041
#6 GALV. LINE	206113	23882	18827	21604	21505	19132	18461	20004	15855	17807	21350	20175	15909	64313	59098	53466	57434	234311
7A GALV. LINE	242467	21995	19670	20641	21989	19188	21027	18360	20750	18942	21508	17775	22731	62206	62204	58052	62014	244476

INVENTORY:	12/31/93	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.
Slab Total	128418	156817	163410	167901	175920	112657	70092	67844	94404	73224	103061	84406	105246
MASTER SLAB	32577	25528	28597	28685	16167	9129	9600	8700	18521	6476	19239	8459	12512
FINISHED SLAB	95841	131289	134813	139216	159453	103528	60492	59144	75883	66748	83822	75947	93734
Applied	68441	72301	73218	63377	87792	55805	33192	31144	46728	35649	54214	44459	61161
Unapplied	27400	58988	61595	75839	71661	47723	27300	28000	29155	31099	29608	31488	32573
Band Total	38708	31384	41550	57983	53274	55308	45000	41538	57610	44777	26679	42075	46291
72" LINE	19075	18217	22509	29835	29199	24746	24000	17620	20706	14479	13428	15526	21442
PICKLE LINE	19633	13167	19041	28148	24075	30562	21000	23918	36904	30298	13251	26549	24849
In–process Total	11548	16995	16347	17982	13238	18276	19600	12104	14707	16957	24967	26234	21812
COLD MILL	2525	6531	5465	2124	2811	2018	700	1033	4929	3465	785	4442	2206
#6 GALV. LINE	3494	4162	3586	6393	3043	5062	7500	2595	3101	4811	3925	4016	4595
7A GALV. LINE	2716	2937	2608	4127	2419	6756	7000	3053	1889	6825	3192	5347	4362
Roll Formers	2813	3365	4688	5338	4965	4440	4400	4823	4788	3856	2557	2145	2542
Disposition		0	0	0	0	0	0	0	0	0	14508	10284	8107
Working Inventory Total	178674	205196	221307	243866	242432	186241	134692	121486	166721	136958	154707	152715	174349
FINISHED INV.TOTAL	147194	151688	158635	160198	170458	167944	173789	205976	188800	181282	177197	152971	160003
PRIME – Finished	135992	141596	148416	149968	159027	157524	162477	192511	178600	172682	170695	147237	151865
Hot Rolled	96400	101381	107736	107757	110211	107472	109400	138256	124400	121000	122919	104699	104155
Cold Rolled	342	72	40	53	308	21	395	660	300	518	68	36	149
Galvanized	39250	40143	40640	42158	48508	50031	52682	53595	53900	51164	47708	42502	47561
SECONDARY – Finished	11202	10092	10219	10230	11431	10420	11312	13465	10200	8600	6502	5734	8138
–Disposition	3581	3894	4379	3406	4000	3127	3419	5304	4200	4300	N/A	N/A	N/A
–Secondary	7621	6198	5840	6824	7000	7293	7893	8161	6000	4300	6502	5734	8138
Inventory Total	325868	356884	379942	404064	412890	354185	308481	327462	355521	318240	331904	305686	334352

GCS – 1996 SHIPMENTS, PRODUCTION and INVENTORIES

106 Report
Date 9/10/96

SHIPMENTS:	1995	(Act) JAN.	(Act) FEB.	(Act) MAR.	(Act) APR.	(Act) MAY	(Act) JUNE	(Act) JUL.	(Act) AUG.	(Est) SEP.	(Est) OCT.	(Est) NOV.	(Est) DEC.	1Q / 96	2Q / 96	3Q / 96	4Q / 96	1996
Prime Trade Total	1953274	167718	148097	177390	173076	195483	173839	165047	152745	200969	172863	160231	165005	493205	542398	518761	497899	2052263
Hot Rolled – Total	1487550	125382	113572	135795	132634	144715	120231	106561	93631	144856	120574	104774	115278	374689	397580	345048	340626	1457943
–Prime	1427274	120354	104972	126389	127504	136245	113641	97756	85839	134965	110724	95824	106778	351715	377390	318560	313126	1360791
–Limited Warranty	60276	5028	8600	9346	5130	8470	6590	8805	7792	9891	9850	9150	8500	22974	20190	26488	27500	97152
Cold Rolled – Total	7520	288	19	0	117	35	153	20	159	22	0	0	0	307	305	201	0	813
–Prime	7520	288	19	0	117	35	153	20	159	22	0	0	0	307	305	201	0	813
–Limited Warranty	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Galvanized – Total	458204	42048	34506	41655	40925	50733	53455	58466	58955	56091	52089	55457	49727	118209	144513	173512	157273	593507
–REGULAR Prime	416632	39383	31662	38409	37725	48243	50938	55749	56038	52256	46929	52345	47415	109454	136906	164043	146689	556092
–BLDG PROD.	33664	1842	1425	2281	1932	1916	2129	2364	2450	3436	2680	2712	2012	5548	5979	8270	7384	27181
–Limited Warranty	7908	823	1419	965	668	572	388	333	467	399	500	400	300	3207	1628	1199	1200	7234
Slab Sales–Primes	1607	10	47	108	41	180	103	168	186	0	0	0	0	165	324	354	0	843
–Lim Wty	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Secondary	72028	6819	8906	8130	9351	7099	7378	7433	11402	6000	6500	6000	6000	23855	23828	24835	16500	91018
(Mill Cobbles in Above)	(0)	(0)																
Trade Total	2026909	174547	157050	185628	182468	202762	181320	172648	164333	206969	179163	166231	171005	517225	566550	543950	516399	2144124
GCS –→ MW BAND	422313	42651	30564	57610	31580	36616	32195	45146	24188	12600	60600	62300	32200	130825	100391	81934	155300	468450
GCS –→ MW HR P&O	0	0	269	0	0	0	0	0	0	0	0	0	0	269	0	0	0	269
	422313	42651	30833	57610	31580	36616	32195	45146	24188	12600	60600	62300	32200	131094	100391	81934	155300	468719
GCS –→ GLD SLAB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Shipments	2449222	217198	187883	243238	214048	239378	213515	217794	188521	219569	239963	228531	203205	648319	666941	625884	671699	2612843

Transfers into GCS:	1995	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	1Q / 96	2Q / 96	3Q / 96	4Q / 96	1996
PURCHASED SLABS	56994	0	0	0	0	0	0	0	0	0	30000	35000	30000	0	0	0	95000	95000
GLD –→ GCS SLAB	84853	1403	1148	238	0	1033	0	2644	3061	3400	1000	1000	1000	2789	1033	9105	3000	15927
GLD –→ GCS COIL	18992	79	0	0	79	84	83	93	169	0	0	0	0	79	246	262	0	587
Tot Transf into GCS	160839	1482	1148	238	79	1117	83	2737	3230	3400	31000	36000	31000	2868	1279	9367	98000	111514

PRODUCTION (p & ss)	1995	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	1Q / 96	2Q / 96	3Q / 96	4Q / 96	1996
BF (NT/D)	(5684	(6521	(6339	(7816	(7449	(6974	(5538	(4719	(3745	(7017	(7016	(6620	(7016	(6904	(6657	(5140	(6887	(6395
BF NTs	2074494	202144	183841	242287	223482	216201	166137	146286	116085	210500	217500	198600	217500	628272	605820	472871	533600	2340563
BOF (NT/D)	(6752	(7651	(7073	(9205	(8852	(7992	(6424	(5686	(4605	(8441	(8436	(7961	(8436	(7996	(7759	(6220	(8282	
BOF NTs	2464344	237194	205128	285343	265553	247767	192712	176253	142750	253230	261572	238843	261572	727665	706032	572233	761987	2767917
"RAW STEEL"	2443661	235948	203282	284823	264064	245252	191948	174527	141220	250951	259218	236693	259218	724053	701264	566698	755129	2747144
#1 CASTER	1024528	118360	101669	137048	132905	118514	77340	66004	46179	126246	142017	112286	130358	357077	328759	238429	384661	1308925
#2 CASTER	1366286	113712	96441	144356	128230	122477	110282	104479	92731	120116	112397	120116	124120	354509	360989	317326	356633	1389457
H.S.M.	2487625	214721	222140	265495	221151	205687	187411	177155	171786	215000	256700	255000	270000	702356	674449	563941	781700	2722446
72" LINE	411983	35273	33795	34162	31983	40954	38321	29844	25567	31500	32931	42536	41164	103230	111258	86911	116631	418030
PICKLE LINE	464507	44671	50213	59246	54855	60850	55614	54154	59228	56591	69748	57825	62388	154132	171319	169973	189962	665386
COLD MILL	424041	42177	43800	55551	50130	52743	48037	51822	52716	51566	62689	54672	57061	141528	150910	156106	174422	622966
#6 GALV. LINE	234311	21734	19651	21669	20182	24360	22596	19018	20630	20900	22200	21034	19300	63054	67158	59748	62534	252494
7A GALV. LINE	244476	22044	20195	20738	20631	16935	22336	18780	19055	15800	20805	20047	21004	62977	59902	53641	61856	238376
GGG LINE	0	528	9357	13992	18158	13136	15266	16721	15513	17700	21376	20415	21375	23877	46562	49934	63166	183539

INVENTORY:	12/31	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.
Slab Total	106246	116312	84895	91859	123070	93995	86767	78645	45524	75953	98754	106251	115442
MASTER SLAB	12512	14314	11668	30400	21622	17736	11006	13514	8844	20000	20000	20000	20000
FINISHED SLAB	93734	101998	73228	61459	101448	76259	75761	65131	36680	55953	78754	86251	95442
Applied	61161	72919	46198	34920	72334	44845	46013	40131	19741	30953	53754	61251	70442
Unapplied	32573	29079	27030	26539	29114	31414	29748	25000	16939	25000	25000	25000	25000
Band Total	46291	42829	51376	49249	46494	58814	38870	33386	31858	42500	42500	42500	42500
72 INCH	21442	17486	21582	17207	24329	26877	18544	11268	10271	17500	17500	17500	17500
PICKLE	24849	25343	29794	32042	22165	31937	20326	22118	21587	25000	25000	25000	25000
In–process Total	21805	16137	15072	16519	19961	23135	24288	14757	14965	19000	23500	19000	19000
COLD MILL	2206	1846	1138	929	531	1730	1425	1129	2070	2000	3500	2000	2000
#6 LINE	4595	2473	2542	1615	1883	2559	2413	951	1295	3500	5000	3500	3500
7A LINE	4362	2720	1875	1861	802	2598	1525	1708	1198	2500	3000	2500	2500
GGG LINE	0	2805	1569	1987	530	3547	1845	2261	4588	2500	3500	2500	2500
Roll Former	2542	2320	2312	743	3047	1927	1879	1901	814	2500	2500	2500	2500
Disposition	8100	3973	5636	9384	13158	10674	15201	6809	5000	6000	6000	6000	6000
Working Inventory Total	174342	175278	151344	157627	189525	175944	149925	126788	92347	137453	164754	167751	176942
FINISHED INV.TOTAL	160000	164790	190995	210955	214694	218947	211147	181533	162014	140758	148836	175201	236366
OSP IN–PROCESS	29800	30572	35000	35821	43271	35834	39149	33505	15773	35000	35000	35000	35000
PRIME–Finished	122100	128147	149395	170907	166154	178384	163398	141505	142616	100758	108836	135201	196366
Hot Rolled	81900	83456	90267	107611	104106	105652	81432	62915	62471	22191	18935	40174	90288
Cold Rolled	100	511	482	673	551	462	188	64	22	0	0	0	0
Galvanized	40100	44180	58637	62623	61497	72270	81778	78526	80123	76568	88901	95027	106078
SECONDARY–Finished	8100	6071	6600	4227	5269	4729	8600	6523	3625	5000	5000	5000	5000
Inventory Total	334342	340068	342339	368582	404219	394891	361072	308321	254361	278211	313590	342952	413308

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

119813AAI - GRANITE CITY DIVISION OF

NATIONAL STEEL

Month	Iron Produced (tons)	Steel Produced (tons)	Natural Gas Usage (MMscf)	BFG Usage (MMscf)	Fuel Oil Usage (Mgal/yr)
1 / 1996	203,564	237,194	64	6,229	
2 / 1996	192,106	205,128	50	6,013	
3 / 1996	244,707	286,594	48	7,940	
4 / 1996	225,722	265,553	47	7,570	
5 / 1996	221,421	247,767	72	6,392	
6 / 1996	169,247	192,712	55	6,528	
7 / 1996	147,522	176,253	38	5,427	
8 / 1996	116,085	142,750	39	5,367	
9 / 1996	207,998	250,704	24	7,677	
10 / 1996	199,379	238,659	29	6,806	
11 / 1996	199,224	236,171	25	6,410	
12 / 1996	213,554	241,009	60	6,421	
Annual	2,340,529	2,720,494	553	78,779	

Blast Furnace and BOF Shop Production
Base Period for Netting Analysis

BOF PRODUCTION (net tons/month)

month	*1992*	*1993*	*1994*	*Total (24 months)*	*Avg. (12 months)*	*Average (NTPD)*
1		202,208	182,626			
2		183,411	201,262			
3		205,652	226,972			
4		200,932	211,520			
5		213,685	218,556			
6		209,603	211,124			
7		216,556	213,900			
8	213,186	217,920				
9	136,528	211,498				
10	151,808	218,585				
11	207,000	210,646				
12	156,635	205,000				
total	865,155	2,495,696	1,465,960	4,826,811	2,413,406	6,612

BLAST FURNACE PRODUCTION (net tons/month)

month	1992	1993	1994			
1		170,141	157,484			
2		154,107	175,540			
3		173,453	196,360			
4		173,707	182,527			
5		178,714	187,766			
6		175,806	184,430			
7		183,744	186,723			
8	182,629	187,742				
9	114,551	179,321				
10	125,780	185,734				
11	175,665	178,574				
12	129,677	178,938				
total	728,302	2,119,981	1,270,830	4,119,113	2,059,557	5,643

BASE PERIOD FUEL USE

	BFG (MMBtu)					BFG (MMcf)							
Source	Aug - Dec '92	1993	Jan - Jul '94	Total	Average	Average							
"A" Stoves	547,311	1,861,751	1,234,705	3,643,767	1,821,884	22,774							
"B" Stoves	752,802	1,792,114	1,007,535	3,552,451	1,776,226	22,203							
Boilers 1-10	1,125,491	3,288,275	1,586,436	6,000,202	3,000,101	37,501							
Boiler 11	164,301	417,788	269,591	851,680	425,840	5,323							
Boiler 12	319,314	582,520	235,193	1,137,027	568,514	7,106							
B.F. Flare	650,135	2,124,204	1,406,819	4,181,158	2,090,579	26,132							
Totals				19,366,285	9,683,143	121,039							
	#6 Oil (MMBtu)					# 6 Oil (Mgals)	NG (MMBtu)						NG (MMcf)
Source	Aug - Dec '92	1993	Jan - Jul '94	Total	Average	Average	Aug - Dec '92	1993	Jan - Jul '94	Total	Average		Average
"A" Stoves													
"B" Stoves													
Boilers 1-10							102,015	195,510	437,409	734,934	367,467		361
Boiler 11	0	1,013	3,638	4,651	2,326	15	43,915	240,390	175,846	460,151	230,076		226
Boiler 12	0	300	0	300	150	1	97,964	240,760	106,361	445,085	222,543		218
BOF Preheaters/Dryers							123,962	298,959	154,814	577,735	288,868		283
Casters							13,843	62,344	38,990	115,177	57,589		57
Totals				4,951	2475.5	16				2,333,082	1,166,541		1,145

SR 2460

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

APPENDIX E

The following table summarizes emissions changing projects that have been undertaken at Granite City Steel since 1990.

PROJECTS CHANGING EMISSIONS SINCE 1990 (TPY)

Project	Effective Date	TSP/PM_{10}	SO_2	NO_x	CO	VOM
Removal Blast Furnace Slag Sput Hood	January, 1990	+4.90				
# 2 Caster Production	December 1, 1990	+11.70				
Ingot Teeming Shutdown	April 1, 1991	-22.40				
Installation NESHAP Controls Coke By-Product	July, 1991					-31.6
Shutdown Blooming Mill	April 1, 1991	-3.38	-0.34	-217.82	-22.12	-0.92
Shutdown Batch Annealing	December, 1991	-0.18	-0.036	-8.72	-1.19	-0.31
Fugitive Dust Control Program (Roads and Material Handling)	November, 1991 to present	-32.00				
Installation of #8 Galvanizaing Line	Expected 1996	+4.20/+4.05	+.25	+26.0	+11.8	+1.6
Net Change		-37.16/-37.31	-0.126	-200.54	-11.51	-31.23

The following information presents how the emission change was calculated for each project.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

APPENDIX E

The following table summarizes emissions changing projects that have been undertaken at Granite City Steel since 1990.

PROJECTS CHANGING EMISSIONS SINCE 1990 (TPY)

Project	Effective Date	TSP/PM_{10}	SO_2	NO_x	CO	VOM
Removal Blast Furnace Slag Sput Hood	January, 1990	+4.90				
# 2 Caster Production	December 1, 1990	+11.70				
Ingot Teeming Shutdown	April 1, 1991	-22.40				
Installation NESHAP Controls Coke By-Product	July, 1991					-31.6
Shutdown Blooming Mill	April 1, 1991	-3.38	-0.34	-217.82	-22.12	-0.92
Shutdown Batch Annealing	December, 1991	-0.18	-0.036	-8.72	-1.19	-0.31
Fugitive Dust Control Program (Roads and Material Handling)	November, 1991 to present	-32.00				
Installation of #8 Galvanizaing Line	Expected 1996	+3.97/+3.82	+.20	+18.4	+10.2	+1.2
Net Change		-37.39/-37.54	-0.176	-208.14	-13.11	-31.66

The following information presents how the emission change was calculated for each project.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

REMOVAL OF BLAST FURNACE SLAG SPOUT HOOD - JANUARY, 1990

Based on May 8, 1989 submittal for modification of operating permit for "A" & "B" Blast Furnaces. +4.9 TPY

2 CASTER PRODUCTION - DECEMBER 1, 1990

Summary of Project Emission Changes (tons/yr)[1] (Assuming all steel produced is continuous cast.)

Argon Stirring and Baghouse	4.85
Tundish with Shrouds	--
Powder Addition	7.49
Slab Casting	2.01
Slab Cut-off	9.03
Slab Ripping with Baghouse	2.58
	26.0 tons/yr PM_{10}
Caster #1 Actual	14.3 tons/yr PM_{10}

Caster #2 PM_{10} emissions = 26.0 - 14.3 = 11.7 tons/yr

INGOT TEEMING SHUTDOWN - APRIL 1, 1991

670,000 tons / year X 0.067 lbs / ton = 22.4 tons / year PM_{10} reduction

[1] Reference - March 16, 1988 IEPA "Project Summary for Proposed Issuance of an Air Pollution Control Construction Permit for Continuous Caster".

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

REMOVAL OF BLAST FURNACE SLAG SPOUT HOOD - JANUARY, 1990

Based on May 8, 1989 submittal for modification of operating permit for "A" & "B" Blast Furnaces. +4.9 TPY

2 CASTER PRODUCTION - DECEMBER 1, 1990

Summary of Project Emission Changes (tons/yr)[1] (Assuming all steel produced is continuous cast.)

Argon Stirring and Baghouse	4.85
Tundish with Shrouds	--
Powder Addition	7.49
Slab Casting	2.01
Slab Cut-off	9.03
Slab Ripping with Baghouse	2.58
	26.0 tons/yr PM_{10}
Caster #1 Actual	14.3 tons/yr PM_{10}

Caster #2 PM_{10} emissions = 26.0 - 14.3 = 11.7 tons/yr

INGOT TEEMING SHUTDOWN - APRIL 1, 1991

670,000 tons / year X 0.067 lbs / ton = 22.4 tons / year PM_{10} reduction

[1] Reference - March 16, 1988 IEPA "Project Summary for Proposed Issuance of an Air Pollution Control Construction Permit for Continuous Caster".

SHUTDOWN BLOOMING MILL - APRIL 1, 1991

Coke oven gas consumed at Soaking Pits, 1,076,926 MMBtu in 1990.

The coke oven gas which was consumed at the Blooming Mill Soaking Pits (firing rate 408 MMBtu/hr/furnace) is to be used at the Hot Strip Slab Furnaces (1 - 3) (firing rate 321.8 MMBtu/hr/furnace) and #4 slab furnace (firing rate 495 MMBtu/hr).

The emission reductions for the displaced use of natural gas on the slab reheat furnaces is based on the AIRS 1990 emission factor for natural gas sources greater than 100 MMBtu/hr and the "ACT for NO_X Emissions from Iron and Steel Mills".

1990

Coke Oven Gas Soaking Pits - General < 10 MMBtu/hr

44,131 X 0.003 X 1/2000 = 0.066 tpy PM_{10} emission reduction

44,131 X 0.0006 X 1/2000 = 0.013 tpy SO_2 emission reduction

44,131 X 0.10 X 1/2000 = 2.21 tpy NO_X emission reduction

44,131 X 0.0053 X 1/2000 = 0.12 tpy VOC emission reduction

44,131 X 0.02 X 1/2000 = 0.44 tpy CO emission reduction

Natural Gas Blooming Mill < 10 MMBtu/hr

18,083 X 0.003 X 1/2000 = 0.027 tpy PM_{10} emission reduction

18,083 X 0.0006 X 1/2000 = 0.005 tpy SO_2 emission reduction

18,083 X 0.10 X 1/2000 = 0.90 tpy NO_X emission reduction

18,803 X 0.0053 X 1/2000 = 0.05 tpy VOC emission reduction

18,803 X 0.02 X 1/2000 = 0.18 tpy CO emission reduction

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

SHUTDOWN BLOOMING MILL - APRIL 1, 1991

Coke oven gas consumed at Soaking Pits, 1,076,926 MMBtu in 1990.

The coke oven gas which was consumed at the Blooming Mill Soaking Pits (firing rate 408 MMBtu/hr/furnace) is to be used at the Hot Strip Slab Furnaces (1 - 3) (firing rate 321.8 MMBtu/hr/furnace) and #4 slab furnace (firing rate 495 MMBtu/hr).

The emission reductions for the displaced use of natural gas on the slab reheat furnaces is based on the AIRS 1990 emission factor for natural gas sources greater than 100 MMBtu/hr and the "ACT for NO_X Emissions from Iron and Steel Mills".

1990

Coke Oven Gas Soaking Pits - General < 10 MMBtu/hr

44,131 X 0.003 X 1/2000 = 0.066 tpy PM_{10} emission reduction

44,131 X 0.0006 X 1/2000 = 0.013 tpy SO_2 emission reduction

44,131 X 0.10 X 1/2000 = 2.21 tpy NO_X emission reduction

44,131 X 0.0053 X 1/2000 = 0.12 tpy VOC emission reduction

44,131 X 0.02 X 1/2000 = 0.44 tpy CO emission reduction

Natural Gas Blooming Mill < 10 MMBtu/hr

18,083 X 0.003 X 1/2000 = 0.027 tpy PM_{10} emission reduction

18,083 X 0.0006 X 1/2000 = 0.005 tpy SO_2 emission reduction

18,083 X 0.10 X 1/2000 = 0.90 tpy NO_X emission reduction

18,803 X 0.0053 X 1/2000 = 0.05 tpy VOC emission reduction

18,803 X 0.02 X 1/2000 = 0.18 tpy CO emission reduction

Coke Oven Gas Soaking Pits

1,076,926 X 0.005 X 1/2000 = 2.69 tpy PM_{10} emission reduction

1,076,926 X 0.0006 X 1/2000 = 0.32 tpy SO_2 emission reduction

1,076,926 X 0.399 X 1/2000 = 214.71 tpy NO_X emission reduction

1,076,926 X 0.0014 X 1/2000 = 0.75 tpy VOC emission reduction

1,076,926 X 0.04 X 1/2000 = 21.5 tpy CO emission reduction

EMISSION REDUCTION SUMMARY for SHUTDOWN of BLOOMING MILL (tons/year)

	PM_{10}	SO_2	NO_X	CO	VOC
Soaking Pit - General	0.66	0.013	2.21	0.44	0.12
Blooming Mill	0.027	0.005	0.90	0.18	0.05
Soaking Pits	2.69	0.32	214.71	21.5	0.75
Total	3.377	0.338	217.82	22.12	0.92

SHUTDOWN BATCH ANNEALING - DECEMBER, 1991

1990 Natural Gas Usage 118,612 MMBtu (< 10 MMBtu/hr)

118,612 X 0.003 X 1/2000 = 0.18 tpy PM_{10} emission reduction

118,612 X 0.0006 X 1/2000 = 0.036 tpy SO_2 emission reduction

118,612 X 0.147[2] X 1/2000 = 8.72 tpy NO_X emission reduction

118,612 X 0.0053 X 1/2000 = 0.31 tpy VOC emission reduction

118,612 X 0.02 X 1/2000 = 1.19 tpy CO emission reduction

[2] Based on the "ACT for NO_X Emissions from Iron and Steel Mills".

Coke Oven Gas Soaking Pits

1,076,926 X 0.005 X 1/2000 = 2.69 tpy PM_{10} emission reduction

1,076,926 X 0.0006 X 1/2000 = 0.32 tpy SO_2 emission reduction

1,076,926 X 0.399 X 1/2000 = 214.71 tpy NO_X emission reduction

1,076,926 X 0.0014 X 1/2000 = 0.75 tpy VOC emission reduction

1,076,926 X 0.04 X 1/2000 = 21.5 tpy CO emission reduction

EMISSION REDUCTION SUMMARY for SHUTDOWN of BLOOMING MILL (tons/year)

	PM_{10}	SO_2	NO_X	CO	VOC
Soaking Pit - General	0.66	0.013	2.21	0.44	0.12
Blooming Mill	0.027	0.005	0.90	0.18	0.05
Soaking Pits	2.69	0.32	214.71	21.5	0.75
Total	3.377	0.338	217.82	22.12	0.92

SHUTDOWN BATCH ANNEALING - DECEMBER, 1991

1990 Natural Gas Usage 118,612 MMBtu (<10 MMBtu/hr)

118,612 X 0.003 X 1/2000 = 0.18 tpy PM_{10} emission reduction

118,612 X 0.0006 X 1/2000 = 0.036 tpy SO_2 emission reduction

118,612 X 0.147[2] X 1/2000 = 8.72 tpy NO_X emission reduction

118,612 X 0.0053 X 1/2000 = 0.31 tpy VOC emission reduction

118,612 X 0.02 X 1/2000 = 1.19 tpy CO emission reduction

[2] Based on the "ACT for NO_X Emissions from Iron and Steel Mills".

NO. 8 GALVANIZING LINE

Furnace

54.6 MMBtu/hr - natural gas fired

Pollutant	*Emission Factor/Source (lb/MMBtu)*	*Heat Input (MMBtu/hr)*	*Annual Emissions (tpy)*
NO_X	0.0378/Vendor Guarantee	54.6	9.04
TSP	0.003/AP-42	54.6	0.72
PM_{10}	0.003/AP-42	54.6	0.72
VOM	0.0028/AP-42	54.6	0.67
CO	0.035/AP-42	54.6	8.37
SO_2	0.0006/AP-42	54.6	0.14

Fume Scrubber

10,000 cfm

Pollutant	*Emission Factor (lb/hr)/Source*	*Annual Emissions (tpy)*
TSP	0.24/Vendor Guarantee	1.05
PM_{10}	0.24/ Vendor Guarantee	1.05

5 Space Heaters

3,440,000 Btu/hr per heater - natural gas fired
1,019 Btu/ft^3 (1993 emission inventory)
5 * 3,440,000 Btu/hr / (1,019 Btu/ft^3) = 16,879.3 ft^3/hr total natural gas consumption, 5 heaters

Pollutant	*Emission Factor(lb/MMft^3) AIRS-1-05-001-6*	*Heat Input (MMBtu/hr)*	*Annual Emissions (tpy)*
NO_X	100.0	16,879.3	7.39
TSP	3.0	16,879.3	0.22
PM_{10}	3.0	16,879.3	0.22
VOM	5.3	16,879.3	0.39
CO	20.0	16,879.3	1.48
SO_2	0.6	16,879.3	0.04

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

NO. 8 GALVANIZING LINE

Furnace

54.6 MMBtu/hr - natural gas fired

Pollutant	*Emission Factor/Source (lb/MMBtu)*	*Heat Input (MMBtu/hr)*	*Annual Emissions (tpy)*
NO_X	0.0378/Vendor Guarantee	54.6	9.04
TSP	0.003/AP-42	54.6	0.72
PM_{10}	0.003/AP-42	54.6	0.72
VOM	0.0028/AP-42	54.6	0.67
CO	0.035/AP-42	54.6	8.37
SO_2	0.0006/AP-42	54.6	0.14

Fume Scrubber

10,000 cfm

Pollutant	*Emission Factor (lb/hr)/Source*	*Annual Emissions (tpy)*
TSP	0.24/Vendor Guarantee	1.05
PM_{10}	0.24/ Vendor Guarantee	1.05

6 Space Heaters

640,000 Btu/hr per heater - natural gas fired
1,019 Btu/ft^3 (1993 emission inventory)
6 * 640,000 Btu/hr / (1,019 Btu/ft^3) = 3768.4 ft^3/hr total natural gas consumption, 6 heaters

Pollutant	*Emission Factor(lb/MMft^3) AIRS-1-05-001-6*	*Heat Input (MMBtu/hr)*	*Annual Emissions (tpy)*
NO_X	100.0	3768.4	1.65
TSP	3.0	3768.4	0.05
PM_{10}	3.0	3768.4	0.05
VOM	5.3	3768.4	0.09
CO	20.0	3768.4	0.33
SO_2	0.6	3768.4	0.00

11 Galvanize Line Related Heaters

Heaters associated with the following galvanizing processes are to be installed as part of the No. 8 Galvanize Line Project:

Equipment	*Maximum Natural Gas Use (CFH)*
Entry Strip Dryer	2,078
Quench Strip Dryer	1,419
Chem. Treat Strip Dryer	1,370
Pre-clean Recirc. Tank	2,944
Electrolytic Recirc. Tank #1	2,748
Electrolytic Recirc. Tank #2	2,500
Hot Water Rinse Tank	883
Hot Water Make-up Tank	6,869
Chimical Treat Recirc. Tank	491
Chemical Treat Mix Tank	491
Roll Rig Preheaters	102
Total	21,895

Pollutant	*Emission Factor(lb/MMft^3) AIRS-1-05-001-6*	*Heat Input (MMBtu/hr)*	*Annual Emissions (tpy)*
NO_X	100.0	21,895	9.60
TSP	3.0	21,895	0.29
PM_{10}	3.0	21,895	0.29
VOM	5.3	21,895	0.51
CO	20.0	21,895	1.92
SO_2	0.6	21,895	0.06

Kettle Melting

32,000 tons product per month
0.1 tons Zn per ton product

32,000 tons product/month * 0.1 tons Zn/ton product * 0.1 lbs TSP/ton Zn * 12 months / 2000 lbs /ton = 1.92 tons TSP
1.92 tons TSP * 0.92 = 1.77 tons PM_{10}

Pollutant	*Emission Factor (lb/ton Zn)/Source*	*Annual Emissions (tpy)*
TSP	0.1/AP-42	1.92
PM_{10}	0.092/AP-42	1.77

11 Galvanize Line Related Heaters

Heaters associated with the following galvanizing processes are to be installed as part of the No. 8 Galvanize Line Project:

Equipment	*Maximum Natural Gas Use (CFH)*
Entry Strip Dryer	2,100
Quench Strip Dryer	1,500
Chem. Treat Strip Dryer	1,800
Pre-clean Recirc. Tank	2,700
Electrolytic Recirc. Tank #1	1,600
Electrolytic Recirc. Tank #2	1,300
Hot Water Rinse Tank	200
Hot Water Make-up Tank	4,500
Chimical Treat Recirc. Tank	500
Chemical Treat Mix Tank	500
Roll Rig Preheaters	847
Total	17,547

Pollutant	*Emission Factor(lb/MMft^3) AIRS-1-05-001-6*	*Heat Input (MMBtu/hr)*	*Annual Emissions (tpy)*
NO_X	100.0	17,547	7.69
TSP	3.0	17,547	0.23
PM_{10}	3.0	17,547	0.23
VOM	5.3	17,547	0.41
CO	20.0	17,547	1.54
SO_2	0.6	17,547	0.05

Kettle Melting

32,000 tons product per month
0.1 tons Zn per ton product

32,000 tons product/month * 0.1 tons Zn/ton product * 0.1 lbs TSP/ton Zn * 12 months / 2000 lbs /ton = 1.92 tons TSP
1.92 tons TSP * 0.92 = 1.77 tons PM_{10}

Pollutant	*Emission Factor (lb/hr)/Source*	*Annual Emissions (tpy)*
TSP	0.1/AP-42	1.92
PM_{10}	.0.92/AP-42	1.77

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

TOTAL EMISSIONS ASSOCIATED WITH NO. 8 GALVANIZE LINE PROJECT

Pollutant	*Annual Emissions (tpy)*
NO_X	26.03
TSP	4.20
PM_{10}	4.05
VOM	1.56
CO	11.77
SO_2	0.25

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

TOTAL EMISSIONS ASSOCIATED WITH NO. 8 GALVANIZE LINE PROJECT

Pollutant	*Annual Emissions (tpy)*
NO_X	18.38
TSP	3.97
PM_{10}	3.82
VOM	1.16
CO	10.24
SO_2	0.20

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

INSTALLATION OF NESHAP CONTROLS AT COKE BY-PRODUCT PLANT

VOC Emissions Reduction at Coke By-Product Plant after Installation of NESHAPS Controls

It was reported, in Attachment 2 of the October 8, 1991 submittal of additional information in application for modification of Operating Permits for the Granite City Division Emission Reduction Plant Production Increase Project, that the installation of benzene emission controls (NESHAPS) at the Coke By-Product Recovery Plant would provide a reduction of 31.6 TPY VOC other than benzene. The following is a demonstration of the derivation of that VOC emission reduction.

All calculations are based on 1990 coke production of 577,473 tons.

Emission factors are taken from the publication EPA-450/3-83-016a, "Benzene Emissions from Coke By-Product Recovery Plants - Background Information for Proposed Standards." The NESHAPS emission factors contained in this publication are for benzene only. The emissions of other light oil (L.O.) constituents were calculated by taking the ratio of the mole fraction of each L.O. constituent (liquid) times the vapor pressure of that constituent to the mole fraction of benzene (liquid) times the vapor pressure of benzene, then multiplying that ration by the calculated benzene emissions. It is assumed that all emissions are vapors and that the vapors are in equilibrium with the liquid light oil.

Sample calculation:

For the direct water cooling tower, benzene emissions are calculated as follows:

$$(577{,}473 \text{ tons coke}) \times \frac{2000 \text{ lb.}}{\text{ton}} \times \frac{454 \text{g}}{\text{lb.}} \times \frac{1 \text{ Mg}}{10^6 \text{g}} = 524{,}346 \text{ Mg coke}$$

$$\frac{524{,}346 \text{ Mg coke}}{\text{yr.}} \times \frac{270 \text{g}}{\text{Mg}} \times \frac{1 \text{ lb.}}{454 \text{g}} = 311{,}836 \text{ lb./year}$$

where 270g/Mg = uncontrolled benzene emission factor from Table 3 - 7, attached.

From the Light Oil Constituents table, attached,

Benzene: $y(P^*) = .71(96) = 68.16$

where .71 = benzene mole fraction
and 96 = benzene vapor pressure

Similarly,

Toluene: $y(P^*) = .159(30) = 4.77$

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Hence, the toluene emissions, with no controls, from the direct water cooling tower are

$$\frac{4.77}{68.16} \text{ (311,836 lb/yr.)} = 21{,}823 \text{ lb. toluene/year}$$

Toluene emissions after installation of NESHAPS controls with 100% efficiency are

21,823 lb. toluene (100 - 100) = 0 lb. toluene/yr.

Emission of benzene, toluene, xylene, ethylbenzene and styrene are calculated, as above, for the various emission sources at the By-Product Plant and presented in the table Emissions of Light Oil Constituents after Installation of NESHAPS Controls at the Coke Oven By-Products Plant, attached.

The non-benzene emissions controlled by the NESHAPS project are then calculated, for each light oil constituent considered, by subtracting the total emissions after controls were applied at all sources from the total emissions prior to application of controls at all sources. These calculations are presented in the table entitled Non-Benzene Emissions Controlled by NESHAPS Project, attached.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Non-Benzene Emissions Controlled by NESHAPS Project

	Total Uncontrolled Emissions		Total Uncontrolled Emissions after NESHAPS Controls Installed					
Toluene	59,584	-	997	=	58,587 lbs.	x $\frac{1T}{2000}$	=	29.3 tons/yr.
Xylene	2,871	-	48	=	2,823 lbs.	x $\frac{1T}{2000}$	=	1.4 tons/yr.
Ethylbenzene	959	-	10	=	949 lbs.	x $\frac{1T}{2000}$	=	0.5 tons/yr.
Styrene	868	-	9	=	859 lbs.	x $\frac{1T}{2000}$	=	0.4 tons/yr.
								31.6 tons/yr.

SEP 13 '94 04:29PM GCS ENVIRONMENTAL

Emissions of Light Oil Constituents after Installation of NESHAPS Controls at the By-Product Plant

By-Product Source	Uncontrolled Benzene Factor (g Mg)	NESHAPS Control	NESHAPS Control Effiency %	Benzene (lb./yr.) A*	Benzene (lb./yr.) B**	Toluene (lb./yr.) A	Toluene (lb./yr.) B	Xylene (lb./yr.) A	Xylene (lb./yr.) B	Ethylbenzene (lb./yr.) A	Ethylbenzene (lb./yr.) B	Styrene (lb./yr.) A	Styrene (lb./yr.) B
Direct Water Cooling Tower	270	Tar Spray Final Cooler	100	311,836	0	21,823	0	1,050	0	351	0	317	0
Light Oil Condenser Vent	89	Gas Blanket	98	102,790	2,056	7,193	144	346	7	116	2	105	2
Napthlene Separator	87	Tar Spray	100	100,480	0	7,032	0	339	0	113	0	102	0
Napthalene Processing	20	Tar Spray	100	23,099	0	1,617	0	78	0	26	0	23	0
Tar-Intercepting Sump	95	Gas Blanket	98	109,720	2,194	7,678	154	370	7	124	3	112	2
Tar Dewatering	21	Steam Blanket	98	24,254	485	1,697	34	82	2	27	1	25	1
Tar Decanter	77	Steam Blanket	98	88,931	1,779	6,224	125	300	6	100	2	90	2
Tar Storage	12	Steam Blanket	98	13,859	277	970	19	47	1	16	0	14	0
Light Oil Sump	15	Gas Blanket	98	17,324	347	1,212	24	58	1	20	0	18	0
Light Oil Storage	5.8	Gas Blanket	98	6,699	134	469	9	23	1	8	0	7	0
BTX Storage (ILO)	5.8	Gas Blanket	98	6,699	134	469	9	23	1	8	0	7	0
Leaks	14	Manual Detection	88	16,169	1,940	1,132	136	55	7	18	2	16	2
Flushing Liquor Circulation Tank	9	Steam Blanket	98	10,395	208	727	15	35	1	11	0	11	0
Excess Ammonia Liquor Tank	9	Steam Blanket	98	10,395	208	727	15	35	1	11	0	11	0
Wash Oil Decanter	3.8	Uncontrolled	0	4,389	4,389	307	307	15	15	5	0	5	0
Wash Oil Circulating Tank	3.8	Gas Blanket	98	4,389	88	307	6	15	0	5	0	5	0
				851,428	14,239	59,584	997	2,871	48	959	10	868	0

*Uncontrolled emissions

**Emissions after NESHAPS controls installed

SEP 13 '94 04:29PM GCS ENVIRONMENTAL

SR 2478

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

LIGHT OIL CONSTITUENTS

Chemical	Weight fraction (X)	MW	X/MW	Mole fraction (x)	P° at 25°C
enzene	.5925	78.11	.0076	.710	96 mm Hg
oluene	.1598	92.13	.0017	.159	30
ylene (mixed)	.0336	106.16	.0003	.028	8.2
ylbenzene	.0100	106.16	.00009	.008	9.6
rene	.0136	104.14	.0001	.009	7.7
hthalene	.005	128.16	.00004	.004	<1
bon disulfide	.003	76.14	.00004	.004	366
marin	.0367	118.13	.00031	.029	100
lohexane	.0009	84.16	.00001	.001	98
lohexene	.0276	82.14	.00034	.032	100
lopentadiene	.0064	66.10	.00009	.008	600
lene	.0029	70.13	.00004	.004	654
tane	.0014	72.15	.00002	.002	533
ophene	.0024	84.13	.00003	.003	79
,5-trimethylbenzene	.0028	120.20	.00002	.002	7.0
,3-trimethylbenzene	.0130	120.20	.0001	.002	6.8

$\Sigma \frac{X}{MW} = .01071$

* Benzene, toluene, and xylene weight fractions were the average of two analysis OM of light oil samples: Environmetrics on March 1, 1991, and by Doug Stracke of Granite City Steel on March 24, 1985.

Average molecules weight of light oil = EyM = 84.47
Average vapor pressure of light oil = EyP = 89.67

SEP 13 '94 04:30PM GCS ENVIRONMENTAL

Environmental Protection Agency
Research Triangle Park NC 27711
Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

EPA

Benzene Emissions from Coke By-Product Recovery Plants - Background Information for Proposed Standards

Draft EIS

RECEIVED
JUL 12 1984
DEQ

NESHAP

B-11

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

TABLE 3-7. UNCONTROLLED BENZENE EMISSION FACTORS FOR COKE BY-PRODUCT PLANTS

Source	Emission factor (g benzene/Mg coke)	Industry emissions (Mg/yr)[36]
Cooling tower	270	6,340
Direct-water	70	1,090
Tar-bottom	89	4,080
Light-oil condenser vent	87	2,040
Naphthalene separation	20	470
Naphthalene processing	95	5,360
Tar-intercepting sump	21	1,090
Tar dewatering	77	4,350
Tar decanter	12	680
Tar storage	15	780
Light-oil sump	5.8	300
Light-oil storage	5.8	80
BTX storage	5.8	80
Benzene storage	9	510
Flushing-liquor circulation tank	9	510
Excess-ammonia liquor tank	3.8	180
Wash-oil decanter	3.8	180
Wash-oil circulation tank	a	600
Pump seals	a	400
Valves	a	270
Pressure-relief devices	a	30
Exhausters	a	50
Sample connections	a	20
Open-ended lines	a	20
Total (rounded)		29,000

[a] Emissions were estimated on the basis of number of potentially leaking units. Emission factors are listed in Table 3-6.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

APPENDIX F

FUGITIVE PARTICULATE EMISSIONS

EMISSION CALCULATIONS

Fugitive particulate emissions from paved and unpaved roads were calculated based on information provided in "Granite City Area PM-10 Emission Inventory", MRI Final Report, 1988, and the 1991 PM_{10} SIP developed by the Illinois Environmental Protection Agency.

Based on information in these sources, fugitive particulate inventories were developed for three scenarios:

- Initial Uncontrolled Emissions - These are uncontrolled emission estimates taken from the 1988 MRI report.
- Projected Initial Uncontrolled Emissions - These emission estimates reflect uncontrolled emissions reported in the 1988 MRI document scaled up by a factor related to the requested production increase. That factor is derived by dividing the requested production level by the base period production level. The factor applied is dependent on the potential increase in activity on each specific road segment. A factor of one was used for those areas where activity is not a function of production level. A factor of 1.1 was used in those areas where some increase in activity may occur, but that increase is expected to be minor.
- Projected Controlled Emissions - These estimates start with the Projected Initial Uncontrolled Emissions and are then reduced to reflect the fugitive emission control program that will be in effect with the production increase.

EMISSION CONTROL PROGRAM

Table F-1 presents intitial uncontrolled, projected uncontrolled, and projected controlled emissions.

Projected controlled emissions reflect an extensive fugitive dust control program. As a part of this application, Granite City Steel is committing to a fugitive emission control program that adds to the commitments that were implemented earlier. The resulting control program is outlined below in **Table F-2.**

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

MATERIALS HANDLING

Uncontrolled and controlled emissions from materials handling activities that will be affected by the production increase were estimated using the same sources previously cited. These estimates are presented in **Table F-3**.

SUMMARY

Fugitive emissions ard credits are summarized on **Table F-4**.

TABLE F-1

Granite City Division of National Steel Company
Projected PM-10 Emissions - Roads

Area	Segment ***	Initial Uncontrolled Emissions * (TPY)	Production Increase Factor	Projected Initial Uncontrolled Emissions **	Control Efficiency for Projected Emissions (%) *	Projected Controlled Emissions ***
South Plant	A ****	26.09	1.00	26.09	95.00%	1.30
	B	9.91	1.00	9.91	98.00%	0.20
	C	7.46	1.00	7.46	98.00%	0.15
Steelworks	D****	45.72	1.48	67.80	98.00%	1.36
	K ****	6.23	1.48	9.24	98.00%	0.18
	M ****	7.39	1.48	10.96	98.00%	0.22
	E	8.79	1.00	8.79	98.00%	0.18
	F ****	148.15	1.48	219.71	98.84%	2.55
	G ****	3.96	1.48	5.87	96.24%	0.22
	H [2]	11.24	1.00	11.24	97.90%	0.24
	J	8.10	1.00	8.10	98.00%	0.16
	L	161.37	1.48	239.31	98.00%	4.79
	R ****	2.57	1.48	3.81	98.00%	0.08
BOF	O ****	37.61	1.48	55.78	98.00%	1.12
	N	27.75	1.48	41.15	98.00%	0.82
	P [2]	28.44	1.48	42.18	99.30%	0.30
Furnace	V [2]	65.65	1.10	72.22	99.50%	0.36
	W ****	6.59	1.10	7.25	96.54%	0.25
	X ****	238.15	1.54	366.04	97.52%	9.08
	Y	11.06	1.00	11.06	98.00%	0.22
	Z [1]	43.70	1.54	67.17	99.67%	0.22
North Plant	S ****	17.84	1.00	17.84	95.00%	0.89
	T ****	21.09	1.00	21.09	95.00%	1.05
Area	D-D [2]	41.87	1.54	64.35	98.98%	0.66
	E-E [2]	1.69	1.54	2.60	97.87%	0.06
	F-F	1.53	1.54	2.35	98.00%	0.05
	CS(1) ****	13.57	1.00	13.57	98.00%	0.27
	CS(2)	8.49	1.00	8.49	98.00%	0.17
	G-G	5.81	1.00	5.81	95.00%	0.29
	Total:	**1,017.82**		**1,427.23**		**27.42**

*** Based on IEPA PM10 SIP**
**** Base case emissions times production increase factor**
***** Unpaved roads paved as per proposed schedule.**
****** Paved Road.**
[1] Road 72% paved. The remaining 28% will be paved prior to the production increase.
[2] Road to be paved prior to production increase.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

TABLE F-2

GRANITE CITY DIVISION of NATIONAL STEEL

FUGITIVE PARTICULATE EMISSION CONTROL PROGRAM for REQUESTED PRODUCTION INCREASE

AREA	SEGMENT	SURFACE	CONTROL
South Plant	A	Paved	Sweep or Flush once per month
	B	Unpaved	Spray three times per month
	C	Unpaved	Spray three times per month
Steelworks	D	Paved	Sweep or flush daily
	K	Paved	Sweep or flush daily
	M	Paved	Sweep or flush daily
	E	Unpaved	Spray three times per month
	F	Paved	Sweep or flush daily
	G	Paved	Sweep or flush daily
	H *	Paved	Sweep or flush once per month
	J	Paved	Sweep or flush daily
	L	Unpaved	Spray four times per month
	R	Paved	Sweep or flush daily
BOF	O	Paved	Sweep or flush daily
	N	Unpaved	Spray three times per month
	P *	Paved	Sweep or flush five days per week
Blast Furnace	V *	Paved	Sweep or flush five days per week
	W	Paved	Sweep or flush five days per week
	X	Paved	Sweep or flush five days per week
	Y	Unpaved	Spray three times per month
	Z *	Paved	Sweep or flush five days per week
North Plant	S	Paved	Sweep or flush every other day
	T	Paved	Sweep or flush every other day
Area	D-D *	Paved	Sweep or flush five days per week
	E-E *	Paved	Sweep or flush five days per week
	F-F	Unpaved	Spray three times per month
	CS(1)	Paved	Sweep or flush five days per week
	CS(2)	Unpaved	Spray three times per month
	G-G	Unpaved	Spray quarterly

* Sprayed four times per month as of production increase; paved by July 31, 1996.

TABLE F-3

Granite City Division of Nation Steel

Base Case PM10 Emissions and Contemporaneous Emissions Reductions - Materials Handling

Material			Control * Efficiency		Production Increase			Production Increase Related
	TPY (1)	TPY		TPY		TPY	TPY	TPY
Coke	7.45	7.45	90%	0.64	1.54	0.98	(6.47)	0.34
Coke Breeze	0.01	0.01	90%	0.00	1.54	0.00	(0.01)	0.00
Pellets	7.84	7.84	90%	0.67	1.54	1.03	(6.81)	0.36
Limestone	1.88	1.88	90%	0.16	1.54	0.25	(1.63)	0.09
	17.18	**17.18**		**1.47**		**2.26**	**(14.92)**	0.79

*** Based on IEPA PM10 SIP**

**** Reductions based Contemporaneous Controls**

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

TABLE F-4

FUGITIVE EMISSION SUMMARY

Granite City Division of National Steel

IEPA Fugitive PM10 SIP Control Requirement for GCS			61.68	tons / year
PM10 Emissions from Roads	27.42	tons / year		
PM10 Emissions from Materials Handling	2.26	tons / year		
Total Fugitive PM10 Emissions After Production Increase			29.68	tons / year
Excess Fugitive PM10 Reduction (Credit)			32.00	tons / year

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

State of Illinois
ENVIRONMENTAL PROTECTION AGENCY

Mary A. Gade, Director

2200 Churchill Road, Springfield, IL 62794-9276

217/524-4343

August 22, 1994

Michael Pelan
Woodward-Clyde Consultants
10975 El Monte
Suite 100
Overland Park, Kansas 66211

Dear Mr. Pelan:

Enclosed please find a diskette (5 1/4") containing a file (GCSSCRS0.INP) with the ISCST input information for Granite City Steel. The PSD inventory you requested will be forwarded to you at a later date. If you have further needs or questions, please feel free to contact me at (217)524-4788.

Sincerely,

Michael T. Reischel
Air Quality Planning Section
Bureau of Air

Enclosure
cc: Rob Kaleel

PELAN.MRE

Printed on Recycled Paper

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

State of Illinois
ENVIRONMENTAL PROTECTION AGENCY

Mary A. Gade, Director

2200 Churchill Road, Springfield, IL 62794-9276

217/524-4343

August 30, 1994

Michael Pelan
Woodward-Clyde Consultants
10975 El Monte
Suite 100
Overland Park, Kansas 66211

Dear Mr. Pelan:

Enclosed please find three diskettes (5 1/4") containing the files you requested. Please return the diskettes after you have copied the data. The diskettes contain the following data:

a) five meteorological data files (for 1982-86) that use St. Louis for surface data and Salem for upper air data

b) three receptor grid files of varying resolution and coverage. These grids were used for SIP related modeling.

It is our recommendation that the PSD modeling should use the above years (1982-1986) of meteorological data for consistency with the SIP modeling.

I have enclosed a cross reference listing of our source I.D. numbers with corresponding emission unit names for your convenience. If you have any questions regarding PSD inventory or sources please contact Mr. Chris Romaine of our Permits Section at (217)785-1715. If you have further needs or questions, please feel free to contact me at (217)524-4788.

Sincerely,

Michael T. Reischel
Air Quality Planning Section
Bureau of Air

Enclosure
cc: Rob Kaleel
Chris Romaine

PELAN.MRE

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

24-Aug-94

CURRENT SO2 EMISSIONS UNITS
FOR GRANITE CITY STEEL

I.D.	SOURCE DESCRIPTION
17000	Blast Furnace C.H. Baghouse
17005	Blast Furnace I.S. Baghouse
17010	B Blast Furnace Stoves
17020	Boiler House 1; 1-7
17030	A Blast Furnace Stoves
17040	Boiler 11 Blast Furnace
17050	Boiler 12 Blast Furnace
17060	Boiler House 1; 8-10
17070	Steam Boilers 1
17080	Steam Boilers 2
17090	Steam Boilers 3
17100	Steam Boilers 4
17110	Battery A underfiring
17120	Battery B underfiring
17130	Slab Furnace No. 1
17140	Slab Furnace No. 2
17150	Slab Furnace No. 3
17170-080	No. 6 Galvanizing Furnace
17180-240	Galvanizing Line 7A Furnace
17260	By-Product Flare
17340	Slab Furnace No. 4 (Reheat)
30010-020	No. 6 Galvanizing Pot
30030-160	Ladle Drying Preheaters
30170-190	Oven Charging - A Battery
30200-220	Oven Charging - B Battery

```
CO STARTING
CO TITLEONE GRANITE CITY STEEL SO2 SOURCES: GCSSCRS0.INP: 17AUG94
CO FINISHED
SO STARTING

** Source Location Cards:
**          SRCID SRCTYP        XS            YS            ZS

SO LOCATION 17000 POINT    749675.0000  4286481.0000        .0000
SO LOCATION 17005 POINT    749780.0000  4286540.0000        .0000
SO LOCATION 17010 POINT    749730.0000  4286485.0000        .0000
SO LOCATION 17020 POINT    749815.0000  4286590.0000        .0000
SO LOCATION 17030 POINT    749880.0000  4286560.0000        .0000
SO LOCATION 17040 POINT    749945.0000  4286640.0000        .0000
SO LOCATION 17050 POINT    749945.0000  4286640.0000        .0000
SO LOCATION 17060 POINT    749760.0000  4286660.0000        .0000
SO LOCATION 17070 POINT    748015.0000  4286860.0000        .0000
SO LOCATION 17080 POINT    748000.0000  4286810.0000        .0000
SO LOCATION 17090 POINT    748010.0000  4286800.0000        .0000
SO LOCATION 17100 POINT    748000.0000  4286790.0000        .0000
SO LOCATION 17110 POINT    750170.0000  4286730.0000        .0000
SO LOCATION 17120 POINT    750180.0000  4286730.0000        .0000
SO LOCATION 17130 POINT    747740.0000  4286570.0000        .0000
SO LOCATION 17140 POINT    747770.0000  4286570.0000        .0000
SO LOCATION 17150 POINT    747750.0000  4286550.0000        .0000
SO LOCATION 17170 POINT    748820.0000  4287010.0000        .0000
SO LOCATION 17180 POINT    748820.0000  4287010.0000        .0000
SO LOCATION 17190 POINT    748410.0000  4286810.0000        .0000
SO LOCATION 17200 POINT    748420.0000  4286810.0000        .0000
SO LOCATION 17210 POINT    748440.0000  4286800.0000        .0000
SO LOCATION 17220 POINT    748460.0000  4286780.0000        .0000
SO LOCATION 17230 POINT    748440.0000  4286800.0000        .0000
SO LOCATION 17240 POINT    748460.0000  4286780.0000        .0000
SO LOCATION 17260 POINT    750050.0000  4286770.0000        .0000
SO LOCATION 17340 POINT    747680.0000  4286530.0000        .0000
SO LOCATION 30010 VOLUME   748940.0000  4287100.0000        .0000
SO LOCATION 30020 VOLUME   748951.0000  4287109.0000        .0000
SO LOCATION 30030 VOLUME   748430.0000  4286320.0000        .0000
SO LOCATION 30040 VOLUME   748435.0000  4286324.0000        .0000
SO LOCATION 30050 VOLUME   748440.0000  4286328.0000        .0000
SO LOCATION 30060 VOLUME   748460.0000  4286330.0000        .0000
SO LOCATION 30070 VOLUME   748468.0000  4286336.0000        .0000
SO LOCATION 30080 VOLUME   748475.0000  4286343.0000        .0000
SO LOCATION 30090 VOLUME   748483.0000  4286349.0000        .0000
SO LOCATION 30100 VOLUME   748440.0000  4286300.0000        .0000
SO LOCATION 30110 VOLUME   748445.0000  4286304.0000        .0000
SO LOCATION 30120 VOLUME   748450.0000  4286308.0000        .0000
SO LOCATION 30130 VOLUME   748460.0000  4286325.0000        .0000
SO LOCATION 30140 VOLUME   748468.0000  4286331.0000        .0000
SO LOCATION 30150 VOLUME   748475.0000  4286338.0000        .0000
SO LOCATION 30160 VOLUME   748483.0000  4286344.0000        .0000
SO LOCATION 30170 VOLUME   750100.0000  4286760.0000        .0000
SO LOCATION 30180 VOLUME   750139.0000  4286777.0000        .0000
SO LOCATION 30190 VOLUME   750160.0000  4286794.0000        .0000
```

```
SO LOCATION 30200 VOLUME   750209.0000  4286823.0000        .0000
SO LOCATION 30210 VOLUME   750239.0000  4286840.0000        .0000
SO LOCATION 30220 VOLUME   750286.0000  4286857.0000        .0000
SO LOCATION 40001 VOLUME   749760.0000  4286573.0000        .0000
SO LOCATION 40002 VOLUME   749764.0000  4286575.0000        .0000
SO LOCATION 40003 VOLUME   749767.0000  4286578.0000        .0000
SO LOCATION 40004 VOLUME   749771.0000  4286581.0000        .0000
SO LOCATION 40005 VOLUME   749774.0000  4286584.0000        .0000
SO LOCATION 40006 VOLUME   749780.0000  4286587.0000        .0000

** Source Parameter Cards:
** POINT:   SRCID       QS              HS        TS          VS
     DS
** VOLUME:  SRCID       QS              HS        SYINIT      SZINIT
** AREA:    SRCID       QS              HS         XINIT

SO SRCPARAM 17000     8.862000         19.3200   339.0000    20.3300
    3.3500
SO SRCPARAM 17005     0.441000         16.7600   116.0000    20.7000
     .7600
SO SRCPARAM 17010     0.000000         68.5800   533.0000    18.5600
    2.7400
SO SRCPARAM 17020    52.920000         68.5800   460.0000     4.8500
    4.1100
SO SRCPARAM 17030     0.000000         66.1400   533.0000    26.8400
    2.1300
SO SRCPARAM 17040    28.350000         46.3300   510.0000    11.8800
    2.1300
SO SRCPARAM 17050    28.350000         46.3300   510.0000    10.6400
    2.1300
SO SRCPARAM 17060    22.680000         60.9600   460.0000     3.4400
    3.2000
SO SRCPARAM 17070    00.000000         32.9200   505.0000     7.0700
    2.1300
SO SRCPARAM 17080    00.000000         32.9200   505.0000     7.0700
    2.1300
SO SRCPARAM 17090    00.000000         29.8700   505.0000     7.0700
    2.1300
SO SRCPARAM 17100    00.000000         29.8700   505.0000     7.0700
    2.1300
SO SRCPARAM 17110    17.408000          9.1500   529.0000     3.3100
    2.7400
SO SRCPARAM 17120    17.297000          9.1500   529.0000     4.7900
    2.7400
SO SRCPARAM 17130    89.203000         33.5300   616.0000    18.9600
    2.0700
SO SRCPARAM 17140    39.947000         33.5300   616.0000    18.9600
    2.0700
SO SRCPARAM 17150     0.000000         33.5300   616.0000    18.9600
    2.0700
SO SRCPARAM 17170     0.000000         15.5400  1199.0000     4.3700
     .6000
SO SRCPARAM 17180     0.000000         15.5400  1199.0000     4.3700
     .6000
```

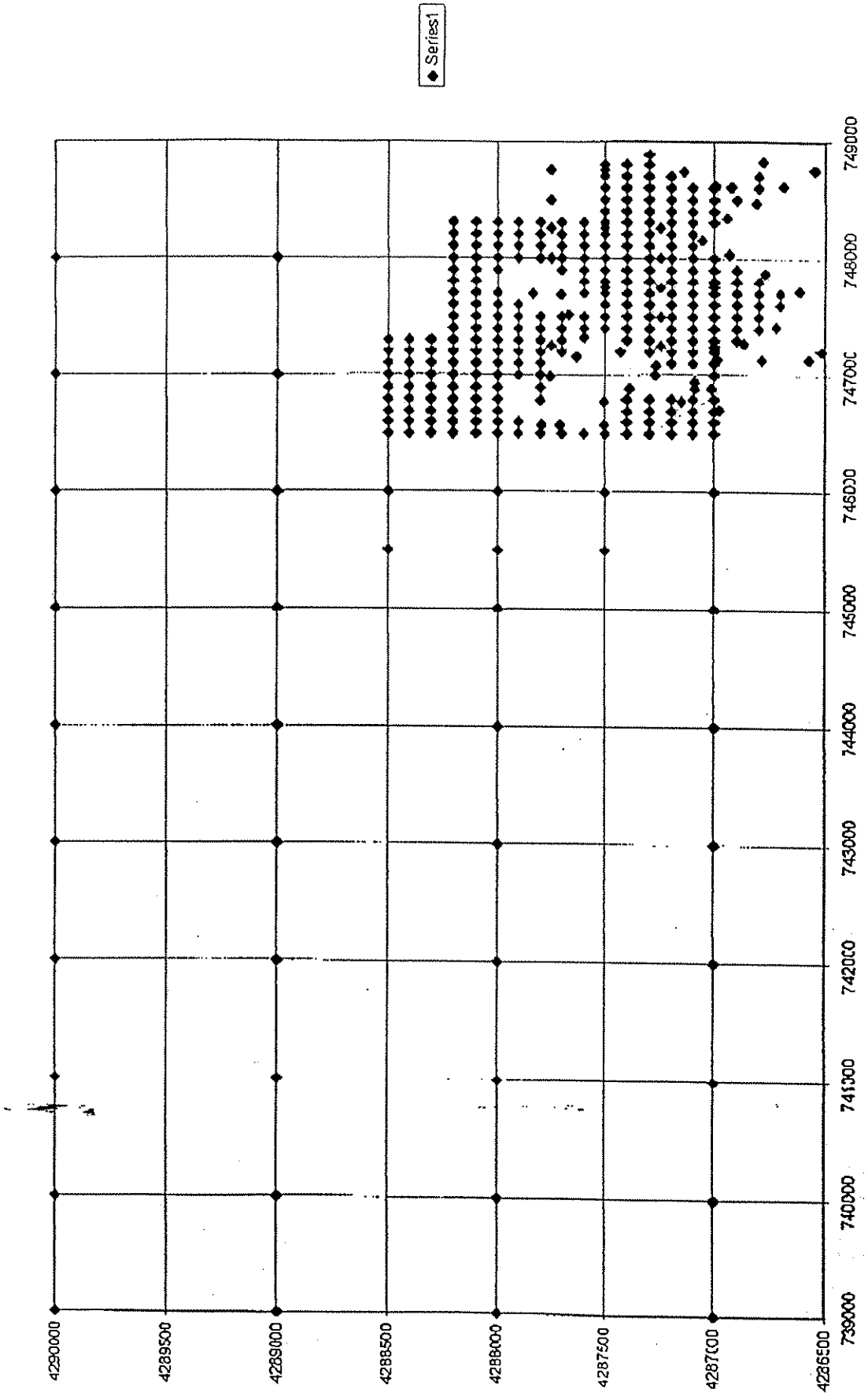
```
SO SRCPARAM 17190      0.000000        16.4600    505.0000     7.7900
    .5100
SO SRCPARAM 17200      0.000000        16.4600    505.0000     7.7900
    .5100
SO SRCPARAM 17210      0.000000        17.9800    505.0000     7.7900
    .5100
SO SRCPARAM 17220      0.000000        20.1200    505.0000     7.7900
    .5100
SO SRCPARAM 17230      0.000000        17.9800    505.0000     7.7900
    .5100
SO SRCPARAM 17240      0.000000        20.1200    505.0000     7.7900
    .5100
SO SRCPARAM 17260      0.000000        32.0000   1273.0000    20.0000
    3.8400
SO SRCPARAM 17340     52.255000        44.5000    644.0000     8.1500
    4.2000
SO SRCPARAM 30010      0.000000        38.1000      6.6700    17.7200
SO SRCPARAM 30020      0.000000        38.1000      6.6700    17.7200
SO SRCPARAM 30030      1.193280        31.7500      3.0600    14.7700
SO SRCPARAM 30040      1.193280        31.7500      3.0600    14.7700
SO SRCPARAM 30050      1.193280        31.7500      3.0600    14.7700
SO SRCPARAM 30060      2.091170        31.7500      4.6600    14.7700
SO SRCPARAM 30070      2.091170        31.7500      4.6600    14.7700
SO SRCPARAM 30080      2.091170        31.7500      4.6600    14.7700
SO SRCPARAM 30090      2.091170        31.7500      4.6600    14.7700
SO SRCPARAM 30100      1.193280        31.7500      3.0600    14.7700
SO SRCPARAM 30110      1.193280        31.7500      3.0600    14.7700
SO SRCPARAM 30120      1.193280        31.7500      3.0600    14.7700
SO SRCPARAM 30130      2.091170        31.7500      4.6600    14.7700
SO SRCPARAM 30140      2.091170        31.7500      4.6600    14.7700
SO SRCPARAM 30150      2.091170        31.7500      4.6600    14.7700
SO SRCPARAM 30160      2.091170        31.7500      4.6600    14.7700
SO SRCPARAM 30170    .40000000E-01      9.7600     15.9100     9.0700
SO SRCPARAM 30180    .40000000E-01      9.7600     15.9100     9.0700
SO SRCPARAM 30190    .40000000E-01      9.7600     15.9100     9.0700
SO SRCPARAM 30200    .40000000E-01      9.7600     15.9100     9.0700
SO SRCPARAM 30210    .40000000E-01      9.7600     15.9100     9.0700
SO SRCPARAM 30220    .40000000E-01      9.7600     15.9100     9.0700
SO SRCPARAM 40001    .30450000         10.9000      2.1300    10.1400
SO SRCPARAM 40002    .30450000         10.9000      2.1300    10.1400
SO SRCPARAM 40003    .30450000         10.9000      2.1300    10.1400
SO SRCPARAM 40004    .30450000         10.9000      2.1300    10.1400
SO SRCPARAM 40005    .30450000         10.9000      2.1300    10.1400
SO SRCPARAM 40006    .30450000         10.9000      2.1300    10.1400

SO BUILDHGT 17000 36*15.20
SO BUILDHGT 17005 36*15.20
SO BUILDHGT 17040 36*21.80
SO BUILDHGT 17050 36*21.80
SO BUILDHGT 17070 36*27.44
SO BUILDHGT 17080 36*27.44
SO BUILDHGT 17090 36*27.38
SO BUILDHGT 17100 36*27.38
SO BUILDHGT 17130 36*27.38
```

```
SO BUILDHGT 17140 36*27.38
SO BUILDHGT 17150 36*27.38
SO BUILDHGT 17170 36*30.79
SO BUILDHGT 17180 36*30.79
SO BUILDHGT 17190 36*62.94
SO BUILDHGT 17200 36*62.94
SO BUILDHGT 17210 36*62.94
SO BUILDHGT 17220 36*62.94
SO BUILDHGT 17230 36*62.94
SO BUILDHGT 17240 36*62.94
SO BUILDHGT 17340 36*27.38
SO BUILDWID 17000 36*47.73
SO BUILDWID 17005 36*47.73
SO BUILDWID 17040 36*31.76
SO BUILDWID 17050 36*31.76
SO BUILDWID 17070 36*51.01
SO BUILDWID 17080 36*51.01
SO BUILDWID 17090 36*50.99
SO BUILDWID 17100 36*50.99
SO BUILDWID 17130 36*50.99
SO BUILDWID 17140 36*50.99
SO BUILDWID 17150 36*50.99
SO BUILDWID 17170 36*32.97
SO BUILDWID 17180 36*32.97
SO BUILDWID 17190 36*230.56
SO BUILDWID 17200 36*230.56
SO BUILDWID 17210 36*230.56
SO BUILDWID 17220 36*230.56
SO BUILDWID 17230 36*230.56
SO BUILDWID 17240 36*230.56
SO BUILDWID 17340 36*50.98
SO SRCGROUP   ALL
SO FINISHED
```

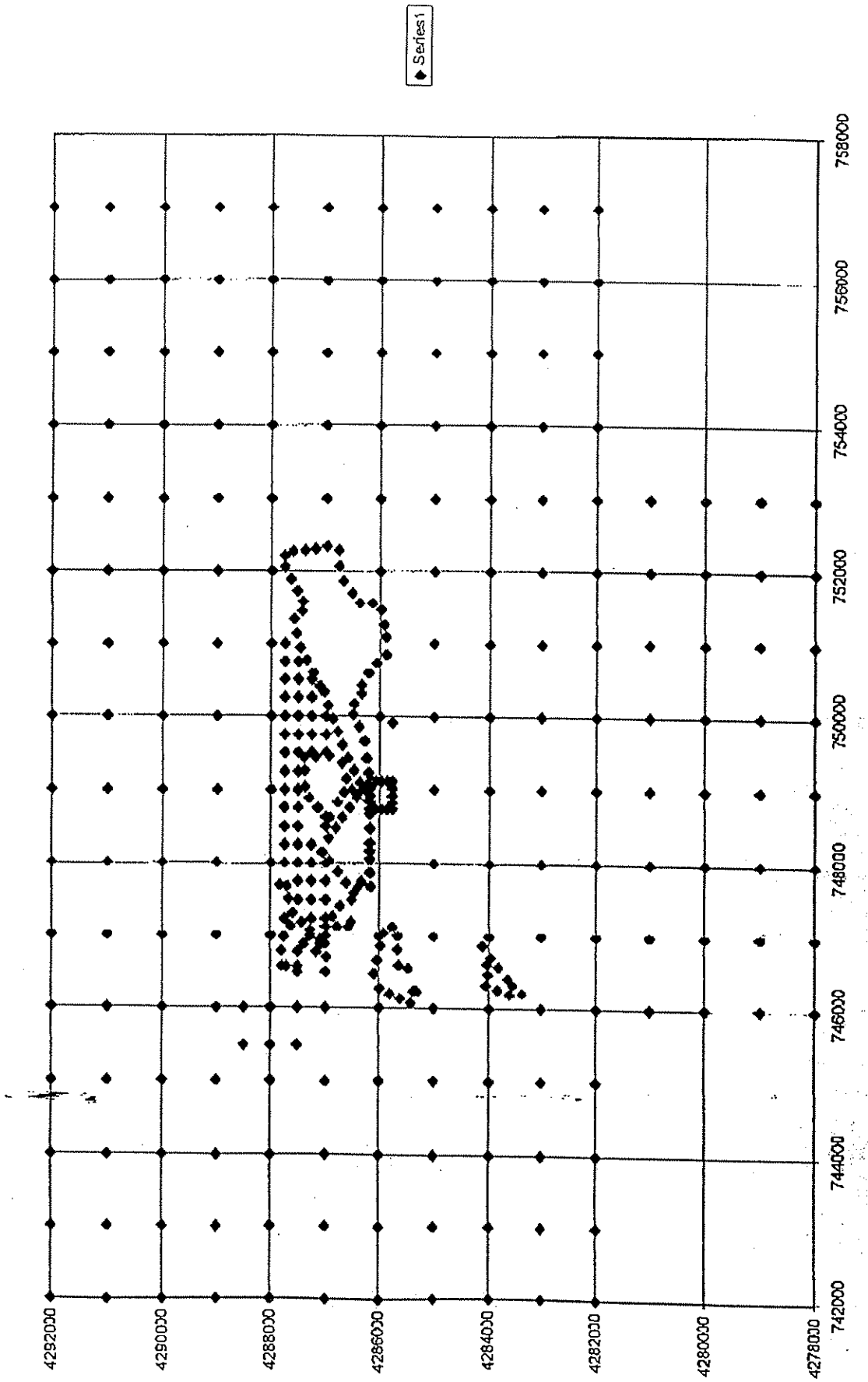
Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Sheet1 Chart 1

RCP0.REC



Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

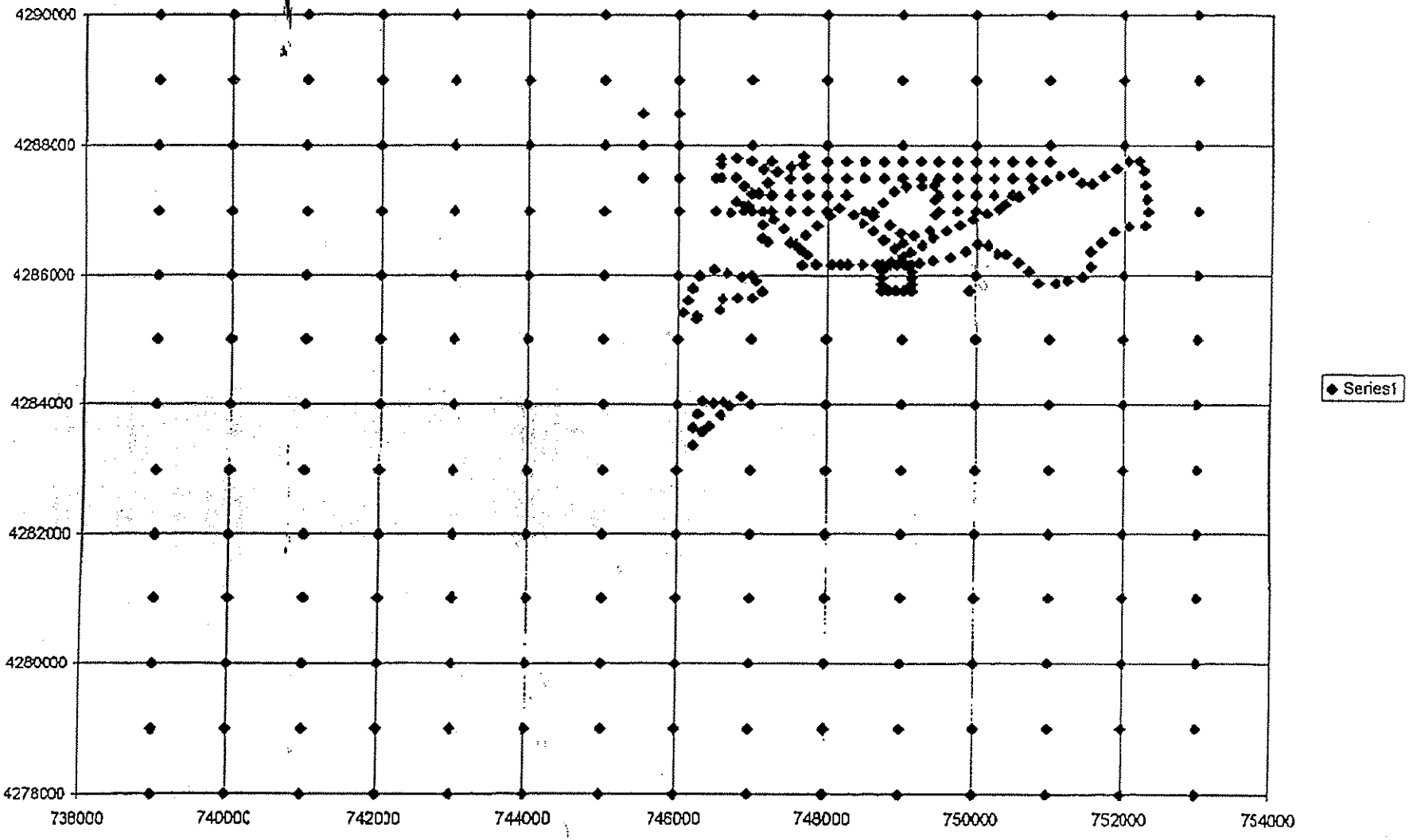


Sheet1 Chart 1

RCP2.REC

Sheet1 Chart 1

RCP1.REC



SR 2497

06-07-94 01:31PM FROM WOODWARD-CLYDE TO OVERLAND PARK P003/004

GRANITE CITY STEEL
Chi/Q MODELING RESULTS

Source		Averaging Periods 1-hr	3-hr	8-hr	24-hr	Annual
Basic Oxygen Furnace						
	1982	8.32992	5.11954	4.04261	3.17553	0.40857
	1983	8.40577	5.14898	4.32258	3.57843	0.32592
	1984	8.37546	5.91221	4.05676	3.12822	0.36519
	1985	8.02242	6.30424	3.78267	2.85222	0.39603
	1986	9.47827	4.04066	4.04810	3.32816	0.36204
Cont. Caster 1						
	1982	41.72854	22.89801	16.26416	10.86266	1.94732
	1983	32.29171	20.36359	16.39947	9.57338	1.67305
	1984	31.71025	19.15633	13.23390	8.76975	1.85467
	1985	33.97346	18.51436	14.45577	11.38182	1.93941
	1986	36.22949	21.62249	17.93918	14.04322	2.28138
Cont. Caster 2						
	1982	65.68226	36.85776	18.89259	10.82353	1.75785
	1983	62.17685	36.08628	19.81877	10.11278	1.49192
	1984	62.87529	33.71236	18.43574	9.49753	1.39393
	1985	62.44077	28.05335	19.47174	7.98767	1.58275
	1986	64.46448	40.34770	25.79822	14.15720	1.96735
Blast Furnace Stove A						
	1982	2.03670	1.48685	0.90975	0.65324	0.08491
	1983	2.02455	1.41562	1.01511	0.68786	0.06888
	1984	2.01596	1.25256	0.93502	0.62503	0.06445
	1985	1.86379	1.26479	0.92416	0.70430	0.08434
	1986	2.05316	1.41788	0.91439	0.53281	0.07122
Blast Furnace Stove B						
	1982	1.83402	1.49177	1.01450	0.52660	0.07639
	1983	1.83477	1.27043	0.92317	0.57669	0.05900
	1984	1.82304	1.16380	0.75610	0.58302	0.05680
	1985	1.64615	1.11064	0.74498	0.55165	0.06810
	1986	1.86933	1.18687	0.84350	0.46336	0.06435
Boilers 1-7						
	1982	2.75429	1.77919	1.43887	1.01927	0.13301
	1983	3.02279	2.13943	1.44578	0.99959	0.10907
	1984	2.91744	2.29176	1.35573	1.00819	0.10460
	1985	2.73767	1.96698	1.40735	1.13495	0.13117
	1986	3.10811	1.78998	1.44748	0.81800	0.11280

GRANITE CITY STEEL
Chi/Q MODELING RESULTS

Source		Averaging Periods 1-hr	3-hr	8-hr	24-hr	Annual
Boilers 8-10						
	1982	5.35731	3.89625	2.98148	1.87469	0.22715
	1983	5.25407	3.35492	2.73839	1.87139	0.21162
	1984	5.23671	4.10504	2.71289	1.73712	0.19509
	1985	6.01839	3.62993	2.63138	1.85790	0.25693
	1986	5.88483	3.42206	2.55914	1.49832	0.22485
Boiler 11						
	1982	5.53215	4.64445	3.09394	2.07691	0.25464
	1983	5.35349	4.07117	3.12422	1.86106	0.19298
	1984	4.99910	3.80702	3.23865	1.97619	0.18844
	1985	5.20339	3.77086	2.85423	2.01661	0.22532
	1986	4.82790	4.16260	2.19490	1.85895	0.18418
Boiler 12						
	1982	5.57253	4.84367	3.35639	2.27339	0.27846
	1983	5.37638	4.37466	3.42029	1.97834	0.21558
	1984	5.16843	3.97674	3.38319	2.07676	0.21379
	1985	5.35126	4.10718	2.97037	2.12109	0.25231
	1986	5.54365	4.39041	3.14718	1.93025	0.21097
By-Products Flare						
	1982	1.71711	1.17731	0.71190	0.34155	0.03809
	1983	1.67022	1.23291	0.80794	0.30850	0.03246
	1984	1.47099	1.20900	0.77422	0.35805	0.03104
	1985	1.46473	1.07527	0.61864	0.31640	0.03901
	1986	1.68110	1.12976	0.77906	0.35777	0.03810
Basic Oxygen Furnace Ladle Preheater/Dryer						
	1982	152.91600	71.24404	40.29081	30.52122	1.92532
	1983	105.10160	81.90311	38.11738	17.85423	1.57519
	1984	103.18574	65.88528	59.53541	30.77378	1.92123
	1985	123.98038	59.26729	41.58367	22.27744	1.99249
	1986	119.31400	74.24021	57.29976	23.81347	2.22434
A&B Blast Furnace Casthouse						
	1982	--	18.07605	--	10.31622	1.26819
	1983	--	20.13827	--	10.53389	0.92814
	1984	--	17.93552	--	10.79339	0.90975
	1985	--	19.07195	--	12.13430	1.18526
	1986	--	16.54042	--	8.49202	0.87335

GRANITE CITY STEEL
Chi/Q MODELING RESULTS

Source		Averaging Periods 1-hr	3-hr	8-hr	24-hr	Annual
Iron Sprout Baghouse						
	1982	--	100.92982	--	36.82012	4.79483
	1983	--	94.94304	--	37.76471	4.77771
	1984	--	84.64680	--	42.73305	4.31194
	1985	--	87.12678	--	28.59888	5.01813
	1986	--	94.53537	--	31.99669	5.72802
A&B Blast Furnace Uncap. Roof						
	1982	--	149.78619	--	34.55944	6.27768
	1983	--	150.18353	--	49.11052	5.00250
	1984	--	122.64623	--	42.36183	4.49365
	1985	--	121.93640	--	40.57382	5.31191
	1986	--	166.83260	--	43.00364	6.32726
Slab Furnace #1						
	1982	17.93674	--	9.07911	--	--
	1983	17.83176	--	10.20481	--	--
	1984	17.93832	--	11.31362	--	--
	1985	17.36112	--	10.85532	--	--
	1986	20.27599	--	10.26824	--	--
Slab Furnace #2						
	1982	15.20269	--	9.91327	--	--
	1983	15.53579	--	10.97924	--	--
	1984	15.50592	--	9.75170	--	--
	1985	16.99075	--	10.56445	--	--
	1986	15.2304	--	9.91955	--	--
Slab Furnace #3						
	1982	17.94873	--	10.22973	--	--
	1983	18.03205	--	11.34276	--	--
	1984	18.12591	--	10.52488	--	--
	1985	19.46428	--	12.37725	--	--
	1986	28.60361	--	10.48824	--	--
Slab Furnace #4						
	1982	4.04542	--	1.98084	--	--
	1983	3.44341	--	2.21318	--	--
	1984	3.87351	--	2.38280	--	--
	1985	4.43493	--	2.18079	--	--
	1986	3.71547	--	2.18042	--	--

GRANITE CITY STEEL
Chi/Q MODELING RESULTS

Source	Averaging Periods 1-hr	3-hr	8-hr	24-hr	Annual
Battery "A" Underfire					
1982	19.72516	--	14.52922	--	--
1983	19.7897	--	13.64811	--	--
1984	19.58003	--	14.73932	--	--
1985	19.41563	--	13.09506	--	--
1986	19.10546	--	14.22764	--	--
Battery "B" Underfire					
1982	14.74961	--	11.25772	--	--
1983	14.63826	--	8.69756	--	--
1984	14.7154	--	9.30580	--	--
1985	14.70493	--	8.24305	--	--
1986	14.08924	--	10.66454	--	--

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Research Triangle Park, NC 27711

OFFICE OF
AIR QUALITY PLANNING AND
STANDARDS

September 14, 2022

Mr. Chris Hardin
Manager of Environmental Affairs
U.S. Steel
Penn Liberty Plaza 1
1350 Penn Avenue, Suite 200
Pittsburgh, Pennsylvania 15222-4211

Re: Revision of Request to Provide Information Pursuant to the Clean Air Act (CAA)

Dear Mr. Hardin:

The U.S. Environmental Protection Agency (EPA) is requiring U.S. Steel to submit certain information about its Granite City (IL) facility located at 1951 State Street, Granite City, Illinois 62040. As you know, we issued a Clean Air Act (CAA) section 114 information request on January 31, 2022. With today's correspondence, we are requesting additional source testing related to the January 31, 2022, CAA section 114 information request. As noted in our previous request, we are collecting information and data to support the development of mandatory amendments for National Emission Standards for Hazardous Air Pollutants (NESHAP) for Integrated Iron and Steel Manufacturing Facilities, 40 CFR part 63, subpart FFFFF.

Other than noted below, all aspects of our request for source testing sent on January 31, 2022 (*i.e.*, Enclosures 1 and 3 through 8), remain unchanged, including submittal and handling of confidential business information (CBI) and the requirement for a site-specific test plan.

The changes to Enclosure 2 are specified in revised Table 1a, Table 2a, and Table 3a (refer to Attachment 1). These tables supersede Table 1, Table 2, and Table 3, respectively, in the January 31, 2022, submittal. A new Table 4 is added to Enclosure 2. We ask that you complete the revised Enclosure 2, source testing and send the requested test data and upload the associated files, as appropriate, to the Electronic Reporting Tool (ERT) for the following emission sources at your Granite City (IL) facility:

Sources	**Test Method**
Basic oxygen process furnace (BOPF) primary control device	Method 26A
Blast furnace (BF) stove - at the outlet of the boiler BOPF primary control device	Other Test Method 46

The schedule for these requests is as follows:

Information that Must be Submitted	Deadline for Submittal of Information
Explanations of testing problems	30 days after receipt of revised section 114 request
Test data (including all test data)	January 6, 2023

U.S. Steel must submit all required information under an authorized signature with the following certification:

> I certify under penalty of law that I have examined and am familiar with the information in the enclosed documents, including all attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are, to the best of my knowledge and belief, true and complete. I am aware that there are significant penalties for knowingly submitting false statements and information, including the possibility of fines or imprisonment pursuant to section 113(c)(2) of the Clean Air Act and 18 U.S.C. §§ 1001 and 1341.

All required non-CBI information should be submitted by U.S. Steel to:

> Mr. Phil Mulrine
> Office of Air Quality Planning and Standards
> Sector Policies and Programs Division
> Research Triangle Park, North Carolina 27711
> *mulrine.phil@epa.gov*

We are issuing this information request pursuant to section 114(a) of the CAA, 42 U.S.C. § 7414(a). Section 114(a) authorizes the Administrator of the EPA to require the submission of information. This authority has been delegated to the Director of the Sector Policies and Programs Division. This information request is not subject to the Paperwork Reduction Act, 44 U.S.C. § 3501 et seq., because it seeks collection of information from specific individuals or entities as part of an administrative action or investigation. We may use any information submitted in response to this request in an administrative, civil, or criminal action. Failure to comply fully with this information request may subject U.S. Steel to an enforcement action under section 113 of the CAA, 42 U.S.C. § 7413.

Thank you for your assistance in this effort. Your response will provide comprehensive information about the integrated iron and steel source category, which will lead to a more effective

rulemaking. Any questions about this information request should be directed to Phil Mulrine in the EPA's Sector Policies and Programs Division by email at *mulrine.phil@epa.gov* or by telephone at (919) 541-5289.

Sincerely,

PENNY LASSITER

Digitally signed by PENNY LASSITER
Date: 2022.09.14 14:00:31 -04'00'

Penny Lassiter
Director
Sector Policies and Programs Division

Attachment

cc: Ms. Julie Armitage
Chief, Bureau of Air
Illinois Environmental Protection Agency

Mr. John Mooney
Director
Air and Radiation Division, U.S. EPA Region 5

Mr. Paul Balserak
Vice President, Environmental
American Iron and Steel Institute

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Attachment 1

Table 1a: Summary of Required Air Emissions Testing for Integrated Iron and Steel

Note: All revisions to the Section 114 request are shown in red font in the following tables.

Pollutant	Test Method	Sources	Facilities
Lead, Arsenic, and Chromium	40 CFR Part 50, Appendix B	Fenceline as described in Section 1.3	Gary (IN); Granite City (IL)
Hydrogen fluoride (HF)	Method 26A	Sinter plant windboxes	Gary (IN) (1 of the 2 windboxes)
HAP Metals	Method 29	Sinter plant windboxes	Gary (IN) (1 of the 2 windboxes)
HAP Metals	Method 29	Any of the following sources **for which the data submitted in 2011 are no longer representative of current emissions**: • Blast furnace (BF) control device (not BF with fume suppressants) • BOPF primary control device • BOPF secondary control device	All/Any
Opacity	Method 9	Any of the following sources for which there are no previous data available (post 2015): • BF bleeder valve planned openings • BF casthouse fugitives • Beaching of iron from BFs • BOPF shop fugitives • BF and BOPF shop slag processing, handling, and storage[1]	All/Any
Visible Emissions	Method 22 (as alternative to Method 9)	BF bell leaks for which there are no previous data available (post 2015)	All/Any

[1] Processing operations include, but are not limited to, crushing, grinding, screening, and sizing. Handling and storage events include, but are not limited to: slag flowing in the runners; slag dropping into a slag container (if applicable); slag dropping into the pit; slag flowing and cooling in the pit; end-loader digging and dumping; in-plant truck dumping; use of conveyors, stackers, and reclaimers; storage piles; and loadout for shipping slag offsite, if applicable.

Pollutant	Test Method	Sources	Facilities
Dioxins and furans (D/F)	Other Test Method 46	BF stove - at the outlet of the boiler BOPF primary control device	Granite City (IL)
Hydrochloric acid (HCl)	Method 26A	BOPF primary control device	Granite City (IL)

Table 2a: Summary of Required Test Methods for Integrated Iron and Steel Manufacturing Air Pollution Sources

Pollutant	Required Method	Minimum No. of Test Runs and Duration by Source, where Appropriate	Units of Measure
Hydrogen fluoride (7664-39-3)	EPA Method 26A	Perform at least seven (7) test runs while the process and control devices are operating under representative conditions. Follow the procedures of 40 CFR §63.7822(c) and (d) to determine emissions. Collect a minimum sample volume of 70 dscf (2 dscm) of gas during each run.[2] You should not dilute samples prior to analysis. If samples are diluted prior to analysis and the results are non-detect, you must reanalyze the sample undiluted and report that value. Both the acidic and the basic impingers must be analyzed for fluoride.	lb/hr lb/ton of sinter,

[2] Previous tests that collected the sample volume required at that time or according to another listed method (if less than the current test requirements) are acceptable as long as all analytes are measured at levels twice the method detection limit.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Pollutant	Required Method	Minimum No. of Test Runs and Duration by Source, where Appropriate	Units of Measure
HAP Metals: Antimony (7440-36-0) Arsenic (7440-38-2) Beryllium (7440-41-7) Cadmium (7440-43-9) Chromium (7440-47-3) Cobalt (7440-48-4) Lead (7439-92-1) Manganese (7439-96-5) Mercury (7439-97-6) Nickel (7440-02-0) Selenium (7782-49-2)	EPA Method 29 Use cold vapor atomic absorption spectroscopy (CVAAS) for mercury and inductively coupled (argon) plasma with mass spectrometry (IC(A)P/MS) for all other HAP metals in Method 29. Report all metals results.	Perform at least three test runs while the process and control device are operating under representative conditions. For BOPF tests, this includes at least one full production cycle (from scrap charge to 3 minutes after slag is emptied from the vessel) for each run.[3] Follow the procedures of 40 CFR §63.7822(c) through (g) to determine emissions except the minimum sample time is determined by the target volume below. Collect a minimum sample volume of 105 dscf (3 dscm) of gas during each test run.[2,3]	gr/dscf lb/hr lb/ton of sinter, hot iron, or cast steel product, as appropriate
Opacity	EPA Method 9	Over the next 2 months from the email date of this letter: **For dirty gas bleeder valve planned openings**: conduct opacity observations in accordance with Method 9 (six-minute averages) as soon as event begins until the opacity reaches ten percent opacity or less for three minutes for three planned openings during the two month period following the email date of this letter and allowing five business days to set-up the program, if the planned opening occurs Monday – Friday 7:00 am – 3:00 pm, excluding holidays, when the	Percent (%)

[3] Except for BOPF with closed hood systems, where sampling should be performed only during the primary oxygen blow and only for 20 heat cycles or the collection of 105 dscf (3 dscm) sample volume, whichever is less.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Pollutant	Required Method	Minimum No. of Test Runs and Duration by Source, where Appropriate	Units of Measure
		facility knows or has reason to know that a dirty gas bleeder valve planned opening will occur at least two hours in advance of the initiation of the planned opening. **For BF casthouse fugitives:** conduct opacity observations in accordance with Method 9 (six-minute averages) with observations made in accordance with 40 CFR Subpart FFFFF Integrated Iron and Steel MACT during casting. Casting begins when the furnace taphole is opened, usually by creating a hole near the bottom of the furnace and ends when the hole is plugged. At least three cast cycles must be tested. The number of casthouse openings may be minimized by closing unnecessary openings for the duration of the test but is not required. **For basic oxygen process furnace (BOPF) shop fugitives**: conduct opacity observations in accordance with Method 9 (three-minute averages) with observations made in accordance with 40 CFR Subpart FFFFF Integrated Iron and Steel MACT during the entire steel production cycle and including at least three cycles. The steel production cycle begins when scrap is charged to the furnace and ends three minutes after the slag is emptied from the vessel into the slag pot. The number of openings may be minimized by closing unnecessary openings for the duration of the test but is not required. **For beaching of iron from BFs**: conduct opacity observations in accordance with Method 9 (six-minute block averages) for three beaching events from the initiation of beaching until beaching ends, if beaching occurs Monday – Friday 7:00 am – 3:00 pm, excluding holidays. **For BOPF shop slag processing, handling, and storage operations:** for the part of the emissions plume that has the highest visible	

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Pollutant	Required Method	Minimum No. of Test Runs and Duration by Source, where Appropriate	Units of Measure
		emissions, as determined in Enclosure 1 Part III Section G Question 2c, take six-minute averages with observations made when visible emissions are the highest. At each operating piece of equipment handing slag (i.e., screener, crusher, and sizer) perform opacity tests for at least two hours of readings consisting of at least 30 minutes on four different days including at least 2 days where there has been no precipitation in the preceding 48 hours. A minimum of one hour of readings should be taken from each of the following: slag dumping to a pile, digging from a pile, and dumping to stationary equipment. If multiple pieces of equipment are identical in operation and design, only a single piece of equipment may be tested. Please provide sufficient information to determine that the pieces of equipment are identical. Equipment should not be started just to collect emissions data.	
Visible Emissions	Method 22	**For blast furnace (BF) bell leaks**: Perform a minimum of three thirty-minute duration tests at a BF top with a small bell.	
D/F	Other Test Method 46	Perform at least three valid test runs while the process and control devices are operating under representative conditions. For BOPF tests, this includes at least one full production cycle (from scrap charge to 3 minutes after slag is emptied from the vessel) for each run.[4] Follow the procedures of 40 CFR §63.7822(c) and (d) to determine emissions. Collect a minimum sample volume of 105 dscf (3 dscm) of gas during each test run. Use high resolution mass spectrometry for sample analysis.[5,6]	ng/dscm and ng/dscm corrected to 7% O_2 and lb/hr for each D/F congener, and total D/Fs

[4] Except for BOPF with closed hood systems, where sampling should be performed only during the primary oxygen blow and only for 20 heat cycles or the collection of 105 dscf (3 dscm) sample volume, whichever is less.

[5] Congener list from OTM-46 shown in Table 4.

[6] OTM-46 incorporates revisions to U.S. EPA Method 23 that were proposed on January 14, 2020, and are expected to be promulgated prior to the testing required by this Section 114 request. Method available at: https://www.epa.gov/system/files/documents/2022-01/otm-46-method-01282022.pdf.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Pollutant	Required Method	Minimum No. of Test Runs and Duration by Source, where Appropriate	Units of Measure
Hydrochloric acid (HCl)	Method 26A	Perform at least three valid test runs while the process and control devices are operating under representative conditions. Follow the procedures of 40 CFR §63.7822(c) and (d) to determine emissions. Collect a minimum sample volume of 70 dscf (2 dscm) of gas during each run.[7] You should not dilute samples prior to analysis. If samples are diluted prior to analysis and the results are non-detect, you must reanalyze the sample undiluted and report that value.	mg/dscm, and lb/ton of hot iron, or cast steel product, as appropriate

[7] Previous tests that collected the sample volume required at that time or according to another listed method (if less than the current test requirements) are acceptable as long as all analytes are measured at levels twice the method detection limit.

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Table 3a. Process Information to Record/Monitor During Testing

Source	Test Method	Process Information
Sinter plant windboxes	EPA Method 26A EPA Method 29	• Stack or exhaust gas flow rate (as determined using EPA Method 2, 2F, 2G, or 5D); • Sinter production rate
BF control device	EPA Method 29	• Hot iron production
BF stove	Other Test Method 46	• Hot iron production
BOPF primary control device	EPA Method 29 Other Test Method 46 Method 26A	• Steel production
BOPF secondary control device	EPA Method 29	• Steel production

Electronic Filing: Received, Clerk's Office 06/12/2024 **PCB 2024-077

Table 4 D/F Congeners for OTM-46 As Presented in the ERT

Compound Name	CAS [a] Registry No.
2,3,7,8-TeCDD	1746-01-6
1,2,3,7,8-PeCDD	40321-76-4
1,2,3,4,7,8-HxCDD	39227-28-6
1,2,3,6,7,8-HxCDD	57653-85-7
1,2,3,7,8,9-HxCDD	19408-74-3
1,2,3,4,6,7,8-HpCDD	35822-46-9
OCCD	3268-87-9
Total TeCDD	41903-57-5
Total PeCDD	36088–22–9
Total HxCDD	34465–46-8
Total HpCDD	37871-00-4
2,3,7,8-TeCDF	51207-31-9
1,2,3,7,8-PeCDF	57117-41-6
2,3,4,7,8-PeCDF	57117-31-4
1,2,3,4,7,8-HxCDF	70648-26-9
1,2,3,6,7,8-HxCDF	57117-44-9
2,3,4,6,7,8-HxCDF	60851-34-5
1,2,3,7,8,9-HxCDF	72918-21-9
1,2,3,4,6,7,8-HpCDF	67562-39-4
1,2,3,4,7,8,9-HpCDF	55673-89-7
OCDF	39001-02-0
Total TeCDF	55722–27–5
Total PeCDF	30402–15–4
Total HxCDF	55684–94–1
Total HpCDF	38998–75–3

[a] Chemical Abstract Service