Pritchett, Jacob A.

From: Patel, Minesh
Sent: Thursday, May 6, 2021 8:02 AM
To: Carter, Sally; Romaine, Chris
Subject: RE: Discussion on US Steel

Morning on May 13th works for me.

From: Carter, Sally <Sally.Carter@Illinois.gov>
Sent: Wednesday, May 5, 2021 6:11 PM
To: Romaine, Chris <Chris.Romaine@Illinois.gov>
Cc: Patel, Minesh <Minesh.Patel@Illinois.gov>
Subject: RE: Discussion on US Steel

That sounds great! I have a call in the afternoon with USEPA. Would sometime in the morning work, Minesh??

From: Romaine, Chris <Chris.Romaine@Illinois.gov>
Sent: Wednesday, May 5, 2021 4:51 PM
To: Carter, Sally <Sally.Carter@Illinois.gov>
Cc: Patel, Minesh <Minesh.Patel@Illinois.gov>
Subject: Discussion on US Steel

I was reminded that Minesh also comes in on Thursdays. So about May 13th?

Minesh can set the time because I am good for any time between 8:00 and 5:00.

From: Carter, Sally <Sally.Carter@Illinois.gov>
Sent: Wednesday, May 5, 2021 3:42 PM
To: Romaine, Chris <Chris.Romaine@Illinois.gov>
Subject: RE: EAB Decision on Shell Offshore

That sounds fine.

I typically come in at some point during the week. I can come in Tuesday next week. (Just so you know, I typically avoid Tuesdays bc Todd goes to work on Tuesdays. It is the one day that I can have the house to myself. That being said, I can come in on Tuesday). Just let me know what time and I will be in.

I am so glad you are fully vaccinated. I am as well.

From: Romaine, Chris <Chris.Romaine@Illinois.gov>
Sent: Wednesday, May 5, 2021 2:46 PM
To: Carter, Sally <Sally.Carter@Illinois.gov>
Subject: RE: EAB Decision on Shell Offshore

I would like to discuss "eventually." Next week would be fine.

Do you plan to come into the office at all next week? If it would be on Tuesday, Minesh could participate. Also, Keystone could be touched on.

P.S. I got my second Covid shot in the middle of March.

From: Carter, Sally <Sally.Carter@Illinois.gov>
Sent: Wednesday, May 5, 2021 12:49 PM
To: Romaine, Chris <Chris.Romaine@Illinois.gov>
Subject: RE: EAB Decision on Shell Offshore

Noted. I have another call in a few. Please let me know when you would like to discuss.

From: Romaine, Chris <Chris.Romaine@Illinois.gov>
Sent: Wednesday, May 5, 2021 12:41 PM
To: Carter, Sally <Sally.Carter@Illinois.gov>
Subject: EAB Decision on Shell Offshore

FYI

This is the EAB decision on the OCS permit for the Shell Offshore Permit. The EAB's discussion on the limits in this permit that restrict potential emissions begins on page 14. It is consistent with the Administrator's decision on the Title V permit. Rather than supporting USS' request for the "alternative approach" to limiting the potential emissions of the production increase project, these decisions could be viewed as generally supporting the traditional approach taken in the permits issued for the project. This is because the unusual circumstances presented by the Shell Offshore project that justified and facilitated an alternative approach were not and are not present for the USS 1996 production increase project. At the same time, these decisions do support a rigorous approach to how permits deal with the emission factors used to determine emissions for key operations when addressing compliance with applicable annual emission limits.

In this light, we need to discuss how the Agency wants to prioritize the work on a revised permit. There are certainly revisions that need to be made because of problems with some of the emission data that was originally provided by GCS and codified in the permit. However, USS does not appear to have shown that USEPA has abandoned its pronouncements circa 1989 on what is needed to limit potential emissions.

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Carter, Sally

From: Romaine, Chris
Sent: Monday, May 6, 2024 4:09 PM
To: Brubaker, Sarah
Cc: Carter, Sally
Subject: FW: Document2
Attachments: Document2.docx

I left you a voice mail.

Sally: What I have not addressed is whether individually addressed notifications need to be sent to the four parties that submitted comments. If so, the letter will definitely expand to 3 pages.

Washing ton University
A Sierra Club Group
Another entity
US Steel

From: Romaine, Chris
Sent: Monday, May 6, 2024 4:03 PM
To: Brubaker, Sarah <Sarah.Brubaker@Illinois.GOV>
Subject: Document2

I will give you a call.

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PUT ON LETTERHEAD

Notification of Denial Of Application

May 7, 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 7, 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

3. By contacting the Illinois EPA by either phone or email to obtains 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.epa

[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.

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

Carter, Sally

From: Brubaker, Sarah
Sent: Tuesday, May 7, 2024 8:14 AM
To: Carter, Sally; Romaine, Chris
Subject: RE: Document2

Good morning,

For Cronus, I sent the notices of final action the same way the comments came in. If the comments were emailed, the emailed the notice.

Sarah Brubaker (she/her)
Community Relations Coordinator
Office of Community Relations
Sarah.Brubaker@Illinois.gov
(217)786-0790

From: Carter, Sally <Sally.Carter@Illinois.gov>
Sent: Monday, May 6, 2024 4:28 PM
To: Romaine, Chris <Chris.Romaine@Illinois.gov>; Brubaker, Sarah <Sarah.Brubaker@Illinois.gov>
Subject: RE: Document2

Please take extra "s" off of "obtains" in what has been labelled 3.

Regarding your question, Section 252.209 provides that the Agency shall provide "notice of the final PSD permit decision to the applicant and each person who has submitted written comments or requested notice of the final permit decision." 252.201 specifies the only means for notice (electronic verses paper) but this is in the context of initial notice and opportunity to comment on proposed action. Given this, I would ask how these notices of final agency action were distributed for Cronus and/or Lincoln Land? (These were both PSD permits, Sarah). Preference would be to act here similar to how we did in those two PSD actions. Obviously, the actual denial and accompany material will need to be mailed to the applicant.

From: Romaine, Chris <Chris.Romaine@Illinois.gov>
Sent: Monday, May 6, 2024 4:09 PM
To: Brubaker, Sarah <Sarah.Brubaker@Illinois.gov>
Cc: Carter, Sally <Sally.Carter@Illinois.gov>
Subject: FW: Document2

I left you a voice mail.

Sally: What I have not addressed is whether individually addressed notifications need to be sent to the four parties that submitted comments. If so, the letter will definitely expand to 3 pages.

Washing ton University
A Sierra Club Group
Another entity
US Steel

From: Romaine, Chris
Sent: Monday, May 6, 2024 4:03 PM
To: Brubaker, Sarah <Sarah.Brubaker@Illinois.GOV>
Subject: Document2

I will give you a call.

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Pritchett, Jacob A.

From: Romaine, Chris
Sent: Tuesday, May 11, 2021 3:42 PM
To: Carter, Sally
Cc: Patel, Minesh
Subject: RE: Just tried callin

I must have been wandering. I just checked my e-mail.

P.S. The BOF shop at USS is subject to new requirements related to mercury emissions. The compliance date will be July 13, **2021** unless USS applies for and the Agency approves an extension, potentially for up to a year delay.
Also, the provisions for startup, malfunction and breakdown change.

From: Carter, Sally <Sally.Carter@Illinois.gov>
Sent: Tuesday, May 11, 2021 11:38 AM
To: Romaine, Chris <Chris.Romaine@Illinois.gov>
Subject: Just tried callin

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Pritchett, Jacob A.

From: Carter, Sally
Sent: Wednesday, May 12, 2021 1:16 PM
To: Romaine, Chris
Cc: Patel, Minesh
Subject: RE: USS - Memorandum of Understanding (MOU)

I am adding this to my list of topics for discussion.

The MOU application would need to be updated to make such a request for integrated processing,

That being said, I agree with the overall approach provided below, especially the sequential processing of the MOU permit and then the changes to the PSD permit.

Agreed. The CAAPP permit is still in effect given the application shield despite the date on the cover of the current permit.

Will discuss further tomorrow.

From: Romaine, Chris <Chris.Romaine@Illinois.gov>
Sent: Wednesday, May 12, 2021 10:53 AM
To: Carter, Sally <Sally.Carter@Illinois.gov>
Cc: Patel, Minesh <Minesh.Patel@Illinois.gov>
Subject: USS - Memorandum of Understanding (MOU)

My understanding is that the Agency will be proposing to issue a construction permit to make relevant requirements of the MOU permanent and enforceable. In particular, the substantive requirements of this MOU construction permit would then be carried over into the CAAPP permit.

Presumably, USS will want this construction permit to be subject to integrated processing so that the effects of this construction permit on the CAAPP permit are determined as part of the processing of the construction permit.

This work on the MOU overlaps with the revisions to the PSD permit for the 1996 production increase since the particulate emissions of the BOF shop are also addressed by this PSD permit. Accordingly, concurrent action on the MOU construction permit with the revisions of the PSD permit should facilitate making revisions to the PSD permit.

The integrated processing of the construction permit for the MOU likely will result in only a few, discrete changes to the CAAPP permit. As this is the case, the changes to the CAAPP permit pursuant to the MOU construction permit should be able to be handled individually, condition by condition, rather than by replacement of an entire subpart of the CAAPP permit. This suggests that the two sets of changes to the CAAPP permit be made sequentially, with the simpler MOU changes being made first and the more extensive revised PSD permit changes following on top of those changes.

Incidentally, I presume that the CAAPP permit is still in effect due to an application shield even though the expiration date on the face of the permit is September 3, 2014.

Thoughts

Cass, Rylee

From: Romaine, Chris
Sent: Wednesday, May 12, 2021 10:53 AM
To: Carter, Sally
Cc: Patel, Minesh
Subject: USS - Memorandum of Understanding (MOU)

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Thoughts

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Pritchett, Jacob A.

Subject:	USS
Location:	3 South
Start:	Thu 5/13/2021 8:30 AM
End:	Thu 5/13/2021 10:00 AM
Show Time As:	Tentative
Recurrence:	(none)
Meeting Status:	Not yet responded
Organizer:	Carter, Sally
Required Attendees:	Minesh Patel; Chris Romaine

Could someone reserve 3 South?

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Pritchett, Jacob A.

From: Romaine, Chris
Sent: Tuesday, May 18, 2021 11:27 AM
To: Carter, Sally
Subject: Accepted: USS

Jason called and alerted me to this. I'm good.

Cass, Rylee

From: Patel, Minesh
Sent: Tuesday, May 22, 2018 1:19 PM
To: Carter, Sally
Subject: RE: Start up letter

Thanks.

From: Carter, Sally
Sent: Tuesday, May 22, 2018 12:59 PM
To: Romaine, Chris <Chris.Romaine@Illinois.gov>; Patel, Minesh <Minesh.Patel@Illinois.gov>
Cc: Pilapil, Ray <Ray.Pilapil@Illinois.gov>; Armitage, Julie <Julie.Armitage@Illinois.gov>; Reed, Michael <Michael.Reed@Illinois.gov>
Subject: FW: Start up letter

From: Hacker, David W [mailto:DWHacker@uss.com]
Sent: Tuesday, May 22, 2018 12:02 PM
To: Carter, Sally <Sally.Carter@Illinois.gov>
Cc: Katherine D. Hodge <Katherine.Hodge@heplerbroom.com>
Subject: [External] FW: Start up letter

Sally – Please see the attached courtesy copy of a letter regarding the restart of U. S. Steel's Granite City Works in Granite City, IL. Please call me with any questions.

Regards,

Dave

From: Cannon, Carl E
Sent: Tuesday, May 22, 2018 12:51 PM
To: Hacker, David W <DWHacker@uss.com>
Cc: Hanning, Joseph E <JEHanning@uss.com>; Lawrence, Guy W <GWLawrence@uss.com>; Hardin, Christopher W <CWHardin@uss.com>
Subject: Start up letter

Dave-
The attached startup letter will be mailed to IEPA today. Joe mentioned you wanted to email a copy to Sally Carter.
Thanks,
Carl

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including all attachments. Receipt by an unintended recipient does not waive attorney-client privilege, attorney work product privilege, or any other exemption from disclosure.

Pritchett, Jacob A.

From: Carter, Sally
Sent: Tuesday, May 22, 2018 12:59 PM
To: Romaine, Chris; Patel, Minesh
Cc: Pilapil, Ray; Armitage, Julie; Reed, Michael
Subject: FW: Start up letter
Attachments: 20180522114358606.pdf

From: Hacker, David W [mailto:DWHacker@uss.com]
Sent: Tuesday, May 22, 2018 12:02 PM
To: Carter, Sally <Sally.Carter@Illinois.gov>
Cc: Katherine D. Hodge <Katherine.Hodge@heplerbroom.com>
Subject: [External] FW: Start up letter

Sally – Please see the attached courtesy copy of a letter regarding the restart of U. S. Steel's Granite City Works in Granite City, IL. Please call me with any questions.

Regards,

Dave

From: Cannon, Carl E
Sent: Tuesday, May 22, 2018 12:51 PM
To: Hacker, David W <DWHacker@uss.com>
Cc: Hanning, Joseph E <JEHanning@uss.com>; Lawrence, Guy W <GWLawrence@uss.com>; Hardin, Christopher W <CWHardin@uss.com>
Subject: Start up letter

Dave-
The attached startup letter will be mailed to IEPA today. Joe mentioned you wanted to email a copy to Sally Carter.
Thanks,
Carl

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Granite City Works
United States Steel
20th & State Streets
Granite City, Illinois 62040
(618) 451-3456

Certified Mail 7015 0640 0006 9546 2483

May 22, 2018

Ms. Julie K. Armitage
Acting Manager, Compliance Section
Bureau of Air
Illinois Environmental Protection Agency
1021 North Grand Avenue East
P. O. Box 19276
Springfield, IL 62794-9276

SUBJECT: United States Steel Corporation – Granite City Works
Restart of Iron and Steel Making Operations
Facility ID No: 119813AAI

Dear Ms. Armitage:

We are pleased to inform you that United States Steel Corporation (U. S. Steel) intends to resume operations of the iron and steel making operations at Granite City Works on or about June 1, 2018. The price and demand for steel have improved to a point where U. S. Steel believes restarting the iron and steel making facilities is in the best interest of the Corporation.

The Granite City Works iron and steel making operations had been temporarily idled in December 2015 due to challenging market conditions beyond the control of U. S. Steel, including global excess steel capacity and unfairly traded imports. The temporary idling of the iron and steel making facilities was first announced on March 25, 2015. At that time and throughout the idling period, U. S. Steel clearly indicated that the idling was temporary while U. S. Steel appropriately maintained the affected facilities. While the iron and steel making facilities were *temporarily idled*, in 2015, U. S. Steel *permanently shut down* its coke making facility at Granite City Works. The distinction between the temporary idle of the iron and steel making facilities from the permanent shutdown of the coke making facilities has been consistently articulated in our SEC filings. Furthermore, the Worker Adjustment and Retraining Notification Act (WARN) notices issued to employees of the iron and steel making facilities (indicating that the layoff was anticipated to be temporary) were separate and distinct from the WARN notices issued to employees of the coke plant (indicating that the coke plant would be permanently shutdown).

In announcing the temporary closure of the iron and steel making facilities, U. S. Steel pointed out that it routinely adjusts production at its various facilities to reflect market fluctuations. The temporary idling was a result of challenging market conditions that reflect the cyclical nature of the industry. U. S. Steel cited global influences in the market such as reduced steel prices, unfair trade, imports and fluctuating oil prices as having have an impact on the domestic steel business.

Furthermore, while U. S. Steel announced the idling in March 2015, U. S. Steel continued to expend funds and complete the caster upgrade project that was underway at the time. U. S. Steel did not discontinue the project and, instead, continued to expend funds and use limited resources to complete the project in July 2016. Interestingly, according to various press articles on the idling, the employees who were affected by the announcement looked upon U. S. Steel's continued investment in the caster favorably as a strong indicator of U. S. Steel's commitment to restart the facility when conditions warranted.

Following the idling of the iron and steel making facilities, the hot strip mill was temporarily idled in January 2016. While these operations were idle, the finishing operations (including the pickle line, cold mill, and finishing lines) continued to operate in line with customer demand. The hot strip mill resumed operation in February 2017 as the company adjusted its North American hot strip mill operating configuration to meet customer needs after deciding to accelerate the pace of its asset revitalization efforts at other U. S. Steel domestic facilities.

During the temporary idling of the iron and steel making facilities, U. S. Steel maintained all applicable operating permits, continued to submit applicable reports and paid all appropriate fees. In addition, U. S. Steel submitted compliance reports for the temporarily idled operations to the Illinois EPA. While not intended to be an exhaustive list, U. S. Steel notes that the following factors clearly indicate that the idling was temporary, as U. S. Steel continued to maintain the affected facilities:

- U. S. Steel maintained its operating permits for the affected facilities.
- Affected facilities were maintained and remain intact. If U. S. Steel intended that the idling was a permanent nature, it is likely that much equipment and portions of the affected facilities would have been moved to other U. S. Steel operating facilities or sold, noting that U.S. Steel installed a new baghouse at the Basic Oxygen Process (BOP); and upgraded the caster at Granite City Works.
- U. S. Steel installed the BOP Secondary Emissions Baghouse, which had just started up prior to the announcement of temporary idling. U. S. Steel has properly maintained the new baghouse and other equipment during the idling.
- As noted above, the caster upgrade project continued after the announcement of the temporary idling.
- The funds that U. S. Steel will expend to restart the iron and steel making facilities are a fraction of what it would cost to build and initially restart new iron and steel making facilities.
- Resuming operation of the iron and steel making facilities is expected to take approximately three months, with most of this time to be devoted to training/retraining personnel. Putting new facilities into operation would have taken substantially longer.
- All electrical and steam heat traces on piping have been maintained with the pipes and equipment remaining in operating condition.
- The water systems of affected facilities were drained and properly idled to ensure availability for restarting.

- Appropriate winterization of affected facilities was completed.

- Cooling towers were maintained by, among other things, periodically running water through the towers.

- The electrical control systems and utilities to affected facilities and pollution control systems were maintained and energized. Compressors, fans, etc., were maintained and are operational.

- U. S. Steel maintained and kept its wastewater treatment plant operational.

- U. S. Steel's SEC filings and public statements clearly indicate that the idling was temporary. (See, e.g., U. S. Steel annual reports, "[i]n 2015, the Company *permanently closed* [emphasis added] the coke making operations at Granite City Works and Gary Works. Also in 2015, U. S. Steel *temporarily idled* [emphasis added] steel making operations at Granite City Works."; and "We made several difficult decisions in 2015 in response to the conditions in the markets we serve, including the *permanent shutdown* of our steel making operation at Fairfield Works and the *temporary idling* of Granite City Works and our Keetac mining operations."; and "Due to our reduced operational footprint, the Company may not be able to respond in an efficient manner when restarting certain of our temporarily idled facilities to fully realize the benefits from changing market conditions that are favorable to integrated steel producers." U. S. Steel's statements regarding the temporary idled facilities are distinctly different from the statements made regarding the permanent closure of other facilities.

- In addition, U. S. Steel continues to incur costs related to the temporary idling of the facilities that are temporarily idled, as compared to the facilities that were shutdown, in which a loss was recorded in the year that shutdown occurred, and no maintenance costs are carried forward. Please refer to the SEC filings comparing losses related to shutdowns (e.g., "Loss on shutdown of Fairfield Flat-Rolled Operations") from temporary idling (e.g., Granite City Works temporary idling charges.)) Thus, in years subsequent to 2015, including 2016 and 2017, U. S. Steel continues to report costs/losses associated with Granite City Works temporary idling charges. In contrast no additional losses were reported after 2015, beyond those that were reported for 2015, related to the permanent shutdown of the Fairfield Works Flat-Rolled Operations and the permanent shutdown of the coke making operations at Gary Works and Granite City Works.

- The iron and steel making emission units were kept in Illinois EPA's emissions inventory.

- U. S. Steel regularly conducted meetings regarding production needs to determine the timing the restart of the Granite City Works iron and steel making facilities. No such meetings were conducted regarding permanently closed facilities, such as the Granite City Works coke plant.

This communication is being provided to Illinois EPA so that the record appropriately reflects that the idling of the iron and steel making operations was temporary. Please contact me at (219) 888-4500 if have any questions regarding this letter or the restart of U. S. Steel's iron and steel making facilities at Granite City Works.

Sincerely,

Joseph E. Hanning

Joseph E. Hanning
Director, Environmental
United States Steel Corporation

Pritchett, Jacob A.

From: Romaine, Chris
Sent: Friday, May 25, 2018 3:38 PM
To: Mattison, Kevin
Cc: Patel, Minesh
Subject: FW: proposed conf call regarding Construction Permit 119813AAI

Do you happen to know which construction permit Chris Hardin is addressing in his e-mail?

The cited conditions don't appear to match provisions in Construction Permit 11050006, which address the new baghouse control system for secondary emissions of the BOP furnaces.

Thanks.

From: Hardin, Christopher W [mailto:CWHardin@uss.com]
Sent: Friday, May 25, 2018 6:55 AM
To: Romaine, Chris <Chris.Romaine@illinois.gov>; Patel, Minesh <Minesh.Patel@illinois.gov>
Cc: Hanning, Joseph E <JEHanning@uss.com>; Lawrence, Guy W <GWLawrence@uss.com>
Subject: [External] proposed conf call regarding Construction Permit 119813AAI

Chris/Minesh, USS representatives met with Andy Jankowski and Kevin Mattison from IEPA on May 22. In that meeting, USS shared our proposed stack testing schedule for units that will be starting back up from idle and discussed some of the timing of testing and reporting required in Construction Permit I.D. No.: 119813AAI, Subject: Control System for Charging and Tapping of the BOP Furnaces. USS would like to discuss and achieve consensus on the timing of some items in the construction permit, specifically 6.a regarding Emissions Testing Requirements and 9.b regarding Reporting Requirements. We would also be available to answer any questions with the proposed stack testing schedule of the restarted units.

As you know, the facility is planning on starting up Blast Furnace B on or around June 1. USS would like to discuss via conference call these items before the startup if IEPA is available. We are suggesting either Wednesday, May 30 (preferred) or Thursday May 31.

Please let us know if you are available and/or if you have any questions.

Thank you
Chris

Christopher W. Hardin
Environmental Affairs
United States Steel Corporation
Office: 412-433-5904
Cell: 412-735-8097
Fax: 412-433-5920
Email: cwhardin@uss.com

Pritchett, Jacob A.

From: Hardin, Christopher W <CWHardin@uss.com>
Sent: Friday, May 25, 2018 6:55 AM
To: Romaine, Chris; Patel, Minesh
Cc: Hanning, Joseph E; Lawrence, Guy W
Subject: [External] proposed conf call regarding Construction Permit 119813AAI

Chris/Minesh, USS representatives met with Andy Jankowski and Kevin Mattison from IEPA on May 22. In that meeting, USS shared our proposed stack testing schedule for units that will be starting back up from idle and discussed some of the timing of testing and reporting required in Construction Permit I.D. No.: 119813AAI, Subject: Control System for Charging and Tapping of the BOP Furnaces. USS would like to discuss and achieve consensus on the timing of some items in the construction permit, specifically 6.a regarding Emissions Testing Requirements and 9.b regarding Reporting Requirements. We would also be available to answer any questions with the proposed stack testing schedule of the restarted units.

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Thank you
Chris

Christopher W. Hardin
Environmental Affairs
United States Steel Corporation
Office: 412-433-5904
Cell: 412-735-8097
Fax: 412-433-5920
Email: cwhardin@uss.com

Pritchett, Jacob A.

From: Romaine, Chris
Sent: Thursday, May 26, 2022 10:59 AM
To: Carter, Sally
Subject: Accepted: USS

Pritchett, Jacob A.

From: Mattison, Kevin
Sent: Tuesday, May 29, 2018 6:30 AM
To: Romaine, Chris
Cc: Patel, Minesh
Subject: RE: proposed conf call regarding Construction Permit 119813AAI

They did not provide any specifics during our call.

Kevin

From: Romaine, Chris
Sent: Friday, May 25, 2018 3:38 PM
To: Mattison, Kevin <Kevin.Mattison@Illinois.gov>
Cc: Patel, Minesh <Minesh.Patel@Illinois.gov>
Subject: FW: proposed conf call regarding Construction Permit 119813AAI

Do you happen to know which construction permit Chris Hardin is addressing in his e-mail?

The cited conditions don't appear to match provisions in Construction Permit 11050006, which address the new baghouse control system for secondary emissions of the BOP furnaces.

Thanks.

From: Hardin, Christopher W [mailto:CWHardin@uss.com]
Sent: Friday, May 25, 2018 6:55 AM
To: Romaine, Chris <Chris.Romaine@Illinois.gov>; Patel, Minesh <Minesh.Patel@Illinois.gov>
Cc: Hanning, Joseph E <JEHanning@uss.com>; Lawrence, Guy W <GWLawrence@uss.com>
Subject: [External] proposed conf call regarding Construction Permit 119813AAI

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Christopher W. Hardin
Environmental Affairs

United States Steel Corporation
Office: 412-433-5904
Cell: 412-735-8097
Fax: 412-433-5920
Email: cwhardin@uss.com

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Pritchett, Jacob A.

From: Patel, Minesh
Sent: Tuesday, May 29, 2018 7:38 AM
To: Mattison, Kevin; Romaine, Chris
Subject: RE: proposed conf call regarding Construction Permit 119813AAI

Permit number was not provided in my conversation with Chris Harden.

From: Mattison, Kevin
Sent: Tuesday, May 29, 2018 6:30 AM
To: Romaine, Chris <Chris.Romaine@Illinois.gov>
Cc: Patel, Minesh <Minesh.Patel@Illinois.gov>
Subject: RE: proposed conf call regarding Construction Permit 119813AAI

They did not provide any specifics during our call.

Kevin

From: Romaine, Chris
Sent: Friday, May 25, 2018 3:38 PM
To: Mattison, Kevin <Kevin.Mattison@Illinois.gov>
Cc: Patel, Minesh <Minesh.Patel@Illinois.gov>
Subject: FW: proposed conf call regarding Construction Permit 119813AAI

Do you happen to know which construction permit Chris Hardin is addressing in his e-mail?

The cited conditions don't appear to match provisions in Construction Permit 11050006, which address the new baghouse control system for secondary emissions of the BOP furnaces.

Thanks.

From: Hardin, Christopher W [mailto:CWHardin@uss.com]
Sent: Friday, May 25, 2018 6:55 AM
To: Romaine, Chris <Chris.Romaine@Illinois.gov>; Patel, Minesh <Minesh.Patel@Illinois.gov>
Cc: Hanning, Joseph E <JEHanning@uss.com>; Lawrence, Guy W <GWLawrence@uss.com>
Subject: [External] proposed conf call regarding Construction Permit 119813AAI

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Thank you
Chris

Christopher W. Hardin
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United States Steel Corporation
Office: 412-433-5904
Cell: 412-735-8097
Fax: 412-433-5920
Email: cwhardin@uss.com

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Cass, Rylee

From: Patel, Minesh
Sent: Tuesday, May 29, 2018 11:17 AM
To: Hardin, Christopher W; Romaine, Chris
Cc: Hanning, Joseph E; Lawrence, Guy W
Subject: RE: proposed conf call regarding Construction Permit 119813AAI

We are not sure which permit you are referencing in your email. This is because based on our look at the permit for new baghouse control system for secondary emissions of the BOP furnaces, i.e., the Construction Permit 11050006, the referenced conditions does not match the provision of this permit.

Thanks.

From: Hardin, Christopher W [mailto:CWHardin@uss.com]
Sent: Friday, May 25, 2018 6:55 AM
To: Romaine, Chris <Chris.Romaine@Illinois.gov>; Patel, Minesh <Minesh.Patel@Illinois.gov>
Cc: Hanning, Joseph E <JEHanning@uss.com>; Lawrence, Guy W <GWLawrence@uss.com>
Subject: [External] proposed conf call regarding Construction Permit 119813AAI

Chris/Minesh, USS representatives met with Andy Jankowski and Kevin Mattison from IEPA on May 22. In that meeting, USS shared our proposed stack testing schedule for units that will be starting back up from idle and discussed some of the timing of testing and reporting required in Construction Permit I.D. No.: 119813AAI, Subject: Control System for Charging and Tapping of the BOP Furnaces. USS would like to discuss and achieve consensus on the timing of some items in the construction permit, specifically 6.a regarding Emissions Testing Requirements and 9.b regarding Reporting Requirements. We would also be available to answer any questions with the proposed stack testing schedule of the restarted units.

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Thank you
Chris

Christopher W. Hardin
Environmental Affairs
United States Steel Corporation
Office: 412-433-5904
Cell: 412-735-8097
Fax: 412-433-5920
Email: cwhardin@uss.com

Pritchett, Jacob A.

From: Hardin, Christopher W <CWHardin@uss.com>
Sent: Tuesday, May 29, 2018 11:36 AM
To: Patel, Minesh; Romaine, Chris
Cc: Hanning, Joseph E; Lawrence, Guy W
Subject: RE: [External]-RE: proposed conf call regarding Construction Permit 119813AAI

Sorry about that Minesh. I was looking at an older issued version of the permit.

In the April 1, 2013 issued permit, the sections are 3-1.a under Emissions Testing Requirements and section 6.d under Reporting Requirements. Please call if any other questions.

Thank you
Chris

Christopher W. Hardin
Environmental Affairs
United States Steel Corporation
Office: 412-433-5904
Cell: 412-735-8097
Fax: 412-433-5920
Email: cwhardin@uss.com

From: Patel, Minesh [mailto:Minesh.Patel@Illinois.gov]
Sent: Tuesday, May 29, 2018 12:17 PM
To: Hardin, Christopher W <CWHardin@uss.com>; Romaine, Chris <Chris.Romaine@Illinois.gov>
Cc: Hanning, Joseph E <JEHanning@uss.com>; Lawrence, Guy W <GWLawrence@uss.com>
Subject: [External]-RE: proposed conf call regarding Construction Permit 119813AAI

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We are not sure which permit you are referencing in your email. This is because based on our look at the permit for new baghouse control system for secondary emissions of the BOP furnaces, i.e., the Construction Permit 11050006, the referenced conditions does not match the provision of this permit.

Thanks.

From: Hardin, Christopher W [mailto:CWHardin@uss.com]
Sent: Friday, May 25, 2018 6:55 AM
To: Romaine, Chris <Chris.Romaine@Illinois.gov>; Patel, Minesh <Minesh.Patel@illinois.gov>
Cc: Hanning, Joseph E <JEHanning@uss.com>; Lawrence, Guy W <GWLawrence@uss.com>
Subject: [External] proposed conf call regarding Construction Permit 119813AAI

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Cass, Rylee

From: Patel, Minesh
Sent: Wednesday, May 29, 2019 9:46 AM
To: Carter, Sally
Subject: Tentative: USS - Conference Call

Pritchett, Jacob A.

From: Romaine, Chris
Sent: Wednesday, May 29, 2019 10:18 AM
To: Carter, Sally
Subject: Accepted: USS - Conference Call

From: Lim, YeChan
To: Gurinder (Gary) Saini; Ogulei, David
Cc: Marcus, Danny; Damico, Genevieve; Colin Campbell; Michalik, Sarah K; Christopher W Hardin - United States Steel Corporation (CWHardin@uss.com)
Subject: RE: USS Granite City Works PSD Permit NHPA Consultation
Date: Friday, May 29, 2020 11:32:27

Hello,
Based on the potential emission increases for this project and the land use land cover (LULC) analysis provided, we are making a no effect determination for this project.

Thank you.

YeChan Lim
Environmental Engineer
U.S. Environmental Protection Agency – Region 5
Air and Radiation Division | Air Permits Section
77 W. Jackson Blvd., Chicago, IL 60604 (AR-18J)
Phone: (312) 886-7259
Email: lim.yechan@epa.gov

From: Gurinder (Gary) Saini <saini@rtpenv.com>
Sent: Wednesday, May 27, 2020 3:35 PM
To: Ogulei, David <Ogulei.David@epa.gov>
Cc: Marcus, Danny <marcus.danny@epa.gov>; Lim, YeChan <lim.yechan@epa.gov>; Damico, Genevieve <damico.genevieve@epa.gov>; Colin Campbell <campbell@rtpenv.com>; Michalik, Sarah K <skmichalik@uss.com>; Christopher W Hardin - United States Steel Corporation (CWHardin@uss.com) <CWHardin@uss.com>
Subject: RE: USS Granite City Works PSD Permit NHPA Consultation

Thanks for your email response. We really appreciate your help in this regard and will forward your email to Illinois EPA.

Meanwhile, we haven't heard from Rachel regarding ESA consultation for this project. Do you have any information regarding the ESA process or know if Rachel needs anything else?

Regards

GS
(919) 845-1422, 42
(919) 533-4558

> **From:** Ogulei, David <Ogulei.David@epa.gov>
> **Sent:** Wednesday, May 27, 2020 16:20
> **To:** Gurinder (Gary) Saini <saini@rtpenv.com>

Cc: Marcus, Danny <marcus.danny@epa.gov>; Lim, YeChan <lim.yechan@epa.gov>; Damico, Genevieve <damico.genevieve@epa.gov>; Colin Campbell <campbell@rtpenv.com>; Michalik, Sarah K <skmichalik@uss.com>; Christopher W Hardin - United States Steel Corporation (CWHardin@uss.com) <CWHardin@uss.com>; Jeffery.kruchten@illinois.gov
Subject: RE: USS Granite City Works PSD Permit NHPA Consultation

Gary,

The U.S. Environmental Protection Agency has reviewed the attached cultural resource assessment you submitted on behalf of U.S. Steel Granite City Works (USSGCW), on March 24 and May 22, 2020. The submittal includes a finding by the Illinois Deputy State Historic Preservation Officer, dated May 1, 2020, that "no significant historic, architectural or archaeological resources are located within the proposed project area."

Section 106 of the National Historic Preservation Act (NHPA) requires Federal agencies to take into account the effects of their undertakings on historic properties, and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings. If the Federal agency determines that an undertaking, as defined in 40 C.F.R § 800.16(y), does not have the potential to cause effects on historic properties, assuming such historic properties were present, the agency official has no further obligations under section 106 or 36 C.F.R. Part 800. For this permit action, EPA has determined that the undertaking is not likely to affect historic properties; therefore, no further action is required under Section 106 of the NHPA.

If there are any questions regarding this determination, please contact me.

David Ogulei
U.S. Environmental Protection Agency
Region 5 | Air & Radiation Division | AR-18J
77 West Jackson Blvd. | Chicago, Illinois 60604
Phone: (312) 353-0987 | Ogulei.David@epa.gov

From: Gurinder (Gary) Saini <saini@rtpenv.com>
Sent: Friday, May 22, 2020 8:09 AM
To: Ogulei, David <Ogulei.David@epa.gov>
Cc: Marcus, Danny <marcus.danny@epa.gov>; Lim, YeChan <lim.yechan@epa.gov>; Damico, Genevieve <damico.genevieve@epa.gov>; Colin Campbell <campbell@rtpenv.com>; Michalik, Sarah K <skmichalik@uss.com>; Christopher W Hardin - United States Steel Corporation (CWHardin@uss.com) <CWHardin@uss.com>
Subject: RE: USS Granite City Works PSD Permit ESA and NHPA Consultation

Attached are the responses to the questions/comments in the email below. Sorry for the late response but it took us some time to get information from State Historic Preservation Office (under the current stay-at-home conditions).

Please let us know if you need anything else or have any other questions.

Regards

GS
(919) 845-1422, 42
(919) 533-4558

From: Ogulei, David <Ogulei.David@epa.gov>
Sent: Tuesday, March 24, 2020 17:01
To: Gurinder (Gary) Saini <saini@rtgenv.com>
Cc: Marcus, Danny <marcus.danny@epa.gov>; Lim, YeChan <lim.yechan@epa.gov>; Damico, Genevieve <damico.genevieve@epa.gov>
Subject: RE: USS Granite City Works PSD Permit ESA and NHPA Consultation

Gary,

EPA has reviewed the cultural resource and endangered species assessment you submitted on March 24, 2020. U.S. Steel Granite City Works is proposing to revise limitations and requirements contained in an existing construction permit for the blast furnaces and basic oxygen process furnace shop at the Granite City Works facility. We have determined that we need additional information before we can determine the level of consultation necessary for the project. Specifically, please submit the following information to facilitate our review of the project under the ESA and NHPA:

1. Complete description of the project, including a quantification of all emissions increases expected from the project. To address this request, please identify and quantify all pollutants, including any hazardous air pollutants, that will increase due to the project;
2. List of historic and eligible historic properties within the project's "area of potential effects." Historic and eligible properties are available from the National Park Service (https://www.nps.gov/subjects/nationalregister/index.htm) and the Illinois State Historic Preservation Office (https://www2.illinois.gov/dnrhistoric/Preserve/Pages/Contact-Staff.aspx). For purposes of this project, the "area of potential effects," is the area within a three-mile radius of the facility as measured from the centroid of the project's geographical footprint;
3. Map of facility in relation to historic properties;
4. Identification of any excavation areas;
5. Identification of any interests by Tribal entities and/or local preservation societies, or other interested parties.

If you have any questions, do not hesitate to contact me.

David Ogulei
U.S. Environmental Protection Agency
Region 5 | Air & Radiation Division | AR-18J
77 West Jackson Blvd. | Chicago, Illinois 60604

Phone: (312) 353-0987 | Fax: (312) 692-2080
Ogulei.David@epa.gov

From: Ogulei, David
Sent: Tuesday, March 24, 2020 10:28 AM
To: Gurinder (Gary) Saini <saini@rtpenv.com>
Cc: Marcus, Danny <marcus.danny@epa.gov>; Lim, YeChan <lim.yechan@epa.gov>; Rineheart, Rachel <Rineheart.Rachel@epa.gov>
Subject: RE: USS Granite City Works PSD Permit ESA and NHPA Consultation

Gary,

Thank you this information. We will get back to you once we've had a chance to review the project information you shared.

David Ogulei
U.S. Environmental Protection Agency
Region 5 | Air & Radiation Division | AR-18J
77 West Jackson Blvd. | Chicago, Illinois 60604
Phone: (312) 353-0987 | Ogulei.David@epa.gov

From: Gurinder (Gary) Saini <saini@rtpenv.com>
Sent: Tuesday, March 24, 2020 8:12 AM
To: Ogulei, David <Ogulei.David@epa.gov>
Cc: Colin Campbell <campbell@rtpenv.com>; Michalik, Sarah K <skmichalik@uss.com>; Christopher W Hardin - United States Steel Corporation (CWHardin@uss.com) <CWHardin@uss.com>; Chris Romaine (Chris.Romaine@illinois.gov) <Chris.Romaine@Illinois.gov>; Patel, Minesh <Minesh.Patel@Illinois.gov>
Subject: USS Granite City Works PSD Permit ESA and NHPA Consultation

Mr. Ogulei,

U.S. Steel Granite City Works is an existing iron and steel manufacturing facility located in Granite City, Illinois. As you may already know, Illinois EPA is currently reviewing a PSD permit application to revise some of the CO emission limits for the existing combustion units at the facility. This application does not involve any new construction activity at the site.

Attached is a letter from U.S. Steel detailing anticipated air quality impacts and potential threatened or endangered species for your use in initiating a consultation with the US Fish and Wildlife Service or if this application meets the "no effect

determination." Also, please let us know if NHPA cultural resource assessment is required for this application.

If you have any questions or need additional information, please do not hesitate to contact me or Sarah Michalik of U.S. Steel at (412) 433-7302 or skmichalik@uss.com.

Regards

Gurinder (Gary) Saini
RTP Environmental Associates Inc.
304A West Millbrook Road
Raleigh, NC 27609
(919) 845-1422, 42
(919) 533-4558

Pritchett, Jacob A.

From: Hardin, Christopher W <CWHardin@uss.com>
Sent: Friday, June 1, 2018 6:31 AM
To: Patel, Minesh; Romaine, Chris
Subject: RE: [External]-RE: proposed conf call regarding Construction Permit 119813AAI

Minesh, can you provide a few options of days and times next week your team is available for a conference call? Then I'll work with the our team to figure out which option will work for us and set up a call.

Thank you,
Chris

Christopher W. Hardin
Environmental Affairs
United States Steel Corporation
Office: 412-433-5904
Cell: 412-735-8097
Fax: 412-433-5920
Email: cwhardin@uss.com

From: Patel, Minesh [mailto:Minesh.Patel@Illinois.gov]
Sent: Tuesday, May 29, 2018 12:17 PM
To: Hardin, Christopher W <CWHardin@uss.com>; Romaine, Chris <Chris.Romaine@Illinois.gov>
Cc: Hanning, Joseph E <JEHanning@uss.com>; Lawrence, Guy W <GWLawrence@uss.com>
Subject: [External]-RE: proposed conf call regarding Construction Permit 119813AAI

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Thanks.

From: Hardin, Christopher W [mailto:CWHardin@uss.com]
Sent: Friday, May 25, 2018 6:55 AM
To: Romaine, Chris <Chris.Romaine@Illinois.gov>; Patel, Minesh <Minesh.Patel@illinois.gov>
Cc: Hanning, Joseph E <JEHanning@uss.com>; Lawrence, Guy W <GWLawrence@uss.com>
Subject: [External] proposed conf call regarding Construction Permit 119813AAI

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Please let us know if you are available and/or if you have any questions.

Thank you
Chris

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Environmental Affairs
United States Steel Corporation
Office: 412-433-5904
Cell: 412-735-8097
Fax: 412-433-5920
Email: cwhardin@uss.com

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Pritchett, Jacob A.

From: Gurinder (Gary) Saini <saini@rtpenv.com>
Sent: Monday, June 1, 2020 8:52 AM
To: Romaine, Chris; Patel, Minesh
Cc: Colin Campbell; Hacker, David W (DWHacker@uss.com); Michalik, Sarah K; Carter, Sally; LaDonna Driver (LaDonna.Driver@heplerbroom.com); Christopher W Hardin - United States Steel Corporation (CWHardin@uss.com)
Subject: [External] USS Granite City Works PSD Permit ESA and NHPA Consultation
Attachments: RE: USS Granite City Works PSD Permit NHPA Consultation; RE: USS Granite City Works PSD Permit NHPA Consultation

We received via email, responses from U.S. EPA regarding ESA and NHPA consultation for the pending USS Granite City Works permit revision application. The U.S. EPA confirms that no additional action is required for these consultations.

Attached are the emails we received in this regard. Please let us know if you have any questions or need anything else in this regard.

Regards

GS
(919) 845-1422, 42
(919) 533-4558

Pritchett, Jacob A.

From: Lim, YeChan <lim.yechan@epa.gov>
Sent: Friday, May 29, 2020 10:32 AM
To: Gurinder (Gary) Saini; Ogulei, David
Cc: Marcus, Danny; Damico, Genevieve; Colin Campbell; Michalik, Sarah K; Christopher W Hardin - United States Steel Corporation (CWHardin@uss.com)
Subject: RE: USS Granite City Works PSD Permit NHPA Consultation

Hello,
Based on the potential emission increases for this project and the land use land cover (LULC) analysis provided, we are making a no effect determination for this project.

Thank you.

YeChan Lim
Environmental Engineer
U.S. Environmental Protection Agency – Region 5
Air and Radiation Division | Air Permits Section
77 W. Jackson Blvd., Chicago, IL 60604 (AR-18J)
Phone: (312) 886-7259
Email: lim.yechan@epa.gov

From: Gurinder (Gary) Saini <saini@rtpenv.com>
Sent: Wednesday, May 27, 2020 3:35 PM
To: Ogulei, David <Ogulei.David@epa.gov>
Cc: Marcus, Danny <marcus.danny@epa.gov>; Lim, YeChan <lim.yechan@epa.gov>; Damico, Genevieve <damico.genevieve@epa.gov>; Colin Campbell <campbell@rtpenv.com>; Michalik, Sarah K <skmichalik@uss.com>; Christopher W Hardin - United States Steel Corporation (CWHardin@uss.com) <CWHardin@uss.com>
Subject: RE: USS Granite City Works PSD Permit NHPA Consultation

Thanks for your email response. We really appreciate your help in this regard and will forward your email to Illinois EPA.

Meanwhile, we haven't heard from Rachel regarding ESA consultation for this project. Do you have any information regarding the ESA process or know if Rachel needs anything else?

Regards

GS
(919) 845-1422, 42
(919) 533-4558

> **From:** Ogulei, David <Ogulei.David@epa.gov>
> **Sent:** Wednesday, May 27, 2020 16:20
> **To:** Gurinder (Gary) Saini <saini@rtpenv.com>
> **Cc:** Marcus, Danny <marcus.danny@epa.gov>; Lim, YeChan <lim.yechan@epa.gov>; Damico, Genevieve <damico.genevieve@epa.gov>; Colin Campbell <campbell@rtpenv.com>; Michalik, Sarah K <skmichalik@uss.com>; Christopher W Hardin - United States Steel Corporation (CWHardin@uss.com)

<CWHardin@uss.com>; Jeffery.kruchten@illinois.gov
Subject: RE: USS Granite City Works PSD Permit NHPA Consultation

Gary,

The U.S. Environmental Protection Agency has reviewed the attached cultural resource assessment you submitted on behalf of U.S. Steel Granite City Works (USSGCW), on March 24 and May 22, 2020. The submittal includes a finding by the Illinois Deputy State Historic Preservation Officer, dated May 1, 2020, that "no significant historic, architectural or archaeological resources are located within the proposed project area."

Section 106 of the National Historic Preservation Act (NHPA) requires Federal agencies to take into account the effects of their undertakings on historic properties, and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings. If the Federal agency determines that an undertaking, as defined in 40 C.F.R § 800.16(y), does not have the potential to cause effects on historic properties, assuming such historic properties were present, the agency official has no further obligations under section 106 or 36 C.F.R. Part 800. For this permit action, EPA has determined that the undertaking is not likely to affect historic properties; therefore, no further action is required under Section 106 of the NHPA.

If there are any questions regarding this determination, please contact me.

David Ogulei
U.S. Environmental Protection Agency
Region 5 | Air & Radiation Division | AR-18J
77 West Jackson Blvd. | Chicago, Illinois 60604
Phone: (312) 353-0987 | Ogulei.David@epa.gov

From: Gurinder (Gary) Saini <saini@rtpenv.com>
Sent: Friday, May 22, 2020 8:09 AM
To: Ogulei, David <Ogulei.David@epa.gov>
Cc: Marcus, Danny <marcus.danny@epa.gov>; Lim, YeChan <lim.yechan@epa.gov>; Damico, Genevieve <damico.genevieve@epa.gov>; Colin Campbell <campbell@rtpenv.com>; Michalik, Sarah K <skmichalik@uss.com>; Christopher W Hardin - United States Steel Corporation (CWHardin@uss.com) <CWHardin@uss.com>
Subject: RE: USS Granite City Works PSD Permit ESA and NHPA Consultation

Attached are the responses to the questions/comments in the email below. Sorry for the late response but it took us some time to get information from State Historic Preservation Office (under the current stay-at-home conditions).

Please let us know if you need anything else or have any other questions.

Regards

GS
(919) 845-1422, 42
(919) 533-4558

From: Ogulei, David <Ogulei.David@epa.gov>
Sent: Tuesday, March 24, 2020 17:01
To: Gurinder (Gary) Saini <saini@rtpenv.com>
Cc: Marcus, Danny <marcus.danny@epa.gov>; Lim, YeChan <lim.yechan@epa.gov>; Damico, Genevieve

<damico.genevieve@epa.gov>
Subject: RE: USS Granite City Works PSD Permit ESA and NHPA Consultation

Gary,

EPA has reviewed the cultural resource and endangered species assessment you submitted on March 24, 2020. U.S. Steel Granite City Works is proposing to revise limitations and requirements contained in an existing construction permit for the blast furnaces and basic oxygen process furnace shop at the Granite City Works facility. We have determined that we need additional information before we can determine the level of consultation necessary for the project. Specifically, please submit the following information to facilitate our review of the project under the ESA and NHPA:

1. Complete description of the project, including a quantification of all emissions increases expected from the project. To address this request, please identify and quantify all pollutants, including any hazardous air pollutants, that will increase due to the project;
2. List of historic and eligible historic properties within the project's "area of potential effects." Historic and eligible properties are available from the National Park Service (https://www.nps.gov/subjects/nationalregister/index.htm) and the Illinois State Historic Preservation Office (https://www2.illinois.gov/dnrhistoric/Preserve/Pages/Contact-Staff.aspx). For purposes of this project, the "area of potential effects," is the area within a three-mile radius of the facility as measured from the centroid of the project's geographical footprint;
3. Map of facility in relation to historic properties;
4. Identification of any excavation areas;
5. Identification of any interests by Tribal entities and/or local preservation societies, or other interested parties.

If you have any questions, do not hesitate to contact me.

David Ogulei
U.S. Environmental Protection Agency
Region 5 | Air & Radiation Division | AR-18J
77 West Jackson Blvd. | Chicago, Illinois 60604
Phone: (312) 353-0987 | Fax: (312) 692-2080
Ogulei.David@epa.gov

From: Ogulei, David
Sent: Tuesday, March 24, 2020 10:28 AM
To: Gurinder (Gary) Saini <saini@rtpenv.com>
Cc: Marcus, Danny <marcus.danny@epa.gov>; Lim, YeChan <lim.yechan@epa.gov>; Rineheart, Rachel <Rineheart.Rachel@epa.gov>
Subject: RE: USS Granite City Works PSD Permit ESA and NHPA Consultation

Gary,

Thank you this information. We will get back to you once we've had a chance to review the project information you shared.

David Ogulei
U.S. Environmental Protection Agency
Region 5 | Air & Radiation Division | AR-18J
77 West Jackson Blvd. | Chicago, Illinois 60604
Phone: (312) 353-0987 | Ogulei.David@epa.gov

From: Gurinder (Gary) Saini <saini@rtpenv.com>
Sent: Tuesday, March 24, 2020 8:12 AM
To: Ogulei, David <Ogulei.David@epa.gov>
Cc: Colin Campbell <campbell@rtpenv.com>; Michalik, Sarah K <skmichalik@uss.com>; Christopher W Hardin - United States Steel Corporation (CWHardin@uss.com) <CWHardin@uss.com>; Chris Romaine (Chris.Romaine@Illinois.gov) <Chris.Romaine@Illinois.gov>; Patel, Minesh <Minesh.Patel@illinois.gov>
Subject: USS Granite City Works PSD Permit ESA and NHPA Consultation

Mr. Ogulei,

U.S. Steel Granite City Works is an existing iron and steel manufacturing facility located in Granite City, Illinois. As you may already know, Illinois EPA is currently reviewing a PSD permit application to revise some of the CO emission limits for the existing combustion units at the facility. This application does not involve any new construction activity at the site.

Attached is a letter from U.S. Steel detailing anticipated air quality impacts and potential threatened or endangered species for your use in initiating a consultation with the US Fish and Wildlife Service or if this application meets the "no effect determination." Also, please let us know if NHPA cultural resource assessment is required for this application.

If you have any questions or need additional information, please do not hesitate to contact me or Sarah Michalik of U.S. Steel at (412) 433-7302 or skmichalik@uss.com.

Regards

Gurinder (Gary) Saini
RTP Environmental Associates Inc.
304A West Millbrook Road
Raleigh, NC 27609
(919) 845-1422, 42
(919) 533-4558

Pritchett, Jacob A.

From: Ogulei, David <Ogulei.David@epa.gov>
Sent: Wednesday, May 27, 2020 3:20 PM
To: Gurinder (Gary) Saini
Cc: Marcus, Danny; Lim, YeChan; Damico, Genevieve; Colin Campbell; Michalik, Sarah K; Christopher W Hardin - United States Steel Corporation (CWHardin@uss.com); Kruchten, Jeffery
Subject: RE: USS Granite City Works PSD Permit NHPA Consultation
Attachments: State HPA Background Draft - final.pdf; USSGCW NHPA Supplement May 2020.pdf

Gary,

The U.S. Environmental Protection Agency has reviewed the attached cultural resource assessment you submitted on behalf of U.S. Steel Granite City Works (USSGCW), on March 24 and May 22, 2020. The submittal includes a finding by the Illinois Deputy State Historic Preservation Officer, dated May 1, 2020, that "no significant historic, architectural or archaeological resources are located within the proposed project area."

Section 106 of the National Historic Preservation Act (NHPA) requires Federal agencies to take into account the effects of their undertakings on historic properties, and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings. If the Federal agency determines that an undertaking, as defined in 40 C.F.R § 800.16(y), does not have the potential to cause effects on historic properties, assuming such historic properties were present, the agency official has no further obligations under section 106 or 36 C.F.R. Part 800. For this permit action, EPA has determined that the undertaking is not likely to affect historic properties; therefore, no further action is required under Section 106 of the NHPA.

If there are any questions regarding this determination, please contact me.

David Ogulei
U.S. Environmental Protection Agency
Region 5 | Air & Radiation Division | AR-18J
77 West Jackson Blvd. | Chicago, Illinois 60604
Phone: (312) 353-0987 | Ogulei.David@epa.gov

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Sent: Friday, May 22, 2020 8:09 AM
To: Ogulei, David <Ogulei.David@epa.gov>
Cc: Marcus, Danny <marcus.danny@epa.gov>; Lim, YeChan <lim.yechan@epa.gov>; Damico, Genevieve <damico.genevieve@epa.gov>; Colin Campbell <campbell@rtpenv.com>; Michalik, Sarah K <skmichalik@uss.com>; Christopher W Hardin - United States Steel Corporation (CWHardin@uss.com) <CWHardin@uss.com>
Subject: RE: USS Granite City Works PSD Permit ESA and NHPA Consultation

Attached are the responses to the questions/comments in the email below. Sorry for the late response but it took us some time to get information from State Historic Preservation Office (under the current stay-at-home conditions).

Please let us know if you need anything else or have any other questions.

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Cc: Marcus, Danny <marcus.danny@epa.gov>; Lim, YeChan <lim.yechan@epa.gov>; Damico, Genevieve <damico.genevieve@epa.gov>
Subject: RE: USS Granite City Works PSD Permit ESA and NHPA Consultation

Gary,

EPA has reviewed the cultural resource and endangered species assessment you submitted on March 24, 2020. U.S. Steel Granite City Works is proposing to revise limitations and requirements contained in an existing construction permit for the blast furnaces and basic oxygen process furnace shop at the Granite City Works facility. We have determined that we need additional information before we can determine the level of consultation necessary for the project. Specifically, please submit the following information to facilitate our review of the project under the ESA and NHPA:

1. Complete description of the project, including a quantification of all emissions increases expected from the project. To address this request, please identify and quantify all pollutants, including any hazardous air pollutants, that will increase due to the project;
2. List of historic and eligible historic properties within the project's "area of potential effects." Historic and eligible properties are available from the National Park Service (https://www.nps.gov/subjects/nationalregister/index.htm) and the Illinois State Historic Preservation Office (https://www2.illinois.gov/dnrhistoric/Preserve/Pages/Contact-Staff.aspx). For purposes of this project, the "area of potential effects," is the area within a three-mile radius of the facility as measured from the centroid of the project's geographical footprint;
3. Map of facility in relation to historic properties;
4. Identification of any excavation areas;
5. Identification of any interests by Tribal entities and/or local preservation societies, or other interested parties.

If you have any questions, do not hesitate to contact me.

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Cc: Marcus, Danny <marcus.danny@epa.gov>; Lim, YeChan <lim.yechan@epa.gov>; Rineheart, Rachel

<Rineheart.Rachel@epa.gov>
Subject: RE: USS Granite City Works PSD Permit ESA and NHPA Consultation

Gary,

Thank you this information. We will get back to you once we've had a chance to review the project information you shared.

David Ogulei
U.S. Environmental Protection Agency
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77 West Jackson Blvd. | Chicago, Illinois 60604
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To: Ogulei, David <Ogulei.David@epa.gov>
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Subject: USS Granite City Works PSD Permit ESA and NHPA Consultation

Mr. Ogulei,

U.S. Steel Granite City Works is an existing iron and steel manufacturing facility located in Granite City, Illinois. As you may already know, Illinois EPA is currently reviewing a PSD permit application to revise some of the CO emission limits for the existing combustion units at the facility. This application does not involve any new construction activity at the site.

Attached is a letter from U.S. Steel detailing anticipated air quality impacts and potential threatened or endangered species for your use in initiating a consultation with the US Fish and Wildlife Service or if this application meets the "no effect determination." Also, please let us know if NHPA cultural resource assessment is required for this application.

If you have any questions or need additional information, please do not hesitate to contact me or Sarah Michalik of U.S. Steel at (412) 433-7302 or skmichalik@uss.com.

Regards

Gurinder (Gary) Saini
RTP Environmental Associates Inc.
304A West Millbrook Road
Raleigh, NC 27609
(919) 845-1422, 42
(919) 533-4558

United States Steel Corporation
1350 Penn Avenue
Pittsburgh, PA 15222

VIA EMAIL

April 9, 2020

Illinois Department of Natural Resources
Illinois State Historic Preservation Office
Attn: Review and Compliance
1 Old State Capitol Plaza
Springfield, IL 62701

Subject: **Request State Historic Preservation Officer Review**
Background Information for the Revision to the 1996 PSD Permit for Expansion Project at U.S. Steel Granite City Works
Permit application under review with Illinois Environmental Protection Agency

Dear Madam / Sir:

U. S. Steel ("USS") owns and operates an integrated iron and steel manufacturing facility in Granite City, Illinois ("Granite City Works" or "GCW"). USS submitted a permit application to Illinois Environmental Protection Agency ("IEPA") requesting revisions of certain limitations and requirements for the blast furnaces and basic oxygen process furnace ("BOPF") shop at Granite City Works, which are contained in the Construction Permit 95010001 ("Revision of 1996 Construction Permit"). This request does not involve any physical changes for GCW. This letter provides initial documentation requested by Illinois Department of Natural Resources for Illinois State Historic Preservation Officer review.

Background
USS operates two blast furnaces, a BOPF shop, and other associated equipment/operations at Granite City Works to produce steel products. The site address is:

20th and State Street
Granite City, IL 62040

In February 2020, USS applied for a revision to a prevention of significant deterioration (PSD) permit in order to revise some of the carbon monoxide (CO) emissions limits for the existing operations. The 1996 Construction Permit authorized iron and steel production increases at GCW and established CO emission limitations for some of the fuel combustion operations as part of the PSD review. The USS requested permit revisions involve changes to the emission factors for some of the fuels and update the annual CO emission limitations. This permit revision is also subject to PSD review for CO.

Site Description
Granite City Works is located near the Illinois – Missouri border in south central Illinois. The site is 1,040 acres in Madison County, near the city of St Louis, as illustrated in Figure 1. The approximate centering UTM coordinates (Zone 15, NAD83) for the plant are X = 749,000 meters; Y = 4,287,000 meters. The facility is situated at an elevation of approximately 416 feet above mean sea level. The terrain is generally level in the immediate vicinity of the facility.

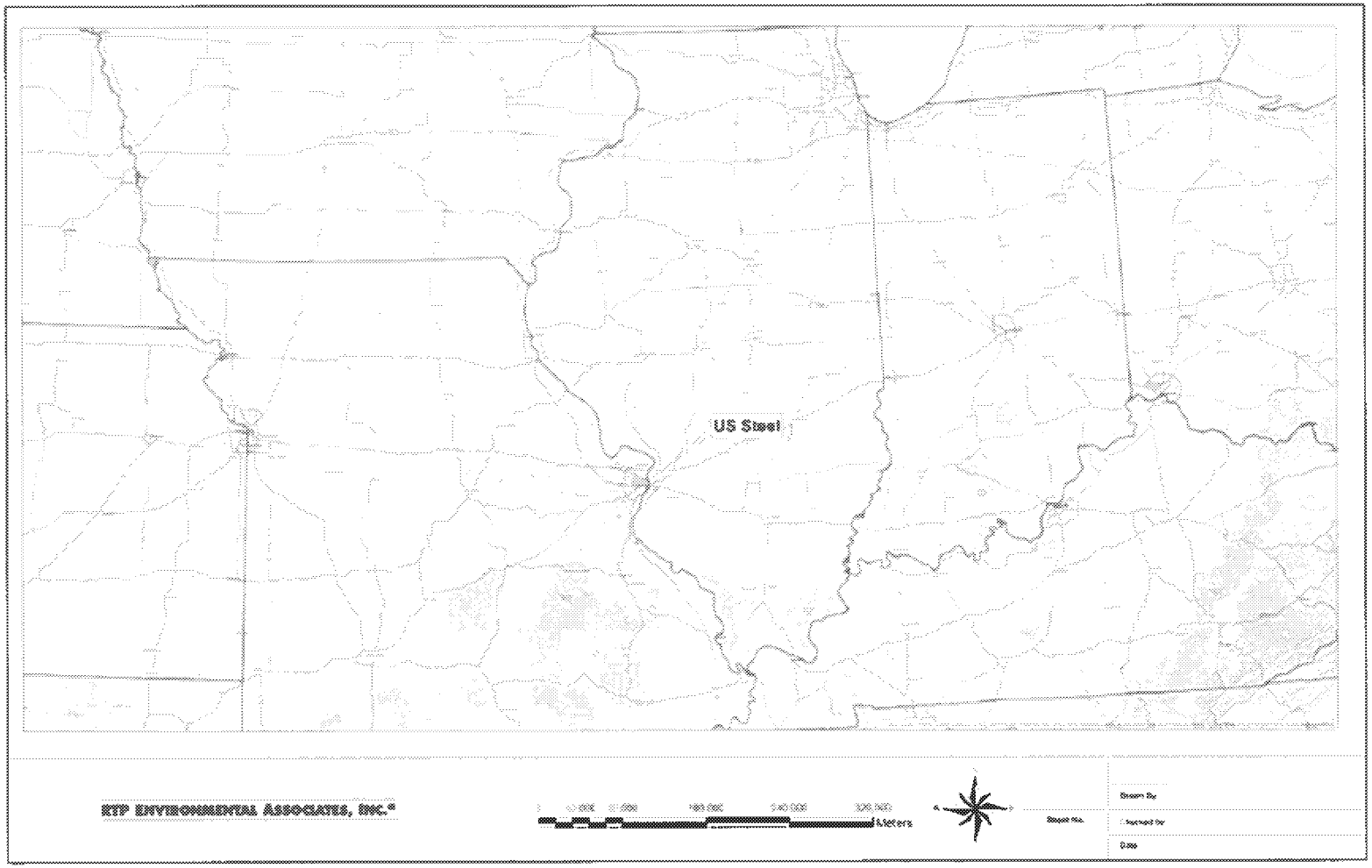


Figure 1. Regional Map

R0003496

Structure Impacts

The 1996 Construction Permit involved changes in permitted production limits. There were no physical or structural changes at the site. Similarly, the proposed revisions to the 1996 Construction Permit by USS also do not involve any physical or structural changes at the site.

USS is not aware of any structural or archaeological cultural resources effected within the community. Please let us know if you need any other information to complete State Agency Historic Resource Protection Act or National Historic Preservation Act. If you have any questions on the information in this document or you need to reach us, please contact me at skmichalik@uss.com or (412) 433-7302 or Gary Saini at saini@rtpenv.com or (919) 845-1422 x 42.

Sincerely,
United States Steel Corporation



Sarah Michalik
Environmental Engineer

Responses to the items in David Ogulei's email dated March 24, 2020.

Item 1. Complete description of the project, including a quantification of all emissions increases expected from the project. To address this request, please identify and quantify all pollutants, including any hazardous air pollutants, that will increase due to the project.

USS Response *On March 2, 2020 U. S. Steel (USS) submitted a permit application to revise the 1996 Construction Permit (Permit Number 95010001) ("2020 Application"). The 1996 Construction Permit issued by Illinois EPA authorized National Steel (prior owners of Granite City Works) to increase throughput and fuel use at the iron and steel manufacturing facility ("1996 Project"). The 1996 Project was a major modification for SO_2 and CO. Net emissions increases for PM, PM10, NO_x, and VOM were below the applicable significant emission rates. The table below presents a summary of net emissions increases as calculated by National Steel for the 1996 Construction Permit.*

1996 Construction Permit	**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

As part of the 2020 Application, as shown in the table below, USS is requesting revisions to CO emission rates for the 1996 Project affected combustion units to correct and update CO emission factors for gaseous fuels (natural gas and blast furnace gas). The CO emission limits in the 1996 permit were based upon emission factors published in version of AP-42 in effect at that time. The permit action is not based upon any actual increase of CO, but rather, it is based upon better information regarding CO that has developed since National Steel submitted the application for the 1996 project and the corresponding permit was issued by IEPA. The CO emission factors were updated based on the revised AP-42 Chapter 1.4 for natural gas combustion (Supplement D from July 1998) and CO testing conducted at units combusting blast furnace gas at Granite City Works and other representative facilities.

Permitted emissions of PM, PM10, NO_x, and VOM will decrease relative to the de minimis rates originally permitted for the 1996 Project, as shown in the table below. (No calculations have been performed for hazardous air pollutants, but it is reasonable to expect there will be no increases, as PM and VOM emission rates are decreasing relative to the current permitted levels.) No changes are proposed for SO_2 and Pb emissions as permitted in 1996. ("Contemporaneous" in the table refers to the period contemporaneous with the 1996 Project.")

2020 Application	Emissions (tons/year)						
	PM	PM10	NO_X		CO	VOM	
Project Emissions Increases	-50.5	50.3	262.8		23,737.6	38.5	
Contemporaneous Decreases	-58.0	-58.0	-226.5		-23.31	-32.8	
Contemporaneous Increases	0	16.6	0		11.8	0	
Net Emissions Increases	**-108.5**	**8.9**	**36.3**		**23,726**	**5.7**	
Significant Emission Rate	25.0	15.0	40.0		100.0	40.0	

Neither the 1996 Project nor the 2020 Application involve any physical changes at the Granite City Works. The fuel burning emissions units affected by the requested changes to the CO emissions rates are:

(a) Blast Furnace Stoves,
(b) Blast Furnace Flare 1,
(c) Boilers 11 and 12,
(d) Ladle Drying Preheaters, and
(e) Ancillary Fuel Burning Units at the Continuous Casters.

As part of the 2020 Application, USS completed areawide CO air dispersion modeling that includes the operations at Granite City Works and the other offsite facilities. Results of the CO NAAQS analysis are summarized in the table below.

Averaging Period	*CO Modeled Concentration ($\mu g/m^3$)*	*CO Background Concentration ($\mu g/m^3$)*	*CO Total Concentration ($\mu g/m^3$)*	*CO NAAQS ($\mu g/m^3$)*
1-hour	*3,414*	*2,286*	*5,700*	*40,000*
8-hour	*1,941*	*1,349*	*3,290*	*10,000*

The air dispersion modeling confirmed that the modeled CO impacts remain below the applicable CO NAAQS for all averaging periods.

Item 2. List of historic and eligible historic properties within the project's "area of potential effects." Historic and eligible properties are available from the National Park Service (https://www.nps.gov/subjects/nationalregister/index.htm) and the Illinois State Historic Preservation Office (https://www2.illinois.gov/dnrhistoric/Preserve/Pages/Contact-Staff.aspx). For purposes of this project, the "area of potential effects," is the area within a three-mile radius of the facility as measured from the centroid of the project's geographical footprint.

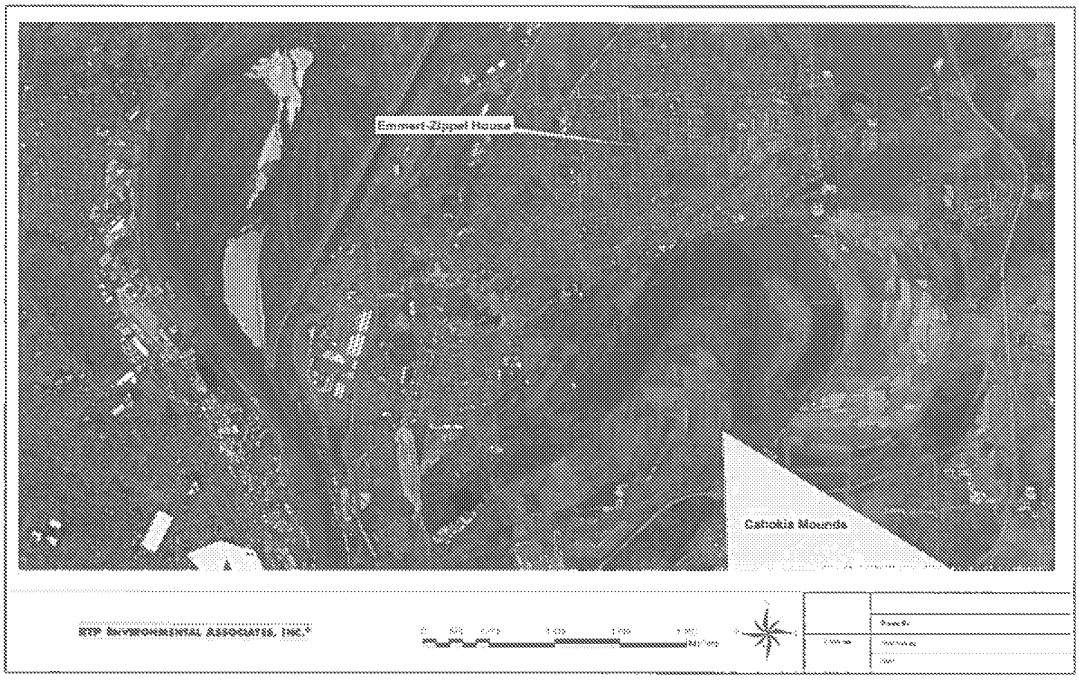
USS Response *A list of historic and eligible historic properties within the project's area of potential effects is provided below.*

S No.	Ref #	Property Name	Address
1	96000511	Emmert--Zippel House	3279 Maryville Rd., 2mi. N of IL 162, Granite City
2	100001564	Granite City YMCA	2001 Edison Ave., Granite City (not shown on the map)
3	80001396	Horseshoe Lake Mound and Village Site	Restricted site (not shown on the map)
4	66000899	Cahokia Mounds	7850 Collinsville Rd., Cahokia Mounds State Park, Collinsville (may fall outside the 3 mile distance)

Also, attached is a letter from Illinois Department of Natural Resources confirming "..that no significant historic, architectural or archeological resources are located within the proposed project area."[1]

Item 3. Map of facility in relation to historic properties.

USS Response *The requested map is provided below.*



[1] Letter from Robert F. Appleman, Deputy State Historic Preservation Officer, Illinois Department of Natural Resources to Sara Michalik of USS, May 1, 2020. Note – the letter erroneously refers storm water permit. This letter was issued in response to the letter from USS outlining air permit application information for Granite City.

Item 4. Identification of any excavation areas.

USS Response *There is no excavation – indeed no physical changes of any type – In conjunction with either the 1996 Project or the 2020 Application.*

Item 5. Identification of any interests by Tribal entities and/or local preservation societies, or other interested parties.

USS Response *American Bottom Conservancy (ABC) is an interested party in the 2020 Application project. In addition, on or about March 24, 2020, Illinois EPA issued and distributed an Environmental Justice notice notifying potentially interested parties of the pending permit application.*

ILLINOIS DEPARTMENT OF NATURAL RESOURCES

Illinois Department of Natural Resources

One Natural Resources Way Springfield, Illinois 62702-1271
www.dnr.illinois.gov

JB Pritzker, Governor
Colleen Callahan, Director

Mailing address: State Historic Preservation Office, 1 Old State Capitol Plaza, Springfield, IL 62701

Madison County
Granite City
20th & State Street
IEPA
General Permit to discharge storm water-PERMIT ONLY - US Steel Granite City Works

PLEASE REFER TO: SHPO LOG #008041520

May 1, 2020

Sarah Michalik
United States Steel Corporation
1350 Penn Avenue
Pittsburgh, PA 15222

Dear Ms. Michalik:

The Illinois State Historic Preservation Office is required by the Illinois State Agency Historic Resources Preservation Act (20 ILCS 3420, as amended, 17 IAC 4180) to review all state funded, permitted or licensed undertakings for their effect on cultural resources. Pursuant to this, we have received information regarding the referenced project for our comment.

Our staff has reviewed the specifications under the state law and assessed the impact of the project as submitted by your office. We have determined, based on the available information, that no significant historic, architectural or archaeological resources are located within the proposed project area.

According to the information you have provided concerning your proposed project, apparently there is no federal involvement in your project. However, please note that the state law is less restrictive than the federal cultural resource laws concerning archaeology. If your project will use federal loans or grants, need federal agency permits, use federal property, or involve assistance from a federal agency, then your project must be reviewed under the National Historic Preservation Act of 1966, as amended. Please notify us immediately if such is the case.

This clearance remains in effect for two (2) years from date of issuance. It does not pertain to any discovery during construction, nor is it a clearance for purposes of the IL Human Skeletal Remains Protection Act (20 ILCS 3440).

Please retain this letter in your files as evidence of compliance with the Illinois State Agency Historic Resources Preservation Act.

If further assistance is needed please contact Jeff Kruchten, Chief Archaeologist at 217/785-1279 or jeffery.kruchten@illinois.gov.

Sincerely,

Robert F. Appleman
Deputy State Historic
Preservation Officer

Cass, Rylee

From: Patel, Minesh
Sent: Monday, June 1, 2020 9:03 AM
To: Gurinder (Gary) Saini
Cc: Romaine, Chris
Subject: RE: USS Granite City Works PSD Permit ESA and NHPA Consultation

Thanks.

From: Gurinder (Gary) Saini <saini@rtpenv.com>
Sent: Monday, June 1, 2020 8:52 AM
To: Romaine, Chris <Chris.Romaine@Illinois.gov>; Patel, Minesh <Minesh.Patel@Illinois.gov>
Cc: Colin Campbell <campbell@rtpenv.com>; Hacker, David W (DWHacker@uss.com) <DWHacker@uss.com>; Michalik, Sarah K <skmichalik@uss.com>; Carter, Sally <Sally.Carter@Illinois.gov>; LaDonna Driver (LaDonna.Driver@heplerbroom.com) <LaDonna.Driver@heplerbroom.com>; Christopher W Hardin - United States Steel Corporation (CWHardin@uss.com) <CWHardin@uss.com>
Subject: [External] USS Granite City Works PSD Permit ESA and NHPA Consultation

We received via email, responses from U.S. EPA regarding ESA and NHPA consultation for the pending USS Granite City Works permit revision application. The U.S. EPA confirms that no additional action is required for these consultations.

Attached are the emails we received in this regard. Please let us know if you have any questions or need anything else in this regard.

Regards

GS
(919) 845-1422, 42
(919) 533-4558

Pritchett, Jacob A.

Subject:	[External] Conference Call USS
Start:	Thu 6/1/2023 2:30 PM
End:	Thu 6/1/2023 3:30 PM
Show Time As:	Tentative
Recurrence:	(none)
Organizer:	LaDonna Driver

Conference number: 412-433-5000
Passcode 2919#

HEPLERBROOM LLC
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Pritchett, Jacob A.

From: Romaine, Chris
Sent: Thursday, June 1, 2023 11:32 AM
To: Carter, Sally
Subject: Accepted: USS

Pritchett, Jacob A.

From: Romaine, Chris
Sent: Wednesday, June 2, 2021 11:38 AM
To: Carter, Sally
Subject: Accepted: USS

Pritchett, Jacob A.

From: Romaine, Chris
Sent: Friday, June 2, 2023 3:16 PM
To: Schnepp, Jason
Subject: Emailing: US Steel - Drafting of Denial Letter 6 -02 -23.docx
Attachments: US Steel - Drafting of Denial Letter 6 -02 -23.docx

Your message is ready to be sent with the following file or link attachments:

US Steel - Drafting of Denial Letter 6 -02 -23.docx

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WORKING DRAFT FOR DENIAL LETTER

217/785-1705

CERTIFIED MAIL
No. ???? ???? ???? ????

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

DATE ??, 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)(1) and 39.5(13)(a) 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] This application includes a request that the revision of this permit be processed with Integrated Processing, as is provided for by Section 39.5(13)(a) 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
Permit Denial Letter Dated ???? ??, ???? (Draft)

ATTACHMENT 1: LISTING OF DENIAL POINTS

1. THE REVISED NETTING ANALYSIS FOR THE PROJECT NOx DOES NOT FULFILL RELEVANT REQUIREMENTS OF THE NSR FOR SUCH ANALYSES

Overview

For NOx emissions, the 2022 application 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.[1, 2] 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.[3] 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.

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[1] 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.

[2] 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.

[3] 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.)

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.)[4] 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.[5] 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 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

[4] 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.")

[5] 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.

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.[6] 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.

[6] 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.

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.[7] 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, the two remaining older boilers at the source in 2015. 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.[8]

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 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.[9]

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[7] 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.

[8] 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 95010001currently 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.

[9] It is unclear how, with the requested revisions of Permit 95010001, 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.[10] 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[11] of 404 pounds/million cubic feet of COG.[12] 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

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[10] 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.

[11] 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."

[12] 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 relevant factor recommended by USEPA (USEPA, "Factor Information Retrieval System" (FIRE), v6.25), it could be considered appropriate

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.[13]

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.[14] 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

[13] 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.

[14] 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.[15] 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").

[15] 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 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.[16]

[16] 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.

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[17] 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,[18, 19]

> 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

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[17] 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.

[18] 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)."

[19] 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.
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> 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.[20]

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 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

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[20] 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 refining, 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 with the capture efficiency for particulate emissions from refining assumed to be at least 99.9 percent. With permitted stack emissions of NOx and VOM of 69.63 and 10.74 tons/year, respectively, and 99.9 percent capture, the uncaptured emissions of NOx and VOM would 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 emissions of the furnaces with the Project would be less because these calculations for uncaptured emissions address all emissions, both baseline emissions and the increases in emissions from the Project.

Even with the correction to the emission data for these furnaces indicated in the 2022 application, if all NOx and VOM emissions of these furnaces were actually attributable to refining, uncaptured 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, the potential uncaptured NOx emissions from these furnaces would still only be 0.38 tons/year.

tapping such that the levels of captured emissions from the baghouse stack and the uncaptured emissions through the roof monitor are now identical.[21, 22]

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 that occur through the roof monitor.[23] For example, for pre-project actual emissions of the roof monitor, Section 5.2.2.7 of the application explains the following, [24]

> 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

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[21] 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 emissions of the furnaces from the baghouse stack would be the same as the potential uncaptured emissions that still occur through the roof monitor.

[22] 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.

[23] 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 also described as the emissions through the roof monitor). These prescribed emission factors would effectively replace the "emission factor limits" (i.e., limits for emissions in pounds/ton of input or production or in pounds/hour) that are currently in Permit 95010001 for those units and emission points. Unlike the current emission factor limits, 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 routinely rely upon for the purpose of 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.

[24] 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.
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> 2022 application, Section 5.2.7.7, BOF Roof Monitor Emissions (No Change)

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."

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.[25] In this regard, while 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, the application does not propose any such revisions for the basic oxygen furnaces or explain why such revisions are not needed.[26]

[25] 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 with 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 process when oxygen is actually being injected into the furnace and not during the entire refining process. 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.

[26] 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 permit limits for the CO emissions of the furnaces, which only address 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.[27] 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 on the blast furnaces (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

[27] 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 by-product coke oven batteries. Although these batteries were shut down in 2015, they were in operation when the Project was originally permitted in 1996. 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.[28] While the analysis addresses CO emissions of units 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 being operated by Gateway Energy & Coke.

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 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.[29]

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[28] The modelling in the air quality analysis did address certain newer units, which came into operation after the Project in 1996. For example, 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 units were direct, in-kind replacements of the existing units that have been shut down. In this regard, the new Gateway coke oven batteries are not direct, in-kind replacements of the batteries that were shut down by US Steel. Those batteries were designed for by-product recovery technology; the new batteries are designed for heat recovery technology. Moreover, the new batteries and old batteries were all in use for a period of several years before the old batteries were shut down.

[29] 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.[30] 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 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.[31]

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[30] For particulate, 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 provision in Permit 95010001 that currently restrict emissions of individual "processes" in pounds/ton of throughput and tons/year. These limits were set to ensure that the Project would not be a major modification for purposes of New Source Review (NSR). The removal from the permit of the limits in pounds/ton of throughput or "emission factor limits" would facilitate resolution of two appeals to the Illinois' Pollution Control Board (PCB) PCB 2013-053 and PCB 2013-062. Both appeals indirectly address the emission factor limits in Permit 95010001. PCB 2013-053 addresses these limits as the revised Clean Air Act Permit Program (CAAPP) permit for the facility (Permit 96030056) issued in 2013 repeats these limits as originally set by Permit 95010001. PCB 2013-062 addresses Construction Permit 11050006, a 2013 construction permit for improvements to the particulate control for the BOFs, as, for the BOFs, it also refers to these limits. US Steel appealed the subject limits because, when issuing the revised CAAPP permit for the facility in 2013, the Illinois EPA explicitly explained that these provisions were considered enforceable limits on emissions. In this regard, the revised CAAPP permit would require US Steel to conduct appropriate periodic monitoring to verify compliance with these limits (e.g., see the "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," pages 20 through 26).

With regard to the current limits for the annual emissions 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 of 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 new limits for annual emissions would be rolled monthly, restricting emissions over each 12 consecutive month period. The requested limits would theoretically be less stringent than the current limits as any "overage" of emissions by particular unit(s) in a group of units could potentially be compensated for by lower levels of emissions by other units in the group.

Incidentally, these appeals only challenge 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.

[31] 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

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, separate limits on short-term emissions, such as the current limits in Permit 95010001 in pounds/ton of throughput, 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, 33] However, the 2022 application does not show that the 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

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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.

[32] 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).

[33] 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."
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> 2022 application, Footnote 11.

units.[34] 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.[35]

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[34] 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 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.

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.

[35] 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. 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 is 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.
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> 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.
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> 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.
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> Footnote 6. This is consistent with prior EPA practice in appropriate circumstances. See e.g., Memorandum entitles "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.")
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> 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 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 two by-product coke oven batteries. While the limits for fuel usage currently in Permit 95010001 may no longer be relevant, as generally addressed above,[36] this does not mean that other limits for fuel usage are not appropriate. In this regard, the 2022 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 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.

[36] 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 EPRESENTATIVE

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, to calculate ongoing 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

The emission factors used in the 2022 application that have not been shown to be representative are ones that, based on the application, do not appear to have been developed by USEPA or derived using formulas or other methodology developed by USEPA.[37]

Roof Monitor on the Basic Oxygen Furnace Shop – Particulate Emissions:
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

[37] With regard to use of emission factors developed by USEPA, as support for the use of annual emission caps to limit potential emissions, the 2022 application refers to USEPA's permitting of *Shell Offshore, Inc.*, as well as to the permitting of *Tucson Electric*. In the USEPA's Environmental Appeals Board's (EAB) decision for *Shell Offshore, Inc.*, the EAB implies that that it is preferable that compliance with emission limits set by a permit be determined using source-specific emission factors. However, the EAB observed that it may be appropriate for a permit to prescribe that specific emission factors published by USEPA in its *Compilation of Air Pollutant Emission Factors* (AP-42) be used for certain emission units for purposes of determining emissions for compliance with emission limits set by the permit. The EAB's Order does not address use of emission factors that are not from AP-42 or derived from source-testing, presumably because the permit under appeal did not prescribe use of such factors. In this regard, in its decision on Shell Offshore, Inc., the EAB observed,

> 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 unit 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.

particulate emission rates for the roof monitor on the basic oxygen furnace shop.[38, 39] 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 blast furnace shop that are proposed as prescribed emission factors in Section 5.5.2.2 of the application are representative.[40]

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

[38] 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.

[39] 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).

[40] 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 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 routine operation with those control measures were present and 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 that information showing that an emission rate of 0.009 pounds/hour should be considered representative of the emissions of this unit.[41]

[41] 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.[42] 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.[43, 44]

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[42] 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)

[43] 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.

[44] 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 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.[45]
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.

[45] 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.")[46]

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. (As this 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.)

[46] 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.

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.[47, 48]

Absence of A Request for Revisions for the "Deslagging Station and Material HS":

[47] 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.

[48] 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).[49] 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)).[50] 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 BOF shop. In this regard, for the argon stirring station, US Steel explains 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 CCFR 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 BOPF shop ancillary

[49] 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).

[50] 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.
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> CAAPP Renewal Application, Appendix D: Process Descriptions, Section 7.6 Continuous Casting, Deslagging Station, p. D-56.

operations.[51] Slag skimming is one of the operations that 40 CFR 63.7852 defines as being "Basic oxygen process furnace shop ancillary operations."[52, 53]

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.[54]

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[51] 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.

[52] 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."

[53] 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)).

[54] 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 BOF shop, the limit for the NOx emissions of the BOF 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 Permit 95010001 that would facilitate revisions to the CAAPP permit to be made by administrative amendment to allow prescribed emission factors to be used to calculate emissions of certain emission units rather than "appropriate emission factors." In this regard, Permit 95010001 currently does not specify how emissions are to be determined for purpose of evaluating compliance with the emission limits that are set by the permit, much less specify that, for certain emission units, prescribed emission factors are to be used for this purpose. Accordingly, the procedures to determine compliance with the emission limits set by Permit 95010001 were established in the CAAPP permit. This is because the emission limits set by Permit 95010001 are applicable requirements under the CAAPP. The procedures established in the CAAPP permit do not provide for the use of prescribed emission factors. Rather, these procedures generally require US Steel to use "appropriate emission factors," i.e., emission factors that do not understate emissions, accompanied by recordkeeping and reporting for the emission factors that are being used. While the 2022 application requests revisions to Permit 95010001 to require use of prescribed emission factors for certain units, it does not address the fact that the CAAPP permit currently does not accommodate the use of prescribed emission factors to calculate emissions of certain emission units. Instead, the CAAPP permit requires use of "appropriate emission factors."[55]

[55] In should also be noted that in PCB 2013-0053, 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 2013-0053 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.[56] 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 this as 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.[57] 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.[58]

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**

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[56] 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

[57] 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.

[58] 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.[59, 60]

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[59] 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 2013-0062, 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.

[60] 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 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.[61, 62] 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.[63] It

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

[62] 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."

[63] 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.[64] 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.[65] 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 CAAPP permit issued for sources accurately identify or address the emission units that constitute the sources.

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.

[64] 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.

[65] 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.

16. 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.

17. AS RELATED TO SO_2 EMISSIONS FROM USE OF BFG, THE 2022 APPLICATION IS INCONSISTENT WITH A PENDING 2008 APPLICATION

In 2008, US Steel submitted an application, which was received on February 4, 2008, 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. The 2022 application is inconsistent with and conflicts with the 2008 application for revision to Permit 95010001. 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 requests such changes, 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. With the revised emission factor, the permitted SO_2 emissions from use of the 185,030 million cubic feet of BFG per year allowed by the permit would increase from 615.22 to 1480.24 tons/year. By contrast, as the 2022 application provides that the limits for SO_2 for use of BFG should be unchanged, this application indicates for BFG that the revised permit that is requested should continue to have an emission factor limit of 6.65 pounds of SO_2/million cubic feet and an SO_2 annual emission limit of 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. In this regard, the 2022 application 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.

18. 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.][66, 67] For CO, the 2022 application does not request revisions to the only limits in Permit 95010001 for CO emissions from a process operation, i.e., the limits for CO emissions of the basic oxygen furnaces that occur through the ESP stack.[68, 69]

As a general matter, as the 2022 application does not propose revisions to current permit limits for emissions of SO_2, CO and lead, this application is inconsistent with two pending permit

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[66] 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.]

[67] Permit 95010001 currently limits SO_2 emissions from individual blast furnace operations in pounds per ton of iron produced and tons per year. For example, the SO_2 emissions of the main casthouse baghouse, the iron spout baghouse, and uncaptured emissions of the blast furnaces are limited, respectively, to 0.2006, 0.0073 and 0.0104 pounds per ton of iron produced. (Permit 95010001, Condition 5 and Table 1, for, respectively, the Casthouse Baghouse, Iron Spout Baghouse and Blast Furnace - uncaptured emissions.)

For operations in the basic oxygen furnace shop, Permit 95010001 currently limits lead emissions in pounds/hour and tons/year. For example, the lead emissions of the ESP stack and roof monitor are limited to 0.01934 and 0.0129 pounds/hour, respectively. (Permit 95010001, Condition 18 and Table 2, for, respectively, the BOF ESP Stack and BOF Roof Monitor.).

[68] 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 captured CO emissions that now occur from the baghouse stack or any uncaptured CO emissions, which occur through the roof monitor.

[69] The 2022 application does request revisions to Permit 95010001 to address the CO emissions of the casthouse for the blast furnaces. In the original application, the casthouse was not identified as a source of CO and data for CO emissions was not provided. The application also requests certain updates to the data for CO emissions from burning blast furnace gas and natural gas in Project-affected fuel burning units.

appeals before the Board, PCB 0013-0053 and PCB 0013-0062. 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 no longer extend to the emission factor limits set for SO_2, CO and lead.[70] In addition, US Steel does not explain in the 2022 application why the emission factor limits currently set by Permit 95010001 for SO_2, CO and lead are no longer considered to be objectionable. That is, US Steel would not again challenge those limits as it has already done in PCB 0013-0053 and PCB 0013-0062 if a revised permit continued to include the current emission factor limits.[71]

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 emission limits address only emissions of 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 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.[72]

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[70] The permit limits for emission of lead in pounds per hour are considered within the scope of the term "emission factor limits." In Permit 95010001, these emission limits are listed under the heading of "Emission Factor," along with the emission limits for other pollutants in pounds per ton of throughput.

[71] 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.

[72] 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 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."

19. 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.

FOOTNOTES

In the actual draft of this denial that is released for the public comment period, footnotes would be located at end of the document rather being in the body of the document. This would be done because the footnotes provide additional background to the denial points for US Steel and the various interested parties, rather than being essential components of the denial points.

CPR 6/2/23

Pritchett, Jacob A.

From: Romaine, Chris
Sent: Friday, June 2, 2023 3:40 PM
To: Ogulei, David; Danny Marcus (Marcus.Danny@epamail.epa.gov); Wolski, Daniel
Cc: Patel, Minesh; Schnepp, Jason
Subject: Emailing: US Steel - Drafting of Denial Letter 6 -02 -23.docx
Attachments: US Steel - Drafting of Denial Letter 6 -02 -23.docx

As I Just discussed with Mr. Marcus by phone, attached is a preliminary version of a draft of a permit denial letter for US Steel's October 22, 2022 application for revisions to Permit 95010001. This permit is a construction permit/PSD approval originally issued in 1996 to National Steel for a project to increase iron and steel production of its integrated steel mill in Granite City. The mill is now owned by US Steel.

As US Steel has requested revisions of a PSD approval, the Bureau of Air plans to begin a public comment period shortly on the proposed denial of the current application. This will necessitate the release of a draft of the proposed permit denial letter for review and comment by the public, as well US Steel. Any comments/suggestions that you have on the attached working version of the draft of a denial letter would be appreciated.

I am now off on vacation, with a commitment to return after the Fourth of July. In the interim, any questions or feedback that you have should go to Jason Schnepp or, if he is out, Minesh Patel.

Thanks

Chris Romaine
Construction Unit
Bureau of Air Permits

217/785-1882

WORKING DRAFT FOR DENIAL LETTER

217/785-1705

CERTIFIED MAIL
No. ???? ???? ???? ????

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

DATE ??, 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)(1) and 39.5(13)(a) 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] This application includes a request that the revision of this permit be processed with Integrated Processing, as is provided for by Section 39.5(13)(a) 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
Permit Denial Letter Dated ???? ??, ???? (Draft)

ATTACHMENT 1: LISTING OF DENIAL POINTS

1. THE REVISED NETTING ANALYSIS FOR THE PROJECT NOx DOES NOT FULFILL RELEVANT REQUIREMENTS OF THE NSR FOR SUCH ANALYSES

Overview

For NOx emissions, the 2022 application 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.[1, 2] 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.[3] 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.

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[1] 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.

[2] 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.

[3] 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.)

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.)[4] 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.[5] 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 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

[4] 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.")

[5] 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.

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.[6] 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.

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[6] 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.

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.[7] 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, the two remaining older boilers at the source in 2015. 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.[8]

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 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.[9]

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[7] 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.

[8] 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 95010001currently 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.

[9] It is unclear how, with the requested revisions of Permit 95010001, 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.[10] 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[11] of 404 pounds/million cubic feet of COG.[12] 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

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[10] 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.

[11] 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."

[12] 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 relevant factor recommended by USEPA (USEPA, "Factor Information Retrieval System" (FIRE), v6.25), it could be considered appropriate

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.[13]

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.[14] 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

[13] 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.
[14] 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.[15] 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").

[15] 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 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.[16]

[16] 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.

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[17] 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,[18, 19]

> 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

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[17] 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.

[18] 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)."

[19] 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.
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> 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.[20]

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 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

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[20] 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 refining, 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 with the capture efficiency for particulate emissions from refining assumed to be at least 99.9 percent. With permitted stack emissions of NOx and VOM of 69.63 and 10.74 tons/year, respectively, and 99.9 percent capture, the uncaptured emissions of NOx and VOM would 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 emissions of the furnaces with the Project would be less because these calculations for uncaptured emissions address all emissions, both baseline emissions and the increases in emissions from the Project.

Even with the correction to the emission data for these furnaces indicated in the 2022 application, if all NOx and VOM emissions of these furnaces were actually attributable to refining, uncaptured 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, the potential uncaptured NOx emissions from these furnaces would still only be 0.38 tons/year.

tapping such that the levels of captured emissions from the baghouse stack and the uncaptured emissions through the roof monitor are now identical.[21, 22]

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 that occur through the roof monitor.[23] For example, for pre-project actual emissions of the roof monitor, Section 5.2.2.7 of the application explains the following, [24]

> 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

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[21] 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 emissions of the furnaces from the baghouse stack would be the same as the potential uncaptured emissions that still occur through the roof monitor.

[22] 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.

[23] 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 also described as the emissions through the roof monitor). These prescribed emission factors would effectively replace the "emission factor limits" (i.e., limits for emissions in pounds/ton of input or production or in pounds/hour) that are currently in Permit 95010001 for those units and emission points. Unlike the current emission factor limits, 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 routinely rely upon for the purpose of 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.

[24] 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.
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> 2022 application, Section 5.2.7.7, BOF Roof Monitor Emissions (No Change)

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."

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.[25] In this regard, while 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, the application does not propose any such revisions for the basic oxygen furnaces or explain why such revisions are not needed.[26]

[25] 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 with 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 process when oxygen is actually being injected into the furnace and not during the entire refining process. 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.

[26] 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 permit limits for the CO emissions of the furnaces, which only address 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.[27] 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 on the blast furnaces (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

[27] 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 by-product coke oven batteries. Although these batteries were shut down in 2015, they were in operation when the Project was originally permitted in 1996. 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.[28] While the analysis addresses CO emissions of units 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 being operated by Gateway Energy & Coke.

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 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.[29]

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[28] The modelling in the air quality analysis did address certain newer units, which came into operation after the Project in 1996. For example, 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 units were direct, in-kind replacements of the existing units that have been shut down. In this regard, the new Gateway coke oven batteries are not direct, in-kind replacements of the batteries that were shut down by US Steel. Those batteries were designed for by-product recovery technology; the new batteries are designed for heat recovery technology. Moreover, the new batteries and old batteries were all in use for a period of several years before the old batteries were shut down.

[29] 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.[30] 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 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.[31]

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[30] For particulate, 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 provision in Permit 95010001 that currently restrict emissions of individual "processes" in pounds/ton of throughput and tons/year. These limits were set to ensure that the Project would not be a major modification for purposes of New Source Review (NSR). The removal from the permit of the limits in pounds/ton of throughput or "emission factor limits" would facilitate resolution of two appeals to the Illinois' Pollution Control Board (PCB) PCB 2013-053 and PCB 2013-062. Both appeals indirectly address the emission factor limits in Permit 95010001. PCB 2013-053 addresses these limits as the revised Clean Air Act Permit Program (CAAPP) permit for the facility (Permit 96030056) issued in 2013 repeats these limits as originally set by Permit 95010001. PCB 2013-062 addresses Construction Permit 11050006, a 2013 construction permit for improvements to the particulate control for the BOFs, as, for the BOFs, it also refers to these limits. US Steel appealed the subject limits because, when issuing the revised CAAPP permit for the facility in 2013, the Illinois EPA explicitly explained that these provisions were considered enforceable limits on emissions. In this regard, the revised CAAPP permit would require US Steel to conduct appropriate periodic monitoring to verify compliance with these limits (e.g., see the "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," pages 20 through 26).

With regard to the current limits for the annual emissions 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 of 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 new limits for annual emissions would be rolled monthly, restricting emissions over each 12 consecutive month period. The requested limits would theoretically be less stringent than the current limits as any "overage" of emissions by particular unit(s) in a group of units could potentially be compensated for by lower levels of emissions by other units in the group.

Incidentally, these appeals only challenge 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.

[31] 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

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, separate limits on short-term emissions, such as the current limits in Permit 95010001 in pounds/ton of throughput, 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, 33] However, the 2022 application does not show that the 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

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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.

[32] 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).

[33] 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."
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> 2022 application, Footnote 11.

units.[34] 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.[35]

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[34] 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 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.

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.

[35] 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. 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 is 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.
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> 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.
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> 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.
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> Footnote 6. This is consistent with prior EPA practice in appropriate circumstances. See e.g., Memorandum entitles "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.")
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> 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 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.
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> 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 two by-product coke oven batteries. While the limits for fuel usage currently in Permit 95010001 may no longer be relevant, as generally addressed above,[36] this does not mean that other limits for fuel usage are not appropriate. In this regard, the 2022 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 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.

[36] 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 EPRESENTATIVE

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, to calculate ongoing 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.
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> 2022 application, Section 3, p. 3

The emission factors used in the 2022 application that have not been shown to be representative are ones that, based on the application, do not appear to have been developed by USEPA or derived using formulas or other methodology developed by USEPA.[37]

Roof Monitor on the Basic Oxygen Furnace Shop – Particulate Emissions:
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

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[37] With regard to use of emission factors developed by USEPA, as support for the use of annual emission caps to limit potential emissions, the 2022 application refers to USEPA's permitting of *Shell Offshore, Inc.*, as well as to the permitting of *Tucson Electric*. In the USEPA's Environmental Appeals Board's (EAB) decision for *Shell Offshore, Inc.*, the EAB implies that that it is preferable that compliance with emission limits set by a permit be determined using source-specific emission factors. However, the EAB observed that it may be appropriate for a permit to prescribe that specific emission factors published by USEPA in its *Compilation of Air Pollutant Emission Factors* (AP-42) be used for certain emission units for purposes of determining emissions for compliance with emission limits set by the permit. The EAB's Order does not address use of emission factors that are not from AP-42 or derived from source-testing, presumably because the permit under appeal did not prescribe use of such factors. In this regard, in its decision on Shell Offshore, Inc., the EAB observed,

> 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 unit 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.
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> 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.

particulate emission rates for the roof monitor on the basic oxygen furnace shop.[38, 39] 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 blast furnace shop that are proposed as prescribed emission factors in Section 5.5.2.2 of the application are representative.[40]

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

[38] 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.

[39] 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).

[40] 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 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 routine operation with those control measures were present and 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 that information showing that an emission rate of 0.009 pounds/hour should be considered representative of the emissions of this unit.[41]

[41] 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.[42] 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.[43, 44]

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[42] 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)

[43] 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.

[44] 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 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.[45]
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.

[45] 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.")[46]

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. (As this 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.)

[46] 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.

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.[47, 48]

Absence of A Request for Revisions for the "Deslagging Station and Material HS":

[47] 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.

[48] 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).[49] 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)).[50] 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 BOF shop. In this regard, for the argon stirring station, US Steel explains 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 CCFR 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 BOPF shop ancillary

[49] 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).

[50] 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.
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> CAAPP Renewal Application, Appendix D: Process Descriptions, Section 7.6 Continuous Casting, Deslagging Station, p. D-56.

operations.[51] Slag skimming is one of the operations that 40 CFR 63.7852 defines as being "Basic oxygen process furnace shop ancillary operations."[52, 53]

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.[54]

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[51] 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.

[52] 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."

[53] 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)).

[54] 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 BOF shop, the limit for the NOx emissions of the BOF 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 Permit 95010001 that would facilitate revisions to the CAAPP permit to be made by administrative amendment to allow prescribed emission factors to be used to calculate emissions of certain emission units rather than "appropriate emission factors." In this regard, Permit 95010001 currently does not specify how emissions are to be determined for purpose of evaluating compliance with the emission limits that are set by the permit, much less specify that, for certain emission units, prescribed emission factors are to be used for this purpose. Accordingly, the procedures to determine compliance with the emission limits set by Permit 95010001 were established in the CAAPP permit. This is because the emission limits set by Permit 95010001 are applicable requirements under the CAAPP. The procedures established in the CAAPP permit do not provide for the use of prescribed emission factors. Rather, these procedures generally require US Steel to use "appropriate emission factors," i.e., emission factors that do not understate emissions, accompanied by recordkeeping and reporting for the emission factors that are being used. While the 2022 application requests revisions to Permit 95010001 to require use of prescribed emission factors for certain units, it does not address the fact that the CAAPP permit currently does not accommodate the use of prescribed emission factors to calculate emissions of certain emission units. Instead, the CAAPP permit requires use of "appropriate emission factors."[55]

[55] In should also be noted that in PCB 2013-0053, 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 2013-0053 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.[56] 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 this as 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.[57] 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.[58]

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**

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[56] 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

[57] 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.

[58] 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.[59, 60]

[59] 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 2013-0062, 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.

[60] 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 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.[61,62] 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.[63] It

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

[62] 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."

[63] 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.[64] 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.[65] 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 CAAPP permit issued for sources accurately identify or address the emission units that constitute the sources.

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.

[64] 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.

[65] 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.

16. 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.

17. AS RELATED TO SO_2 EMISSIONS FROM USE OF BFG, THE 2022 APPLICATION IS INCONSISTENT WITH A PENDING 2008 APPLICATION

In 2008, US Steel submitted an application, which was received on February 4, 2008, 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. The 2022 application is inconsistent with and conflicts with the 2008 application for revision to Permit 95010001. 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 requests such changes, 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. With the revised emission factor, the permitted SO_2 emissions from use of the 185,030 million cubic feet of BFG per year allowed by the permit would increase from 615.22 to 1480.24 tons/year. By contrast, as the 2022 application provides that the limits for SO_2 for use of BFG should be unchanged, this application indicates for BFG that the revised permit that is requested should continue to have an emission factor limit of 6.65 pounds of SO_2/million cubic feet and an SO_2 annual emission limit of 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. In this regard, the 2022 application 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.

18. 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.][66, 67] For CO, the 2022 application does not request revisions to the only limits in Permit 95010001 for CO emissions from a process operation, i.e., the limits for CO emissions of the basic oxygen furnaces that occur through the ESP stack.[68, 69]

As a general matter, as the 2022 application does not propose revisions to current permit limits for emissions of SO_2, CO and lead, this application is inconsistent with two pending permit

---

[66] 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.]

[67] Permit 95010001 currently limits SO_2 emissions from individual blast furnace operations in pounds per ton of iron produced and tons per year. For example, the SO_2 emissions of the main casthouse baghouse, the iron spout baghouse, and uncaptured emissions of the blast furnaces are limited, respectively, to 0.2006, 0.0073 and 0.0104 pounds per ton of iron produced. (Permit 95010001, Condition 5 and Table 1, for, respectively, the Casthouse Baghouse, Iron Spout Baghouse and Blast Furnace - uncaptured emissions.)

For operations in the basic oxygen furnace shop, Permit 95010001 currently limits lead emissions in pounds/hour and tons/year. For example, the lead emissions of the ESP stack and roof monitor are limited to 0.01934 and 0.0129 pounds/hour, respectively. (Permit 9501001, Condition 18 and Table 2, for, respectively, the BOF ESP Stack and BOF Roof Monitor.).

[68] 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 captured CO emissions that now occur from the baghouse stack or any uncaptured CO emissions, which occur through the roof monitor.

[69] The 2022 application does request revisions to Permit 95010001 to address the CO emissions of the casthouse for the blast furnaces. In the original application, the casthouse was not identified as a source of CO and data for CO emissions was not provided. The application also requests certain updates to the data for CO emissions from burning blast furnace gas and natural gas in Project-affected fuel burning units.

appeals before the Board, PCB 0013-0053 and PCB 0013-0062. 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 no longer extend to the emission factor limits set for SO_2, CO and lead.[70] In addition, US Steel does not explain in the 2022 application why the emission factor limits currently set by Permit 95010001 for SO_2, CO and lead are no longer considered to be objectionable. That is, US Steel would not again challenge those limits as it has already done in PCB 0013-0053 and PCB 0013-0062 if a revised permit continued to include the current emission factor limits.[71]

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 emission limits address only emissions of 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 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.[72]

---

[70] The permit limits for emission of lead in pounds per hour are considered within the scope of the term "emission factor limits." In Permit 95010001, these emission limits are listed under the heading of "Emission Factor," along with the emission limits for other pollutants in pounds per ton of throughput.

[71] 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.

[72] 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 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."

19. 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.

FOOTNOTES

In the actual draft of this denial that is released for the public comment period, footnotes would be located at end of the document rather being in the body of the document. This would be done because the footnotes provide additional background to the denial points for US Steel and the various interested parties, rather than being essential components of the denial points.

CPR 6/2/23

Cass, Rylee

From: Patel, Minesh
Sent: Thursday, June 4, 2015 8:19 AM
To: Carter, Sally
Subject: Accepted: USS

Pritchett, Jacob A.

From: Romaine, Chris
Sent: Thursday, June 4, 2015 11:09 AM
To: Carter, Sally
Subject: Accepted: USS

Kras, Kim

From: Romaine, Chris
Sent: Monday, June 8, 2020 9:42 AM
To: Carter, Sally
Cc: Patel, Minesh
Subject: FW: USS Granite City Works PSD Permit ESA and NHPA Consultation
Attachments: RE: USS Granite City Works PSD Permit NHPA Consultation; RE: USS Granite City Works PSD Permit NHPA Consultation

Yi

From: Gurinder (Gary) Saini <saini@rtpenv.com>
Sent: Monday, June 1, 2020 8:52 AM
To: Romaine, Chris <Chris.Romaine@Illinois.gov>; Patel, Minesh <Minesh.Patel@Illinois.gov>
Cc: Colin Campbell <campbell@rtpenv.com>; Hacker, David W (DWHacker@uss.com) <DWHacker@uss.com>; Michalik, Sarah K <skmichalik@uss.com>; Carter, Sally <Sally.Carter@Illinois.gov>; LaDonna Driver (LaDonna.Driver@heplerbroom.com) <LaDonna.Driver@heplerbroom.com>; Christopher W Hardin - United States Steel Corporation (CWHardin@uss.com) <CWHardin@uss.com>
Subject: [External] USS Granite City Works PSD Permit ESA and NHPA Consultation

We received via email, responses from U.S. EPA regarding ESA and NHPA consultation for the pending USS Granite City Works permit revision application. The U.S. EPA confirms that no additional action is required for these consultations.

Attached are the emails we received in this regard. Please let us know if you have any questions or need anything else in this regard.

Regards

GS
(919) 845-1422, 42
(919) 533-4558

State of Illinois - CONFIDENTIALITY NOTICE: The information contained in this communication is confidential, may be attorney-client privileged or attorney work product, may constitute inside information or internal deliberative staff communication, and is intended only for the use of the addressee. Unauthorized use, disclosure or copying of this communication or any part thereof is strictly prohibited and may be unlawful. If you have received this communication in error, please notify the sender immediately by return e-mail and destroy this communication and all copies thereof, including all attachments. Receipt by an unintended recipient does not waive attorney-client privilege, attorney work product privilege, or any other exemption from disclosure.

Kras, Kim

From: Lim, YeChan <lim.yechan@epa.gov>
Sent: Friday, May 29, 2020 10:32 AM
To: Gurinder (Gary) Saini; Ogulei, David
Cc: Marcus, Danny; Damico, Genevieve; Colin Campbell; Michalik, Sarah K; Christopher W Hardin - United States Steel Corporation (CWHardin@uss.com)
Subject: RE: USS Granite City Works PSD Permit NHPA Consultation

Hello,
Based on the potential emission increases for this project and the land use land cover (LULC) analysis provided, we are making a no effect determination for this project.

Thank you.

YeChan Lim
Environmental Engineer
U.S. Environmental Protection Agency – Region 5
Air and Radiation Division | Air Permits Section
77 W. Jackson Blvd., Chicago, IL 60604 (AR-18J)
Phone: (312) 886-7259
Email: lim.yechan@epa.gov

From: Gurinder (Gary) Saini <saini@rtpenv.com>
Sent: Wednesday, May 27, 2020 3:35 PM
To: Ogulei, David <Ogulei.David@epa.gov>
Cc: Marcus, Danny <marcus.danny@epa.gov>; Lim, YeChan <lim.yechan@epa.gov>; Damico, Genevieve <damico.genevieve@epa.gov>; Colin Campbell <campbell@rtpenv.com>; Michalik, Sarah K <skmichalik@uss.com>; Christopher W Hardin - United States Steel Corporation (CWHardin@uss.com) <CWHardin@uss.com>
Subject: RE: USS Granite City Works PSD Permit NHPA Consultation

Thanks for your email response. We really appreciate your help in this regard and will forward your email to Illinois EPA.

Meanwhile, we haven't heard from Rachel regarding ESA consultation for this project. Do you have any information regarding the ESA process or know if Rachel needs anything else?

Regards

GS
(919) 845-1422, 42
(919) 533-4558

> **From:** Ogulei, David <Ogulei.David@epa.gov>
> **Sent:** Wednesday, May 27, 2020 16:20
> **To:** Gurinder (Gary) Saini <saini@rtpenv.com>
> **Cc:** Marcus, Danny <marcus.danny@epa.gov>; Lim, YeChan <lim.yechan@epa.gov>; Damico, Genevieve <damico.genevieve@epa.gov>; Colin Campbell <campbell@rtpenv.com>; Michalik, Sarah K <skmichalik@uss.com>; Christopher W Hardin - United States Steel Corporation (CWHardin@uss.com)

<CWHardin@uss.com>; Jeffery.kruchten@illinois.gov
Subject: RE: USS Granite City Works PSD Permit NHPA Consultation

Gary,

The U.S. Environmental Protection Agency has reviewed the attached cultural resource assessment you submitted on behalf of U.S. Steel Granite City Works (USSGCW), on March 24 and May 22, 2020. The submittal includes a finding by the Illinois Deputy State Historic Preservation Officer, dated May 1, 2020, that "no significant historic, architectural or archaeological resources are located within the proposed project area."

Section 106 of the National Historic Preservation Act (NHPA) requires Federal agencies to take into account the effects of their undertakings on historic properties, and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings. If the Federal agency determines that an undertaking, as defined in 40 C.F.R § 800.16(y), does not have the potential to cause effects on historic properties, assuming such historic properties were present, the agency official has no further obligations under section 106 or 36 C.F.R. Part 800. For this permit action, EPA has determined that the undertaking is not likely to affect historic properties; therefore, no further action is required under Section 106 of the NHPA.

If there are any questions regarding this determination, please contact me.

David Ogulei
U.S. Environmental Protection Agency
Region 5 | Air & Radiation Division | AR-18J
77 West Jackson Blvd. | Chicago, Illinois 60604
Phone: (312) 353-0987 | Ogulei.David@epa.gov

From: Gurinder (Gary) Saini <saini@rtpenv.com>
Sent: Friday, May 22, 2020 8:09 AM
To: Ogulei, David <Ogulei.David@epa.gov>
Cc: Marcus, Danny <marcus.danny@epa.gov>; Lim, YeChan <lim.yechan@epa.gov>; Damico, Genevieve <damico.genevieve@epa.gov>; Colin Campbell <campbell@rtpenv.com>; Michalik, Sarah K <skmichalik@uss.com>; Christopher W Hardin - United States Steel Corporation (CWHardin@uss.com) <CWHardin@uss.com>
Subject: RE: USS Granite City Works PSD Permit ESA and NHPA Consultation

Attached are the responses to the questions/comments in the email below. Sorry for the late response but it took us some time to get information from State Historic Preservation Office (under the current stay-at-home conditions).

Please let us know if you need anything else or have any other questions.

Regards

GS
(919) 845-1422, 42
(919) 533-4558

From: Ogulei, David <Ogulei.David@epa.gov>
Sent: Tuesday, March 24, 2020 17:01
To: Gurinder (Gary) Saini <saini@rtpenv.com>
Cc: Marcus, Danny <marcus.danny@epa.gov>; Lim, YeChan <lim.yechan@epa.gov>; Damico, Genevieve

<damico.genevieve@epa.gov>
Subject: RE: USS Granite City Works PSD Permit ESA and NHPA Consultation

Gary,

EPA has reviewed the cultural resource and endangered species assessment you submitted on March 24, 2020. U.S. Steel Granite City Works is proposing to revise limitations and requirements contained in an existing construction permit for the blast furnaces and basic oxygen process furnace shop at the Granite City Works facility. We have determined that we need additional information before we can determine the level of consultation necessary for the project. Specifically, please submit the following information to facilitate our review of the project under the ESA and NHPA:

1. Complete description of the project, including a quantification of all emissions increases expected from the project. To address this request, please identify and quantify all pollutants, including any hazardous air pollutants, that will increase due to the project;
2. List of historic and eligible historic properties within the project's "area of potential effects." Historic and eligible properties are available from the National Park Service (https://www.nps.gov/subjects/nationalregister/index.htm) and the Illinois State Historic Preservation Office (https://www2.illinois.gov/dnrhistoric/Preserve/Pages/Contact-Staff.aspx). For purposes of this project, the "area of potential effects," is the area within a three-mile radius of the facility as measured from the centroid of the project's geographical footprint;
3. Map of facility in relation to historic properties;
4. Identification of any excavation areas;
5. Identification of any interests by Tribal entities and/or local preservation societies, or other interested parties.

If you have any questions, do not hesitate to contact me.

David Ogulei
U.S. Environmental Protection Agency
Region 5 | Air & Radiation Division | AR-18J
77 West Jackson Blvd. | Chicago, Illinois 60604
Phone: (312) 353-0987 | Fax: (312) 692-2080
Ogulei.David@epa.gov

From: Ogulei, David
Sent: Tuesday, March 24, 2020 10:28 AM
To: Gurinder (Gary) Saini <saini@rtpenv.com>
Cc: Marcus, Danny <marcus.danny@epa.gov>; Lim, YeChan <lim.yechan@epa.gov>; Rineheart, Rachel <Rineheart.Rachel@epa.gov>
Subject: RE: USS Granite City Works PSD Permit ESA and NHPA Consultation

Gary,

Thank you this information. We will get back to you once we've had a chance to review the project information you shared.

David Ogulei
U.S. Environmental Protection Agency
Region 5 | Air & Radiation Division | AR-18J
77 West Jackson Blvd. | Chicago, Illinois 60604
Phone: (312) 353-0987 | Ogulei.David@epa.gov

From: Gurinder (Gary) Saini <saini@rtpenv.com>
Sent: Tuesday, March 24, 2020 8:12 AM
To: Ogulei, David <Ogulei.David@epa.gov>
Cc: Colin Campbell <campbell@rtpenv.com>; Michalik, Sarah K <skmichalik@uss.com>; Christopher W Hardin - United States Steel Corporation (CWHardin@uss.com) <CWHardin@uss.com>; Chris Romaine (Chris.Romaine@Illinois.gov) <Chris.Romaine@Illinois.gov>; Patel, Minesh <Minesh.Patel@illinois.gov>
Subject: USS Granite City Works PSD Permit ESA and NHPA Consultation

Mr. Ogulei,

U.S. Steel Granite City Works is an existing iron and steel manufacturing facility located in Granite City, Illinois. As you may already know, Illinois EPA is currently reviewing a PSD permit application to revise some of the CO emission limits for the existing combustion units at the facility. This application does not involve any new construction activity at the site.

Attached is a letter from U.S. Steel detailing anticipated air quality impacts and potential threatened or endangered species for your use in initiating a consultation with the US Fish and Wildlife Service or if this application meets the "no effect determination." Also, please let us know if NHPA cultural resource assessment is required for this application.

If you have any questions or need additional information, please do not hesitate to contact me or Sarah Michalik of U.S. Steel at (412) 433-7302 or skmichalik@uss.com.

Regards

Gurinder (Gary) Saini
RTP Environmental Associates Inc.
304A West Millbrook Road
Raleigh, NC 27609
(919) 845-1422, 42
(919) 533-4558

Kras, Kim

From: Ogulei, David <Ogulei.David@epa.gov>
Sent: Wednesday, May 27, 2020 3:20 PM
To: Gurinder (Gary) Saini
Cc: Marcus, Danny; Lim, YeChan; Damico, Genevieve; Colin Campbell; Michalik, Sarah K; Christopher W Hardin - United States Steel Corporation (CWHardin@uss.com); Kruchten, Jeffery
Subject: RE: USS Granite City Works PSD Permit NHPA Consultation
Attachments: State HPA Background Draft - final.pdf; USSGCW NHPA Supplement May 2020.pdf

Gary,

The U.S. Environmental Protection Agency has reviewed the attached cultural resource assessment you submitted on behalf of U.S. Steel Granite City Works (USSGCW), on March 24 and May 22, 2020. The submittal includes a finding by the Illinois Deputy State Historic Preservation Officer, dated May 1, 2020, that "no significant historic, architectural or archaeological resources are located within the proposed project area."

Section 106 of the National Historic Preservation Act (NHPA) requires Federal agencies to take into account the effects of their undertakings on historic properties, and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings. If the Federal agency determines that an undertaking, as defined in 40 C.F.R § 800.16(y), does not have the potential to cause effects on historic properties, assuming such historic properties were present, the agency official has no further obligations under section 106 or 36 C.F.R. Part 800. For this permit action, EPA has determined that the undertaking is not likely to affect historic properties; therefore, no further action is required under Section 106 of the NHPA.

If there are any questions regarding this determination, please contact me.

David Ogulei
U.S. Environmental Protection Agency
Region 5 | Air & Radiation Division | AR-18J
77 West Jackson Blvd. | Chicago, Illinois 60604
Phone: (312) 353-0987 | Ogulei.David@epa.gov

From: Gurinder (Gary) Saini <saini@rtpenv.com>
Sent: Friday, May 22, 2020 8:09 AM
To: Ogulei, David <Ogulei.David@epa.gov>
Cc: Marcus, Danny <marcus.danny@epa.gov>; Lim, YeChan <lim.yechan@epa.gov>; Damico, Genevieve <damico.genevieve@epa.gov>; Colin Campbell <campbell@rtpenv.com>; Michalik, Sarah K <skmichalik@uss.com>; Christopher W Hardin - United States Steel Corporation (CWHardin@uss.com) <CWHardin@uss.com>
Subject: RE: USS Granite City Works PSD Permit ESA and NHPA Consultation

Attached are the responses to the questions/comments in the email below. Sorry for the late response but it took us some time to get information from State Historic Preservation Office (under the current stay-at-home conditions).

Please let us know if you need anything else or have any other questions.

Regards

GS
(919) 845-1422, 42
(919) 533-4558

From: Ogulei, David <Ogulei.David@epa.gov>
Sent: Tuesday, March 24, 2020 17:01
To: Gurinder (Gary) Saini <saini@rtpenv.com>
Cc: Marcus, Danny <marcus.danny@epa.gov>; Lim, YeChan <lim.yechan@epa.gov>; Damico, Genevieve <damico.genevieve@epa.gov>
Subject: RE: USS Granite City Works PSD Permit ESA and NHPA Consultation

Gary,

EPA has reviewed the cultural resource and endangered species assessment you submitted on March 24, 2020. U.S. Steel Granite City Works is proposing to revise limitations and requirements contained in an existing construction permit for the blast furnaces and basic oxygen process furnace shop at the Granite City Works facility. We have determined that we need additional information before we can determine the level of consultation necessary for the project. Specifically, please submit the following information to facilitate our review of the project under the ESA and NHPA:

1. Complete description of the project, including a quantification of all emissions increases expected from the project. To address this request, please identify and quantify all pollutants, including any hazardous air pollutants, that will increase due to the project;
2. List of historic and eligible historic properties within the project's "area of potential effects." Historic and eligible properties are available from the National Park Service (https://www.nps.gov/subjects/nationalregister/index.htm) and the Illinois State Historic Preservation Office (https://www2.illinois.gov/dnrhistoric/Preserve/Pages/Contact-Staff.aspx). For purposes of this project, the "area of potential effects," is the area within a three-mile radius of the facility as measured from the centroid of the project's geographical footprint;
3. Map of facility in relation to historic properties;
4. Identification of any excavation areas;
5. Identification of any interests by Tribal entities and/or local preservation societies, or other interested parties.

If you have any questions, do not hesitate to contact me.

David Ogulei
U.S. Environmental Protection Agency
Region 5 | Air & Radiation Division | AR-18J
77 West Jackson Blvd. | Chicago, Illinois 60604
Phone: (312) 353-0987 | Fax: (312) 692-2080
Ogulei.David@epa.gov

From: Ogulei, David
Sent: Tuesday, March 24, 2020 10:28 AM
To: Gurinder (Gary) Saini <saini@rtpenv.com>
Cc: Marcus, Danny <marcus.danny@epa.gov>; Lim, YeChan <lim.yechan@epa.gov>; Rineheart, Rachel

<Rincheart.Rachel@epa.gov>
Subject: RE: USS Granite City Works PSD Permit ESA and NHPA Consultation

Gary,

Thank you this information. We will get back to you once we've had a chance to review the project information you shared.

David Ogulei
U.S. Environmental Protection Agency
Region 5 | Air & Radiation Division | AR-18J
77 West Jackson Blvd. | Chicago, Illinois 60604
Phone: (312) 353-0987 | Ogulei.David@epa.gov

From: Gurinder (Gary) Saini <saini@rtpenv.com>
Sent: Tuesday, March 24, 2020 8:12 AM
To: Ogulei, David <Ogulei.David@epa.gov>
Cc: Colin Campbell <campbell@rtpenv.com>; Michalik, Sarah K <skmichalik@uss.com>; Christopher W Hardin - United States Steel Corporation (CWHardin@uss.com) <CWHardin@uss.com>; Chris Romaine (Chris.Romaine@Illinois.gov) <Chris.Romaine@Illinois.gov>; Patel, Minesh <Minesh.Patel@illinois.gov>
Subject: USS Granite City Works PSD Permit ESA and NHPA Consultation

Mr. Ogulei,

U.S. Steel Granite City Works is an existing iron and steel manufacturing facility located in Granite City, Illinois. As you may already know, Illinois EPA is currently reviewing a PSD permit application to revise some of the CO emission limits for the existing combustion units at the facility. This application does not involve any new construction activity at the site.

Attached is a letter from U.S. Steel detailing anticipated air quality impacts and potential threatened or endangered species for your use in initiating a consultation with the US Fish and Wildlife Service or if this application meets the "no effect determination." Also, please let us know if NHPA cultural resource assessment is required for this application.

If you have any questions or need additional information, please do not hesitate to contact me or Sarah Michalik of U.S. Steel at (412) 433-7302 or skmichalik@uss.com.

Regards

Gurinder (Gary) Saini
RTP Environmental Associates Inc.
304A West Millbrook Road
Raleigh, NC 27609
(919) 845-1422, 42
(919) 533-4558

United States Steel Corporation
1350 Penn Avenue
Pittsburgh, PA 15222

VIA EMAIL

April 9, 2020

Illinois Department of Natural Resources
Illinois State Historic Preservation Office
Attn: Review and Compliance
1 Old State Capitol Plaza
Springfield, IL 62701

Subject: **Request State Historic Preservation Officer Review**
Background Information for the Revision to the 1996 PSD Permit for Expansion Project at U.S. Steel Granite City Works
Permit application under review with Illinois Environmental Protection Agency

Dear Madam / Sir:

U. S. Steel ("USS") owns and operates an integrated iron and steel manufacturing facility in Granite City, Illinois ("Granite City Works" or "GCW"). USS submitted a permit application to Illinois Environmental Protection Agency ("IEPA") requesting revisions of certain limitations and requirements for the blast furnaces and basic oxygen process furnace ("BOPF") shop at Granite City Works, which are contained in the Construction Permit 95010001 ("Revision of 1996 Construction Permit"). This request does not involve any physical changes for GCW. This letter provides initial documentation requested by Illinois Department of Natural Resources for Illinois State Historic Preservation Officer review.

Background
USS operates two blast furnaces, a BOPF shop, and other associated equipment/operations at Granite City Works to produce steel products. The site address is:

20th and State Street
Granite City, IL 62040

In February 2020, USS applied for a revision to a prevention of significant deterioration (PSD) permit in order to revise some of the carbon monoxide (CO) emissions limits for the existing operations. The 1996 Construction Permit authorized iron and steel production increases at GCW and established CO emission limitations for some of the fuel combustion operations as part of the PSD review. The USS requested permit revisions involve changes to the emission factors for some of the fuels and update the annual CO emission limitations. This permit revision is also subject to PSD review for CO.

Site Description
Granite City Works is located near the Illinois – Missouri border in south central Illinois. The site is 1,040 acres in Madison County, near the city of St Louis, as illustrated in Figure 1. The approximate centering UTM coordinates (Zone 15, NAD83) for the plant are X = 749,000 meters; Y = 4,287,000 meters. The facility is situated at an elevation of approximately 416 feet above mean sea level. The terrain is generally level in the immediate vicinity of the facility.

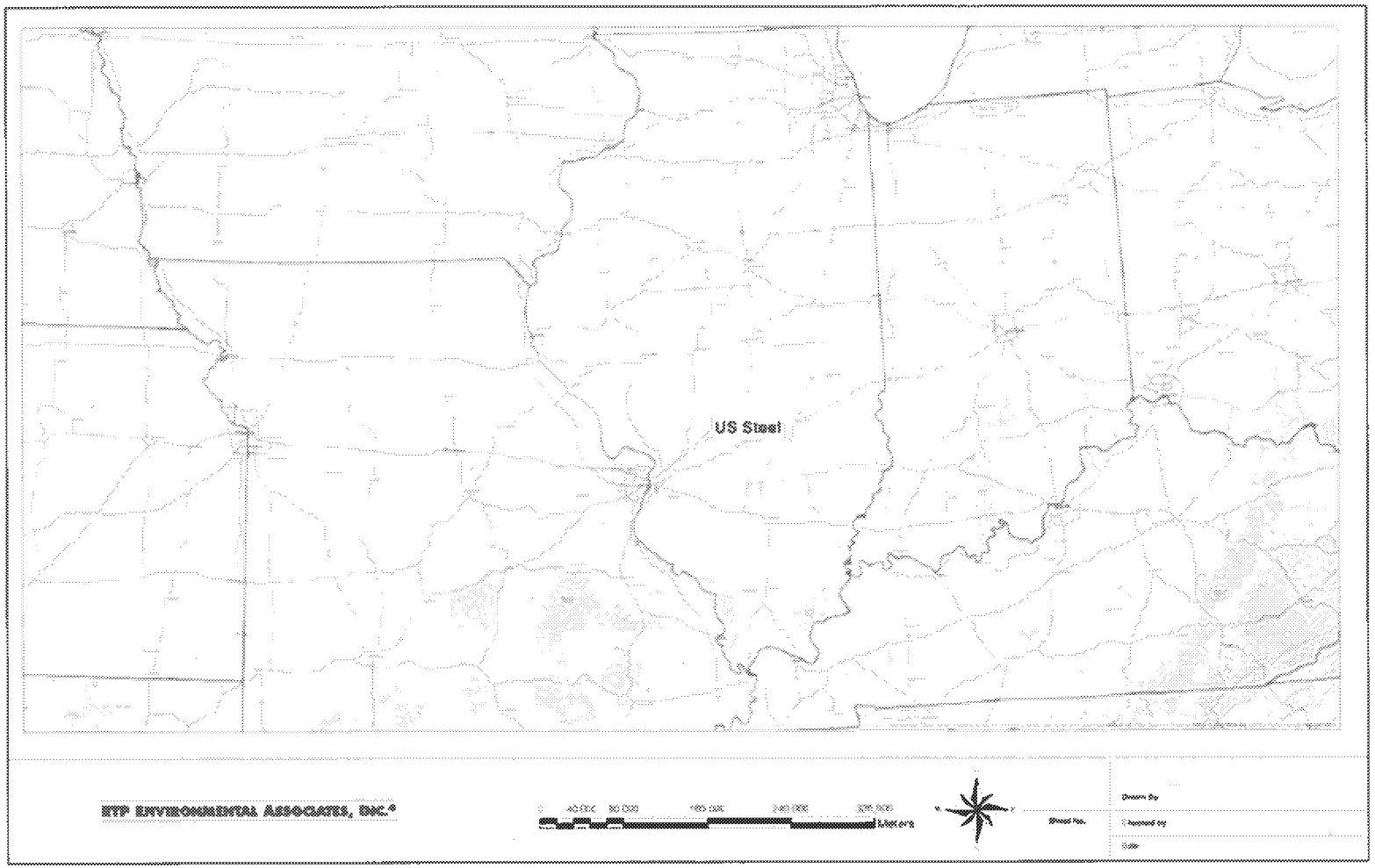


Figure 1. Regional Map

R003604

Structure Impacts

The 1996 Construction Permit involved changes in permitted production limits. There were no physical or structural changes at the site. Similarly, the proposed revisions to the 1996 Construction Permit by USS also do not involve any physical or structural changes at the site.

USS is not aware of any structural or archaeological cultural resources effected within the community. Please let us know if you need any other information to complete State Agency Historic Resource Protection Act or National Historic Preservation Act. If you have any questions on the information in this document or you need to reach us, please contact me at slmichalik@uss.com or (412) 433-7302 or Gary Saini at saini@ripenv.com or (919) 845-1422 x 42.

Sincerely,
United States Steel Corporation



Sarah Michalik
Environmental Engineer

Responses to the items in David Ogulei's email dated March 24, 2020.

Item 1. Complete description of the project, including a quantification of all emissions increases expected from the project. To address this request, please identify and quantify all pollutants, including any hazardous air pollutants, that will increase due to the project.

USS Response *On March 2, 2020 U. S. Steel (USS) submitted a permit application to revise the 1996 Construction Permit (Permit Number 95010001) ("2020 Application"). The 1996 Construction Permit issued by Illinois EPA authorized National Steel (prior owners of Granite City Works) to increase throughput and fuel use at the iron and steel manufacturing facility ("1996 Project"). The 1996 Project was a major modification for SO_2 and CO. Net emissions increases for PM, PM10, NO_x, and VOM were below the applicable significant emission rates. The table below presents a summary of net emissions increases as calculated by National Steel for the 1996 Construction Permit.*

1996 Construction Permit	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

As part of the 2020 Application, as shown in the table below, USS is requesting revisions to CO emission rates for the 1996 Project affected combustion units to correct and update CO emission factors for gaseous fuels (natural gas and blast furnace gas). The CO emission limits in the 1996 permit were based upon emission factors published in version of AP-42 in effect at that time. The permit action is not based upon any actual increase of CO, but rather, it is based upon better information regarding CO that has developed since National Steel submitted the application for the 1996 project and the corresponding permit was issued by IEPA. The CO emission factors were updated based on the revised AP-42 Chapter 1.4 for natural gas combustion (Supplement D from July 1998) and CO testing conducted at units combusting blast furnace gas at Granite City Works and other representative facilities.

Permitted emissions of PM, PM10, NO_x, and VOM will decrease relative to the de minimis rates originally permitted for the 1996 Project, as shown in the table below. (No calculations have been performed for hazardous air pollutants, but it is reasonable to expect there will be no increases, as PM and VOM emission rates are decreasing relative to the current permitted levels.) No changes are proposed for SO_2 and Pb emissions as permitted in 1996. ("Contemporaneous" in the table refers to the period contemporaneous with the 1996 Project.")

2020 Application	Emissions (tons/year)						
	PM	PM10	NO_x	[redacted]	CO	VOM	[redacted]
Project Emissions Increases	-50.5	50.3	262.8		23,737.6	38.5	
Contemporaneous Decreases	-58.0	-58.0	-226.5		-23.31	-32.8	
Contemporaneous Increases	0	16.6	0		11.8	0	
Net Emissions Increases	**-108.5**	**8.9**	**36.3**		**23,726**	**5.7**	
Significant Emission Rate	25.0	15.0	40.0		100.0	40.0	

Neither the 1996 Project nor the 2020 Application involve any physical changes at the Granite City Works. The fuel burning emissions units affected by the requested changes to the CO emissions rates are:

(a) Blast Furnace Stoves,
(b) Blast Furnace Flare 1,
(c) Boilers 11 and 12,
(d) Ladle Drying Preheaters, and
(e) Ancillary Fuel Burning Units at the Continuous Casters.

As part of the 2020 Application, USS completed areawide CO air dispersion modeling that includes the operations at Granite City Works and the other offsite facilities. Results of the CO NAAQS analysis are summarized in the table below.

Averaging Period	*CO Modeled Concentration ($\mu g/m^3$)*	*CO Backgroumd Concentration ($\mu g/m^3$)*	*CO Total Concentration ($\mu g/m^3$)*	*CO NAAQS ($\mu g/m^3$)*
1-hour	*3,414*	*2,286*	*5,700*	*40,000*
8-hour	*1,941*	*1,349*	*3,290*	*10,000*

The air dispersion modeling confirmed that the modeled CO impacts remain below the applicable CO NAAQS for all averaging periods.

Item 2. List of historic and eligible historic properties within the project's "area of potential effects." Historic and eligible properties are available from the National Park Service (https://www.nps.gov/subjects/nationalregister/index.htm) and the Illinois State Historic Preservation Office (https://www2.illinois.gov/dnrhistoric/Preserve/Pages/Contact-Staff.aspx). For purposes of this project, the "area of potential effects," is the area within a three-mile radius of the facility as measured from the centroid of the project's geographical footprint.

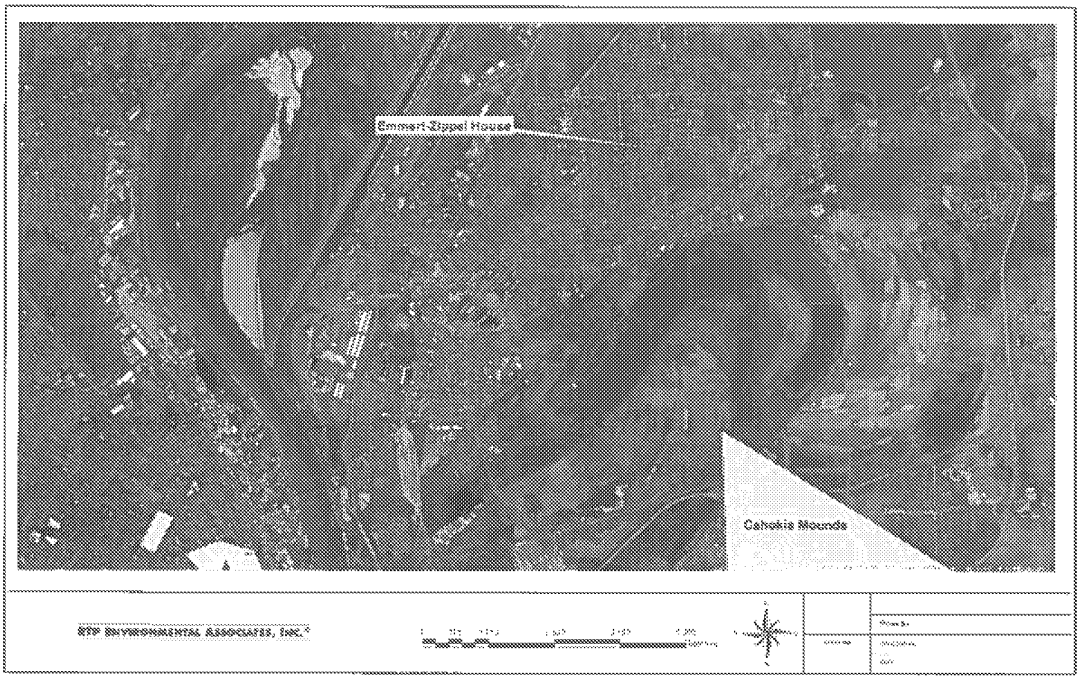
USS Response *A list of historic and eligible historic properties within the project's area of potential effects is provided below.*

S No.	Ref #	Property Name	Address
1	96000511	Emmert--Zippel House	3279 Maryville Rd., 2mi. N of IL 162, Granite City
2	100001564	Granite City YMCA	2001 Edison Ave., Granite City (not shown on the map)
3	80001396	Horseshoe Lake Mound and Village Site	Restricted site (not shown on the map)
4	66000899	Cahokia Mounds	7850 Collinsville Rd., Cahokia Mounds State Park, Collinsville (may fall outside the 3 mile distance)

Also, attached is a letter from Illinois Department of Natural Resources confirming "..that no significant historic, architectural or archeological resources are located within the proposed project area."[1]

Item 3. Map of facility in relation to historic properties.

USS Response *The requested map is provided below.*



[1] Letter from Robert F. Appleman, Deputy State Historic Preservation Officer, Illinois Department of Natural Resources to Sara Michalik of USS, May 1, 2020. Note – the letter erroneously refers storm water permit. This letter was issued in response to the letter from USS outlining air permit application information for Granite City.

Item 4. Identification of any excavation areas.

USS Response *There is no excavation – indeed no physical changes of any type – In conjunction with either the 1996 Project or the 2020 Application.*

Item 5. Identification of any interests by Tribal entities and/or local preservation societies, or other interested parties.

USS Response *American Bottom Conservancy (ABC) is an interested party in the 2020 Application project. In addition, on or about March 24, 2020, Illinois EPA issued and distributed an Environmental Justice notice notifying potentially interested parties of the pending permit application.*

ILLINOIS DEPARTMENT OF NATURAL RESOURCES

Illinois Department of Natural Resources

One Natural Resources Way Springfield, Illinois 62702-1271
www.dnr.illinois.gov

JB Pritzker, Governor
Colleen Callahan, Director

Mailing address: State Historic Preservation Office, 1 Old State Capitol Plaza, Springfield, IL 62701

Madison County
Granite City
20th & State Street
IEPA
General Permit to discharge storm water-PERMIT ONLY - US Steel Granite City Works

PLEASE REFER TO: SHPO LOG #008041520

May 1, 2020

Sarah Michalik
United States Steel Corporation
1350 Penn Avenue
Pittsburgh, PA 15222

Dear Ms. Michalik:

The Illinois State Historic Preservation Office is required by the Illinois State Agency Historic Resources Preservation Act (20 ILCS 3420, as amended, 17 IAC 4180) to review all state funded, permitted or licensed undertakings for their effect on cultural resources. Pursuant to this, we have received information regarding the referenced project for our comment.

Our staff has reviewed the specifications under the state law and assessed the impact of the project as submitted by your office. We have determined, based on the available information, that no significant historic, architectural or archaeological resources are located within the proposed project area.

According to the information you have provided concerning your proposed project, apparently there is no federal involvement in your project. However, please note that the state law is less restrictive than the federal cultural resource laws concerning archaeology. If your project will use federal loans or grants, need federal agency permits, use federal property, or involve assistance from a federal agency, then your project must be reviewed under the National Historic Preservation Act of 1966, as amended. Please notify us immediately if such is the case.

This clearance remains in effect for two (2) years from date of issuance. It does not pertain to any discovery during construction, nor is it a clearance for purposes of the IL Human Skeletal Remains Protection Act (20 ILCS 3440).

Please retain this letter in your files as evidence of compliance with the Illinois State Agency Historic Resources Preservation Act.

If further assistance is needed please contact Jeff Kruchten, Chief Archaeologist at 217/785-1279 or Jeffery.Kruchten@illinois.gov.

Sincerely,

Robert F. Appleman
Deputy State Historic
Preservation Officer

Cass, Rylee

From: EPA.Air.AQPS.Conference
Sent: Tuesday, June 9, 2015 7:54 AM
To: Patel, Minesh
Subject: Accepted: US Steel Conference Call

Your request was accepted.

Sent by Microsoft Exchange Server 2013

Cass, Rylee

From: Carter, Sally
Sent: Tuesday, June 9, 2015 7:55 AM
To: Patel, Minesh
Subject: Accepted: US Steel Conference Call

Cass, Rylee

From: Patel, Minesh
Sent: Tuesday, June 9, 2015 8:42 AM
To: David W Hacker/Headquarters/USS
Subject: Accepted: FW: Invitation: Call with IEPA 412-433-5000 and enter passcode 2919# (Jun 10 02:30 PM EDT)

Cass, Rylee

From: Romaine, Chris
Sent: Tuesday, June 9, 2015 10:33 AM
To: Patel, Minesh
Subject: Accepted: US Steel Conference Call

Cass, Rylee

Subject: FW: USS - Permitting and Enforcement
Location: Bowling Alley

Start: Thu 7/7/2016 10:30 AM
End: Thu 7/7/2016 3:30 PM
Show Time As: Tentative

Recurrence: (none)

Meeting Status: Not yet responded

Organizer: Carter, Sally

As discussed.

-----Original Appointment-----
From: Carter, Sally
Sent: Thursday, June 09, 2016 3:59 PM
To: Carter, Sally; Romaine, Chris; Patel, Minesh; Keppner-Bauman, Yasmine; Wong, Linda; Benbenek, Jeff; Mattison, Kevin; Pressnall, Chris; Kras, Kim
Subject: USS - Permitting and Enforcement
When: Thursday, July 07, 2016 10:30 AM-3:30 PM (UTC-06:00) Central Time (US & Canada).
Where: Bowling Alley

I HAVE CONFIRMED THAT THIS MEETING WILL TAKE PLACE AT THE AGENCY ON THURSDAY, JULY 7 AT 10:30.

The permitting meeting is scheduled to take place from 10:30 to 1. The enforcement discussion is tentatively scheduled to begin at 1:30. While I am sending this invite to everyone, please note that your participation is only required in your discipline. (Jeff and Kevin, this is your lucky day, you both will have the entire morning to stir up trouble elsewhere). Questions, please let me know.

Patel, Minesh

From: Ogulei, David <Ogulei.David@epa.gov>
Sent: Tuesday, June 13, 2023 2:02 PM
To: Schnepp, Jason
Cc: Marcus, Danny; Wolski, Daniel; Romaine, Chris; Patel, Minesh
Subject: [External] RE: Emailing: US Steel - Drafting of Denial Letter 6 -02 -23.docx
Attachments: US Steel - Drafting of Denial Letter 6 -02 -23+DO.docx

Good afternoon, Jason. I've reviewed the preliminary draft denial letter and I don't have any showstoppers. The draft justification is thorough and appears to be largely complete; I've added a few comments in the attachment but they primarily seek to clarify some portions of the draft justification.

I recognize that the facility's location within an area with known EJ concerns is not cited in support of any of the proposed "denial points". Consider adding an overarching statement that the facility's location in an area with EJ concerns supports IEPA's thorough review of the application to determine whether there are reasons why specific provisions of the CAA and its implementing regulations may not be met if the permit were granted.

Good luck with this one.

David

-----Original Message-----
From: Romaine, Chris <Chris.Romaine@Illinois.gov>
Sent: Friday, June 2, 2023 3:40 PM
To: Ogulei, David <Ogulei.David@epa.gov>; Marcus, Danny <marcus.danny@epa.gov>; Wolski, Daniel <Wolski.Daniel@epa.gov>
Cc: Patel, Minesh <Minesh.Patel@illinois.gov>; Schnepp, Jason <Jason.Schnepp@Illinois.gov>
Subject: Emailing: US Steel - Drafting of Denial Letter 6 -02 -23.docx

As I Just discussed with Mr. Marcus by phone, attached is a preliminary version of a draft of a permit denial letter for US Steel's October 22, 2022 application for revisions to Permit 95010001. This permit is a construction permit/PSD approval originally issued in 1996 to National Steel for a project to increase iron and steel production of its integrated steel mill in Granite City. The mill is now owned by US Steel.

As US Steel has requested revisions of a PSD approval, the Bureau of Air plans to begin a public comment period shortly on the proposed denial of the current application. This will necessitate the release of a draft of the proposed permit denial letter for review and comment by the public, as well US Steel. Any comments/suggestions that you have on the attached working version of the draft of a denial letter would be appreciated.

I am now off on vacation, with a commitment to return after the Fourth of July. In the interim, any questions or feedback that you have should go to Jason Schnepp or, if he is out, Minesh Patel.

Thanks

Chris Romaine
Construction Unit
Bureau of Air Permits

217/785-1882

State of Illinois - CONFIDENTIALITY NOTICE: The information contained in this communication is confidential, may be attorney-client privileged or attorney work product, may constitute inside information or internal deliberative staff communication, and is intended only for the use of the addressee. Unauthorized use, disclosure or copying of this communication or any part thereof is strictly prohibited and may be unlawful. If you have received this communication in error, please notify the sender immediately by return e-mail and destroy this communication and all copies thereof, including all attachments. Receipt by an unintended recipient does not waive attorney-client privilege, attorney work product privilege, or any other exemption from disclosure.

WORKING DRAFT FOR DENIAL LETTER

217/785-1705

CERTIFIED MAIL
No. 7777 7777 7777 7777

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

DATE ??, 2023

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

Permit/Application No.: 95010060 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, 25, 39.5(5)(c), 39.5(10)(a)(i) and 39.5(13)(a) of the Illinois Environmental Protection Act (Act) and Sections 201.142,201.160, 203.120, 203.601, 203.602, 204.560, 204.1100, 204.1310, 204.3120 and 204.1150 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 period on a draft of a proposed permit denial letter in accordance with 35 IAC Part 252, as provided for by 35 IAC 252.305(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:mp:pat

[1] This application includes a request that the revision of this permit be processed with Integrated Processing, as is provided for by Section 39.5(13)(a) 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.

Commented [OD1]: Do you mean ... (a)(i)?

Commented [OD2]: Section 39.5(13)(a) of the Act doesn't directly address "Integrated Processing" as suggested by this note. The provision merely requires IEPA to "take final action on a request for an administrative permit amendment within 60 days after receipt of the request." It further provides that "Neither notice nor an opportunity for public and affected State comment shall be required for the Agency to incorporate such revisions, provided it designates the permit revisions as having been made pursuant to this subsection."

While integrated processing is authorized under a May 3, 2011 MOU between IEPA and EPA, it's usage is expected to be extremely limited. Given the various issues discussed in this letter (including the existence of multiple inconsistent pending applications), consider whether integrated processing is appropriate for this application.

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

ATTACHMENT 1: LISTING OF DENIAL POINTS

Commented [OD3]: Consider addition an introductory section containing relevant background re: the application. What is is the relevant history? What precisely is the application requesting? Which existing permits are affected? Which emission units and pollutants are affected? What would be the consequence of approving the requested revisions, for ex., would facility emissions increase? Would controls be added or removed? Would production increase? Many or all of these questions are answered below, but a brief overview upfront would make it easier to follow the reasons articulated below.

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

Overview

For NOx emissions, the 2022 application 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.[1, 2] 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.[3] 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.

Commented [OD4]: A little background per above comment would help here. Which pollutants are subject to PSD under Permit 95010001? SO2? PM?

[1] 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.
[2] 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.
[3] 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.)

In this regard, the 2022 application requests that the permitted NOx emissions of the castbouse 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.)[4] 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.[5] The requested increase in the permitted NOx emissions of the blast furnaces and basic oxygen furnaces, 239.6 tov/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.

Commented [ODS]: This is the kind of information that could be included in a background section.

Commented [OD6]: Under 40 CFR 52.21(b)(3)(vi)(b), which was in effect at the time of the original production increase permit, the reductions would also need to be "enforceable as a practical matter at and after the time that actual construction on the particular change [began]." See also 35 IAC 204.550(e)(2).

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

[4] 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.")

[5] 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.

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.)

Commented [OD7]: May also address the fact that these decreases were likely not enforceable as a practical matter at and after the time that actual construction on the project authorized by Permit 95010001 began. See 35 IAC 204.550(e)(2).

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.[6] 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.

[6] 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.

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.[7] 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, the two remaining older boilers at the source in 2015. 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.[8]

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 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.[9]

Commented [OD6]: Could this also impact other combustion related emissions (e.g., SO2, PM2.5, VOC, certain HAPs)?

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[7] 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.

[8] 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.

[9] It is unclear how, with the requested revisions of Permit 95010001, 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 9501000I 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 9501000I.[10] 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[11] of 404 pounds/million cubic feet of COG.[12] 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

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[10] 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.

[11] 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."

[12] 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 relevant factor recommended by USEPA (USEPA, "Factor Information Retrieval System" (FIRE), v6.25), it could be considered appropriate

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.[13]

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.[14] 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

[13] 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.
[14] 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.[15] 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").

[15] 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 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.[18]

[18] 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.

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[17] 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,[18, 19]

> 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

[17] 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

[18] 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)."

[19] 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.[20]

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 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

Commented [OD9]: Check this sample calculation: *"With permitted stack emissions of NOx and VOM of 69.63 and 10.74 tons/year, respectively, and 99.9 percent capture, the uncaptured emissions of NOx and VOM would 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.)"* Example appears to incorrectly assume the 69.63 tpy is the emission rate *before* capture and control. Also, is this example assuming ESP control and capture efficiencies of 99.9 and 99.9%, respectively? Please address both capture and control when back-calculating from the emissions limit to estimate "uncaptured" emissions. It appears the uncaptured NOx emissions would be 69.70 tpy, if the capture efficiency is 99.9%, control efficiency 99.9% and the controlled stack emissions are 69.63 tpy. Note also that Footnote 21 suggests the ESP control efficiency might be about 95%.

[20] 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 refining, 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 with the capture efficiency for particulate emissions from refining assumed to be at least 99.9 percent. With permitted stack emissions of NOx and VOM of 69.63 and 10.74 tons/year, respectively, and 99.9 percent capture, the uncaptured emissions of NOx and VOM would 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 emissions of the furnaces with the Project would be less because these calculations for uncaptured emissions address all emissions, both baseline emissions and the increases in emissions from the Project.

Even with the correction to the emission data for these furnaces indicated in the 2022 application, if all NOx and VOM emissions of these furnaces were actually attributable to refining, uncaptured 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, the potential uncaptured NOx emissions from these furnaces would still only be 0.38 tons/year.

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tapping such that the levels of captured emissions from the baghouse stack and the uncaptured emissions through the roof monitor are now identical.[21, 22]

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 that occur through the roof monitor.[23] For example, for pre-project actual emissions of the roof monitor, Section 5.2.2.7 of the application explains the following.[24]

> 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

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[21] 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 emissions of the furnaces from the baghouse stack would be the same as the potential uncaptured emissions that still occur through the roof monitor.

[22] 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.

[23] 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 also described as the emissions through the roof monitor). These prescribed emission factors would effectively replace the "emission factor limits" (i.e., limits for emissions in pounds/ton of input or production or in pounds/hour) that are currently in Permit 95010001 for those units and emission points. Unlike the current emission factor limits, 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 routinely rely upon for the purpose of 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.

[24] 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.
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> 2022 application, Section 5.2.7.7, BOF Roof Monitor Emissions (No Change)

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."

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.[25] In this regard, while 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, the application does not propose any such revisions for the basic oxygen furnaces or explain why such revisions are not needed.[26]

Commented [OD10]: Once again not following the sample calculation in this footnote. Calculation appears to assume stack emissions occur *before* capture and control. We get significantly higher uncaptured emissions at the stated capture and control efficiencies and stack emissions. The point is well taken though.

[25] 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 with 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 process when oxygen is actually being injected into the furnace and not during the entire refining process. 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.

[26] 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 permit limits for the CO emissions of the furnaces, which only address emissions from the stack of the ESP.

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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.[37] 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 on the blast furnaces (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

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[37] 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 by-product coke oven batteries. Although these batteries were shut down in 2015, they were in operation when the Project was originally permitted in 1996. 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.[28] While the analysis addresses CO emissions of 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 being operated by Gateway Energy & Coke.

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 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.[29]

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[28] The modelling in the air quality analysis did address certain newer units, which came into operation after the Project in 1996. For example, 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 units were direct, in-kind replacements of the existing units that have been shut down. In this regard, the new Gateway coke oven batteries are not direct, in-kind replacements of the batteries that were shut down by US Steel. Those batteries were designed for by-product recovery technology; the new batteries are designed for heat recovery technology. Moreover, the new batteries and old batteries were all in use for a period of several years before the old batteries were shut down.

[29] 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.[30] 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 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.[31]

Commented [DD1]: Worth pointing out that the referenced emission factor limits have also been the subject of two USEPA title V petition orders

[30] For particulate, 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 provision in Permit 95010001 that currently restrict emissions of individual "processes" in pounds ton of throughput and tons/year. These limits were set to ensure that the Project would not be a major modification for purposes of New Source Review (NSR). The removal from the permit of the limits in pounds ton of throughput or "emission factor limits" would facilitate resolution of two appeals to the Illinois' Pollution Control Board (PCB) PCB 2013-053 and PCB 2013-062. Both appeals indirectly address the emission factor limits in Permit 95010001. PCB 2013-053 addresses these limits as the revised Clean Air Act Permit Program (CAAPP) permit for the facility (Permit 96030056) issued in 2013 repeats these limits as originally set by Permit 95010001. PCB 2013-062 addresses Construction Permit 11050006, a 2013 construction permit for improvements to the particulate control for the BOFs, as, for the BOFs, it also refers to these limits. US Steel appealed the subject limits because, when issuing the revised CAAPP permit for the facility in 2013, the Illinois EPA explicitly explained that these provisions were considered enforceable limits on emissions. In this regard, the revised CAAPP permit would require US Steel to conduct appropriate periodic monitoring to verify compliance with these limits (e.g., see the "Statement of Basis for a Planned Revision of the Clean Air Act Permit Program (CAAPP) Permit for: U. S. Steel Corporation, Granite City Works, 20[05] and State Streets, Granite City, Illinois," pages 20 through 26).

With regard to the current limits for the annual emissions 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 of 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 new limits for annual emissions would be rolled monthly, restricting emissions over each 12 consecutive month period. The requested limits would theoretically be less stringent than the current limits as any "overage" of emissions by particular unit(s) in a group of units could potentially be compensated for by lower levels of emissions by other units in the group.

Incidentally, these appeals only challenge 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. These 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.

[31] 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

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, separate limits on short-term emissions, such as the current limits in Permit 95010001 in pounds/ton of throughput, 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, 33] However, the 2022 application does not show that the 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

Commented [OD12]: This is conflating two different things: "limits on short term emissions" and "pounds/ton of throughput" limits. While short term limits (e.g., lb/hr, lb/day, etc) may not be necessary in some situations depending on the type of monitoring that would be used to track annual emissions and whether or not a short term air quality standard exists for the affected pollutant, the pounds/ton, lb/mmBtu and similar limits are often efficiency-based limits that ensure the unit is as controlled as was assumed in the calculation of PTE.

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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.

[33] 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).

[33] 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."
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> 2022 application, Footnote 11.

units.[34] 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.[35]

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[34] For the casthouse on the blast furnaces, Permit 9501001 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 9501001 were to be revised, it would be reasonable for each pollutant for which emissions are limited 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.

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

[35] 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 isn 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.
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> 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.
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> 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.
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> 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.")
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> 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 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.
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> 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 two by-product coke oven batteries. While the limits for fuel usage currently in Permit 95010001 may no longer be relevant, as generally addressed above,[36] this does not mean that other limits for fuel usage are not appropriate. In this regard, the 2022 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 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.

[36] 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, to calculate ongoing 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.
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> 2022 application, Section 3, p. 3

The emission factors used in the 2022 application that have not been shown to be representative are ones that, based on the application, do not appear to have been developed by USEPA or derived using formulas or other methodology developed by USEPA.[37]

Roof Monitor on the Basic Oxygen Furnace Shop – Particulate Emissions:
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

[37] With regard to use of emission factors developed by USEPA, as support for the use of annual emission caps to limit potential emissions, the 2022 application refers to USEPA's permitting of *Shell Offshore, Inc.*, as well as to the permitting of *Tucson Electric*. In the USEPA's Environmental Appeals Board's (EAB) decision for *Shell Offshore, Inc.*, the EAB implies that ~~that~~ it is preferable that compliance with emission limits set by a permit be determined using source-specific emission factors. However, the EAB observed that it may be appropriate for a permit to prescribe that specific emission factors published by USEPA in its *Compilation of Air Pollutant Emission Factors* (AP-42) be used for certain emission units for purposes of determining emissions for compliance with emission limits set by the permit. The EAB's Order does not address use of emission factors that are not from AP-42 or derived from source-testing, presumably because the permit under appeal did not prescribe use of such factors. In this regard, in its decision on Shell Offshore, Inc., the EAB observed,

> 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 *Discoverer* drillship.
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> 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.

particulate emission rates for the roof monitor on the basic oxygen furnace shop.[38, 39] 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 0.00614 pounds/ton. The 2022 application does not show that the emission factors for the roof monitor on the blast furnace shop that are proposed as prescribed emission factors in Section 5.5.2.2 of the application are representative.[40]

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

[38] 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.

[39] 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).

[40] 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 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 routine operation with those control measures were present and 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}.

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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 that information showing that an emission rate of 0.009 pounds/hour should be considered representative of the emissions of this unit.[41]

[41] 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.[42] 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.[43, 44]

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[42] 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)

[43] 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.
[44] 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 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 "USEPA 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.[45] 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.

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

II. 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.")[46]

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. (As this 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.)

[46] 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.

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.[47, 48]

Absence of A Request for Revisions for the "Deslagging Station and Material HS":

[47] 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.

[48] 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).[49] 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)).[50] 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 BOF shop. In this regard, for the argon stirring station, US Steel explains 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 CCFR 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 BOPF shop ancillary

[49] 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).

[50] 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.
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> CAAPP Renewal Application, Appendix D. Process Descriptions, Section 7.6 Continuous Casting, Deslagging Station, p. D-56.

operations.[51] Slag skimming is one of the operations that 40 CFR 63.7852 defines as being "Basic oxygen process furnace shop ancillary operations."[52, 53]

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.[54]

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[51] 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.

[52] 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."

[53] 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)).

[54] 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 BOF shop, the limit for the NOx emissions of the BOF shop would apply to the sum of the NOx emissions of the basic oxygen furnaces and the ladle dryers/preheaters.

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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 Permit 95010001 that would facilitate revisions to the CAAPP permit to be made by administrative amendment to allow prescribed emission factors to be used to calculate emissions of certain emission units rather than "appropriate emission factors." In this regard, Permit 95010001 currently does not specify how emissions are to be determined for the purpose of evaluating compliance with the emission limits that are set by the permit, much less specify that, for certain emission units, prescribed emission factors are to be used for this purpose. Accordingly, the procedures to determine compliance with the emission limits set by Permit 95010001 were established in the CAAPP permit. This is because the emission limits set by Permit 95010001 are applicable requirements under the CAAPP. The procedures established in the CAAPP permit do not provide for the use of prescribed emission factors. Rather, these procedures generally require US Steel to use "appropriate emission factors," i.e., emission factors that do not understate emissions, accompanied by recordkeeping and reporting for the emission factors that are being used. While the 2022 application requests revisions to Permit 95010001 to require use of prescribed emission factors for certain units, it does not address the fact that the CAAPP permit currently does not accommodate the use of prescribed emission factors to calculate emissions of certain emission units. Instead, the CAAPP permit requires use of "appropriate emission factors."[55]

[55] In should also be noted that in PCB 2013-083, 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 95010001 for 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 2013-083 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.[56] 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 this as 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.[57] 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.[58]

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**

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[56] 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

[57] 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

[58] 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 be 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.[59, 60]

[59] 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 2013-0862, 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 ~~last~~ 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.

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[60] 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 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.[61, 62] 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.[63] It

---

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

[62] 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."

[63] 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.[64] 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.[65] 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 CAAPP permit issued for sources accurately identify or address the emission units that constitute the sources.

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

[64] 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.

[65] 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.

16. 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(e)). 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.

17. AS RELATED TO SO_2 EMISSIONS FROM USE OF BFG, THE 2022 APPLICATION IS INCONSISTENT WITH A PENDING 2008 APPLICATION

In 2008, US Steel submitted an application, which was received on February 4, 2008, 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. The 2022 application is inconsistent with and conflicts with the 2008 application for revision to Permit 95010001. 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 requests such changes, 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.)

Commented [OD13]: The fact this application has been pending for 15 years raises many questions. Given the various formal Agency actions that have occurred since 2008 (e.g., new permits issued by IEPA, two EPA title V petition orders, SIP-related actions, etc.), this letter should make a stronger case on whether the 2008 permit application needs to be withdrawn or otherwise consolidated into the latest application. As a practical matter, the presence of multiple pending applications that address the same emissions units is a recipe for errors and paralysis in permit processing and should generally be strongly discouraged.

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. With the revised emission factor, the permitted SO_2 emissions from use of the 185,030 million cubic feet of BFG per year allowed by the permit would increase from 615.22 to 1480.24 tons/year. By contrast, as the 2022 application provides that the limits for SO_2 for use of BFG should be unchanged, this application indicates for BFG that the revised permit that is requested should continue to have an emission factor limit of 6.65 pounds of SO_2/million cubic feet and an SO_2 annual emission limit of 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. In this regard, the 2022 application 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 9501001 was originally issued in 1996 and that annual SO_2 emissions have never exceeded 615.22 tons/year.

18. 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. 95100001, 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.][66, 67] For CO, the 2022 application does not request revisions to the only limits in Permit 95010001 for CO emissions from a process operation, i.e., the limits for CO emissions of the basic oxygen furnaces that occur through the ESP stack.[68, 69]

As a general matter, as the 2022 application does not propose revisions to current permit limits for emissions of SO_2, CO and lead, this application is inconsistent with two pending permit

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[66] 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 [from] 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.]

[67] Permit 95010001 currently limits SO_2 emissions from individual blast furnace operations in pounds per ton of iron produced and tons per year. For example, the SO_2 emissions of the main casthouse baghouse, the iron spout baghouse, and uncaptured emissions of the blast furnaces are limited, respectively, to 0.2006, 0.0073 and 0.0104 pounds per ton of iron produced. (Permit 95010001, Condition 5 and Table 1, for, respectively, the Casthouse Baghouse, Iron Spout Baghouse and Blast Furnace - uncaptured emissions.)

For operations in the basic oxygen furnace shop, Permit 95010001 currently limits lead emissions in pounds/hour and tons/year. For example, the lead emissions of the ESP stack and roof monitor are limited to 0.01934 and 0.0129 pounds hour, respectively. (Permit 95010001, Condition 18 and Table 2, for, respectively, the BOF ESP Stack and BOF Roof Monitor.).

[68] 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 captured CO emissions that now occur from the baghouse stack or any uncaptured CO emissions, which occur through the roof monitor.

[69] The 2022 application does request revisions to Permit 95010001 to address the CO emissions of the casthouse for the blast furnaces. In the original application, the casthouse was not identified as a source of CO and data for CO emissions was not provided. The application also requests certain updates to the data for CO emissions from burning blast furnace gas and natural gas in Project-affected fuel burning units.

appeals before the Board, PCB 0013-0053 and PCB 0013-0062. 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 no longer extend to the emission factor limits set for SO_2, CO and lead.[30] In addition, US Steel does not explain in the 2022 application why the emission factor limits currently set by Permit 95010001 for SO_2, CO and lead are no longer considered to be objectionable, (that is, US Steel would not again challenge those limits as it has already done in PCB 0013-0053 and PCB 0013-0062 if a revised permit continued to include the current emission factor limits.[31]

Commented [OD14]: Check case #s. Correct cases appear to be PCB 2013-053 and PCB 2013-062.

Commented [OD15]: Check case #s. Correct cases appear to be PCB 2013-053 and PCB 2013-062.

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 emission limits address only emissions of 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 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.[32]

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[30] The permit limits for emission of lead in pounds per hour are considered within the scope of the term "emission factor limits." In Permit 95010001, these emission limits are listed under the heading of "Emission Factor," along with the emission limits for other pollutants in pounds per ton of throughput.

[31] 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.

[32] 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 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."

19. 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)(c) 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.

FOOTNOTES

In the actual draft of this denial that is released for the public comment period, footnotes would be located at end of the document rather being in the body of the document. This would be done because the footnotes provide additional background to the denial points for US Steel and the various interested parties, rather than being essential components of the denial points.

Commented [OD16]: Flipping pages back and forth makes for a frustrating review experience. Consider incorporating most of the footnotes into the body of the document.

CPR 6/2/23

Cass, Rylee

From: Patel, Minesh
Sent: Tuesday, June 14, 2016 8:34 AM
To: Carter, Sally
Subject: Accepted: USS - Permitting and Enforcement

Patel, Minesh

From: McCurdy, Finnegan
Sent: Friday, July 21, 2023 1:52 PM
To: Hart, Kristin L - DNR; J Brush; Kendall Hale; Morse, James (EEC); Rex Lane; Sarah Piziali
Cc: Frost, Brad
Subject: U.S. Steel Corporation: 119813AAI, 95010001
Attachments: US Steel - Public Notice Denial.pdf

U.S. Steel Corporation in Granite City has applied 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. The Illinois EPA has made a preliminary determination that the current application does not comply with the applicable air pollution control regulations and has prepared a draft permit denial. Attached is the public notice. The Illinois EPA will accept public comments from 7/21/2023 to 8/21/2023. The draft permit denial and other documents are available on our website http://bit.ly/2SiUSql.

ID #: 119813AAI
Permit #: 95010001
Source: U.S. Steel Corporation

Finnegan McCurdy, he/him
Illinois EPA
GPSI Intern
Office of Community Relations
(217) 785 6653

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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

Kras, Kim

From: Sprague, Jeff
Sent: Tuesday, June 23, 2020 3:05 PM
To: Ray, Sarah; Rutherford, Cari
Cc: Bloomberg, David E.; Carter, Sally; Sprague, Jeff
Subject: U.S. Steel-Granite City Works Revised PSD Permit Application

Sarah and Cari,
The U.S. Steel – Granite City Works Revised PSD Permit Application (No. 95010001) air quality modeling report (CO modeling) was tentatively assigned to Cari, but I'm thinking it should be a collaborative effort between both of you, with Sarah taking lead responsibility for the review. Given our existing workloads, I believe this offers the best way forward for making progress on a submittal that has been in-house since early March. Please make sure you have the necessary information and modeling files for completing the review, and freely communicate with Chris Romaine and Sally Carter regarding the schedule for providing modeling results and a summary memorandum.

Thanks,

Jeff

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Kras, Kim

From: Ray, Sarah
Sent: Tuesday, June 23, 2020 3:24 PM
To: Sprague, Jeff; Rutherford, Cari
Subject: RE: U.S. Steel-Granite City Works Revised PSD Permit Application

Hi All,

That sounds good. Cari, would you mind sharing the application with me? I can plan to look over it this afternoon. Additionally, I've added a folder in the Air Modeling Central directory where we can consolidate project materials (Granite City US Steel – CO).

I don't want to interrupt anything you've done so far. If you have time either today (after I've had a chance to look at the application) or tomorrow, maybe we could have a quick call to figure out the best way to proceed? Does that work for you?

Thanks,
Sarah

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Kras, Kim

From: Rutherford, Cari
Sent: Tuesday, June 23, 2020 3:33 PM
To: Ray, Sarah; Sprague, Jeff
Subject: RE: U.S. Steel-Granite City Works Revised PSD Permit Application

Hello Jeff and Sarah,

That all sounds just fine to me. I have placed all the US Steel files I have in the appropriate folder under Air Modeling Central. I will have to look and see if I have a pdf copy of the application, because I know I have the hardcopy here at home. I should be able to scan it and get it to you Monday next week, but I'll double check for an electronic format. To be honest, I have not looked over the application since working remotely, so I do not have much progress to report. However, a call would be a good opportunity to discuss the project and next steps!

Would a call tomorrow morning work for you, Sarah?

Thanks,
Cari

From: Ray, Sarah
Sent: Tuesday, June 23, 2020 3:24 PM
To: Sprague, Jeff ; Rutherford, Cari
Subject: RE: U.S. Steel-Granite City Works Revised PSD Permit Application

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Thanks,
Sarah

From: Sprague, Jeff <Jeff.Sprague@Illinois.gov>
Sent: Tuesday, June 23, 2020 3:05 PM
To: Ray, Sarah <Sarah.Ray@illinois.gov>; Rutherford, Cari <Cari.Rutherford@Illinois.gov>
Cc: Bloomberg, David E. <David.Bloomberg@Illinois.gov>; Carter, Sally <Sally.Carter@Illinois.gov>; Sprague, Jeff <Jeff.Sprague@Illinois.gov>
Subject: U.S. Steel-Granite City Works Revised PSD Permit Application

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Jeff

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Kras, Kim

From: Carter, Sally
Sent: Tuesday, June 23, 2020 3:38 PM
To: Romaine, Chris; Patel, Minesh
Subject: Fw: U.S. Steel-Granite City Works Revised PSD Permit Application

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From: Sprague, Jeff <Jeff.Sprague@Illinois.gov>
Sent: Tuesday, June 23, 2020 3:05 PM
To: Ray, Sarah <Sarah.Ray@illinois.gov>; Rutherford, Cari <Cari.Rutherford@Illinois.gov>
Cc: Bloomberg, David E. <David.Bloomberg@Illinois.gov>; Carter, Sally <Sally.Carter@Illinois.gov>; Sprague, Jeff <Jeff.Sprague@Illinois.gov>
Subject: U.S. Steel-Granite City Works Revised PSD Permit Application

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Kras, Kim

From: Ray, Sarah
Sent: Tuesday, June 23, 2020 3:39 PM
To: Rutherford, Cari
Cc: Sprague, Jeff
Subject: RE: U.S. Steel-Granite City Works Revised PSD Permit Application

Hi Cari,

Perfect, thank you! I can call you at 9am CST, if that works for you?

-Sarah

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Sent: Tuesday, June 23, 2020 3:33 PM
To: Ray, Sarah ; Sprague, Jeff
Subject: RE: U.S. Steel-Granite City Works Revised PSD Permit Application

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Cc: Sprague, Jeff
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Sarah,

That sounds great! Thank you for setting up the two separate documents– I think that will make it very easy to collaborate and draft our respective sections. It already makes me feel like we are off to a better start on this project!

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Thanks,

Jeff

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Kras, Kim

From: Ray, Sarah
Sent: Wednesday, June 24, 2020 2:21 PM
To: Patel, Minesh
Subject: RE: Construction Permit Revision Application for USS Granite City Works

Hi Minesh,

Do you know what hazardous air pollutants were included as part of the original PSD application and in what quantities? If not, do you know where I could find this information?

Thanks,
Sarah

From: Patel, Minesh <Minesh.Patel@Illinois.gov>
Sent: Wednesday, June 24, 2020 10:11 AM
To: Ray, Sarah <Sarah.Ray@illinois.gov>
Subject: FW: Construction Permit Revision Application for USS Granite City Works

This is what I have for US Steel. If you need more, we may have to contact Chris to see if we can get that info needed.

From: Gurinder (Gary) Saini <saini@rtpenv.com>
Sent: Monday, March 2, 2020 9:35 AM
To: Patel, Minesh <Minesh.Patel@Illinois.gov>
Cc: Colin Campbell <campbell@rtpenv.com>; Romaine, Chris <Chris.Romaine@Illinois.gov>
Subject: [External] Construction Permit Revision Application for USS Granite City Works

A construction permit revision application for the USS Granite City Works facility was shipped, via FedEx, for delivery on Monday March 2, 2020. The package includes the final application and appendices including the model files on a CD and a check for permit application fee.

Attached is the electronic version of the construction permit revision application. Please let us know if you need anything or have any questions.

Regards

GS
(919) 845-1422, 42
(919) 533-4558

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Cass, Rylee

From: Patel, Minesh
Sent: Wednesday, June 24, 2020 2:32 PM
To: Ray, Sarah
Cc: Romaine, Chris
Subject: RE: Construction Permit Revision Application for USS Granite City Works

Not sure if the original PSD application for revision had addressed the HAP emissions. That application is in my office.

From: Ray, Sarah <Sarah.Ray@illinois.gov>
Sent: Wednesday, June 24, 2020 2:21 PM
To: Patel, Minesh <Minesh.Patel@Illinois.gov>
Subject: RE: Construction Permit Revision Application for USS Granite City Works

Hi Minesh,

Do you know what hazardous air pollutants were included as part of the original PSD application and in what quantities? If not, do you know where I could find this information?

Thanks,
Sarah

From: Patel, Minesh <Minesh.Patel@illinois.gov>
Sent: Wednesday, June 24, 2020 10:11 AM
To: Ray, Sarah <Sarah.Ray@illinois.gov>
Subject: FW: Construction Permit Revision Application for USS Granite City Works

This is what I have for US Steel. If you need more, we may have to contact Chris to see if we can get that info needed.

From: Gurinder (Gary) Saini <saini@rtpenv.com>
Sent: Monday, March 2, 2020 9:35 AM
To: Patel, Minesh <Minesh.Patel@Illinois.gov>
Cc: Colin Campbell <campbell@rtpenv.com>; Romaine, Chris <Chris.Romaine@illinois.gov>
Subject: [External] Construction Permit Revision Application for USS Granite City Works

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GS
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Kras, Kim

From: Ray, Sarah
Sent: Wednesday, June 24, 2020 9:47 AM
To: Patel, Minesh
Subject: U.S. Steel – Granite City Works Revised PSD Permit Application (No. 95010001) Request

Hi Minesh,

Cari and I are working together on the U.S. Steel application review. However, I don't have access to a copy of the application, including the modeling report, additional impacts analysis, and emission calculations. Do you have an electronic version of the application that you would be willing to share?

Thank you!

Kind regards,
Sarah

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Kras, Kim

From: Patel, Minesh
Sent: Wednesday, June 24, 2020 10:11 AM
To: Ray, Sarah
Subject: FW: Construction Permit Revision Application for USS Granite City Works
Attachments: Final Application Document USS Granite City Works.pdf

This is what I have for US Steel. If you need more, we may have to contact Chris to see if we can get that info needed.

From: Gurinder (Gary) Saini <saini@rtpenv.com>
Sent: Monday, March 2, 2020 9:35 AM
To: Patel, Minesh <Minesh.Patel@Illinois.gov>
Cc: Colin Campbell <campbell@rtpenv.com>; Romaine, Chris <Chris.Romaine@Illinois.gov>
Subject: [External] Construction Permit Revision Application for USS Granite City Works

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Attached is the electronic version of the construction permit revision application. Please let us know if you need anything or have any questions.

Regards

GS
(919) 845-1422, 42
(919) 533-4558

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

U. S. Steel

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

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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

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[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

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[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, Poncor 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.

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[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.

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[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.

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[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

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[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.

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[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,

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[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.

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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.

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[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 (I&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.

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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 CutoffCasters #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 [e]	0.00279	0.00131	lb/ton of material	Note [c]	3.91	1.83
BOF Hopper Baghouse [e]	0.00032	0.00032	lb/ton of steel	No change	0.39	0.39
Flux Conv. & Transfer Points Bin Floor - BOF [e]	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.

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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 NOx

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 NOx 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 NOx 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 NOx 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 NOx formed from natural gas combustion. No additional NOx	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.

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8.3 Post-Project NOx 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 NOx

Parameters	Units	Post Project Rates
Blast Furnace Production	Net tons of hot metal/year	3,165,000
BOF Shop	Molten steel ions/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. NOx 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. NOx Project Emissions Increase Analyses

	NOx Pre-Project Actual Emissions (TPY)	Proposed Revised NOx Emissions Caps (TPY)	NOx 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 NOx

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 NOx for the 1996 Project

		NOx
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*

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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)

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[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 $0.00 + Section 2, 3 or 4 Subtotal $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: _____ General Manager - Granite City Works

Signature — Title of Signatory

Michael Patton — 2/25/2020

Typed or Printed Name of Signatory — 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 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.

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 tons of charge	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	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

R003770

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	17.77	
				tons of charge									
0006 & 0011	A & B Blast Furnace Charging	2,803,241	4,308,581	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	111.18		
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	176.82		
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 Trapper	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 @ stoves, 811 & 812, 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, 811 & 812, ladle preheaters, and BFG flares	1,145	1,980	MMcf	PM	1.9	1.9	lb/MMcf	AP-42 Revised FR. PM Factor	1.09	1.88	0.79	
	Combined FO in stoves, 811 & 812, ladle preheaters, and BFG flares	16	385	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
				tons of charge									
9003	Iron Pellet Screen	2,803,241	4,308,581	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	0.18	
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						1,073.88	219.79	-66.53

R003771

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	121,939	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

R003772

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)
0009 & 0010	A & B Blast Furnace Castthouse Fugitives	2,059,557	3,165,000	tons of hot metal/year tons of charge	PM10	0.0153	0.0153	lb/ton of hot metal	Correction to calculation error change	15.76	24.21	48.19	
0006 & 0011	A & B Blast Furnace Charging	2,803,241	4,308,581	material/year	PM10	0.0012	0.0012	lb/ton of material	UDS representation includes baos for 6#	1.68	2.58		
0007 & 0012	A & B Blast Furnace Castthouse 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 7 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	165.67	367.80	0.00	
0034	BOF Roof Monitor	2,413,406	3,580,000	tons of molten steel/year	PM10	0.237	0.066	lb/ton of steel	No change	346.00	118.40		
	Desulfurization Station (inside BOF shop) &												
0107 & 0035	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 &	Argon Stirring #1 & #2 Material Handling												
0121	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 HG	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	0.00727	0.00727	lb/ton of steel	No change	8.74	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	121,030	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	1,960	MMcf	PM10	1.9	1.9	lb/MMcf	AP-42 Revised Feb. PM Factor	1.09	1.88	0.79	
	Combined FO in stoves, B11 & B12, ladle preheaters, and BFG flares	16	369	Mgal	PM10	9.72	9.72	lb/Mgal	No change	0.08	1.79	1.70	
	Certain Fuel Burning Emissions Units				PM10					176.68	271.95		95.28
0003	Iron Pellet Screen	2,803,241	4,308,581	tons of charge material/year	PM10	0.001309	0.00131	lb/ton of material	UDS representation of 95% 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	86.29

R003773

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

R003774

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
0023	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

R003775

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)
0008 & 0010	A & B Blast Furnace Castnouse 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 NO_x control and 5% fugitive	0.15	0.22	2.46	
0007 & 0012	A & B Blast Furnace Castnouse 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 (east), 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	366	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

R003776

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

R003777

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

R003778

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	0.67	
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	3,413,406	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					17.66	27.70		10.02
					Total VOM					58.2	96.7	38.55	38.50

R003779

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

R003780

Emissions Calculations Included in the 1995 Construction Permit Application

Projected Emissions Based On: Blast Furnace @ 8,971NTPD
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 18	-	-	-
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 18	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	5.0	lb/Mgal	15.00	Mgal	0.04	Included in line 19	-	-	-
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 18	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	5.0	lb/Mgal	1.00	Mgal	0.00	Included in line 19	-	-	-
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***

R003782

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.	2,413,405	ton proc.	10,851.92	3,560,000	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	366	Mgal	0.91	-
	TOTALS:							11,703.84			17,388.74	5,684.80
			Contemporaneous Changes									(11.51) (13.11)
			Net Change									~~5,677.69~~ 5673.29

R003783

TABLE 3-2
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - NOx

Projected Emissions Based On: Blast Furnace @ 8,571NTPD
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	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 -	7.96
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	-	-	-	8.72
18			Natural Gas	306	lb/MMcf	1,145	MMcf	inc. above	1,145	MMcf	175.19	-	175.19
19			Blast Furnace Gas	5.28	lb/MMcf	121,039	MMcf	inc. above	185,030	MMcf	488.48	+ 168.94	657.42
20			Fuel Oil	55	lb/Mgal	16	Mgal	inc. above	365	Mgal	10.04	+ 9.55	19.59
	TOTALS:							618.01			856.76	238.76	238.75
			Contemperaneous Changes									(200.54)	
			Net Change									*38.21*	

+15%

R003784

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 (Bls 1-10) - BFG	5.28	lb/MMcf	37,501	MMcf	99.00	Included in Line 20	-	-	-
5	0041	91	Boiler House 1 (Bls 1-10) - NG	308	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	308	lb/MMcf	226	MMcf	34.56	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	308	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	0.0388	lb/ton proc.	2,413,408	tons proc.	46.94	3,580,000	ton proc.	69.63	-
13	0038	01	BOF Preheaters/Dryers - NG	308	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.	2,413,408	tons prod.	60.34	3,580,000	ton prod.	89.50	-
17	0071 & 0119	01	Continuous Casters #1 & #2 - NG	308	lb/MMcf	57	MMcf	8.72	Included in Line 19	-	-	-
18			Natural Gas	308	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								(260.5 [illegible] 1208.14)	
			Net Change								(38.21) -30.61	

R003785

TABLE 3-3
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - SO2

Projected Emissions Based On: Blast Furnace @ 8,071NTPD
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	7,108	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	0.2008	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***	

R003786

TABLE 3-3
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - SO2

Projected Emissions Based On: Blast Furnace @ 9,671NTPD
BOF @ 9,603 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	0008	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	18	Mgal	-	365	Mgal	25.79	24.86	
	TOTALS:							639.03			1,115.61	476.98	
			Contemporaneous Changes								(0.13) (0.48)		
			Net Change								475.85 ~~476.80~~		

R003787

TABLE 3-4
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - PM-10

Projected Emissions Based On: Blast Furnace @ 3,071NTPD
BOF @ 9,806 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 39	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	4,308,561	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

R003788

TABLE 3-4
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - PM-10

Projected Emissions Based On: Blast Furnace @ 9,671NTPD
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 (Bls 1-10) - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
5	0041	91	Boiler House 1 (Bls 1-10) - NG	5.1	lb/MMcf	Included in line 39	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.	2,413,408	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	3,185,000	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	3,185,000	tons proc.			111.19	38.83
17	0034	01	BOF Roof Monitor	0.287	lb/ton proc.	2,413,408	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	0.0018	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	3,185,000	tons proc.			7.94	2.77

R003789

Projected Emissions Based On: Blast Furnace @ 2,571NTPD
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	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	3,185,000	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	3,185,000	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	3,185,000	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	1,146	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*

+ 4.5

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

R003790

Projected Emissions Based On: Blast Furnace @ 8,671NTPD
BOF @ 9,809 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 & 0118	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	2,903,241	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	18	Mgal	0.08	365	Mgal			1.77	1.70
	TOTALS:							937.42					969.04	51.62

Contemporaneous Changes
Not Change

37.16 (37.54)
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

R003791

TABLE 3-5
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - TSP

Projected Emissions Based On: Blast Furnace @ 7,171NTPD
BOF @ 9,806 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 (Bls 1-10) - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
5	0041	91	Boiler House 1 (Bls 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	4,309,581	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	0.426	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

R003792

TABLE 3-5
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - TSP

Projected Emissions Based On: Blast Furnace @ 3,271NTPD
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	3,185,000	ton prod.			59.88	20.57
29	0113	01	Blast Furnace Slag Pits	0.00417	lb/ton proc.	2,059,557	tons slag	4.29	3,185,000	ton prod.			6.60	2.30
30	9003	01	Iron Pellet Screen	0.00278	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	3,185,000	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	366	Mgal			1.77	1.70
	TOTALS:							1,122.90					1,671.89	(62.01)
			Contemporaneous Changes											(37.16)
			Net Change											*(99.17)*

Note: Actual Emissions = Base Year Throughput * Emission Factor / 2000

Projected Actual Emissions = Projected Throughput * Emission Factor / 2000
except -
BOF Vessels Projected Actual Emissions = 80 lb/hr * 8760 hrs
BOF Roof Monitor Projected Actual Emissions = Projected Emission Factor * Projected Throughput

R003793

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.	2,413,408	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	0.428	lb/ton proc.	2,413,408	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.	2,413,408	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

R003794

Projected Emissions Based On: Blast Furnace @ 8,671NTPD
BOF @ 9,608 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.	2,413,408	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.	2,413,408	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 & 0085	01	Desulf. Station (inside BOF shop) & Xfer Pit	0.09721	lb/ton proc.	2,059,557	tons prod.	36.32	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	4,306,561	tons proc.			6.01	2.10
31		01	Iron Spout Baghouse	0.02548	lb/ton proc.	2,059,557	tons proc.	26.34	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										(97.16)	(57.39)
			Net Change										(93.74)	(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

R003795

TABLE 3-6
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - VOM

Projected Emissions Based On: Blast Furnace @8,[illegible]1 NTPD
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	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	59.29
			Contemporaneous Changes									(31.23)
			Net Change									*28.05*

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TABLE 3-6
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - VOM

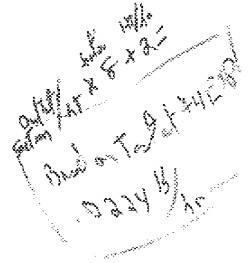
Projected Emissions Based On: Blast Furnace @ 8,671 NTPD
BOF @ 9,808 NTPD

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	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 (Bls 1-10) - BFG	0.0	lb/MMcf	37,501	MMcf	0.00	included in line 18	-	-	-
5	0041	91	Boiler House 1 (Bls 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 18	-	-	-
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 18	-	-	-
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	0.0846	lb/ton proc.	2,059,557	tons proc.	97.40	3,165,000	tons proc.	149.58	-
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									(31.43) (37.70)
			Net Change									28.05 27.38

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TABLE 3-7
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - Pb

Projected Emissions Based On: Blast Furnace @ 8,671NTPD
BOF @ 9,808 NTPD



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.	0.00361612	-
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.	1.25607605	0.2855
10	0034	01	BOF Roof Monitor	0.01280000	lb/hr	0.01280000	8760	hours	0.0585	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	0.00002260	lb/hr	0.00002260	8760	hours	0.0001	1,483	tons prod.	0.00014815	-
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					0.28			0.988			1.627	0.639
			Contemporeneous Changes										0.000
			Net Change										*0.639*

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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:
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304A West Millbrook Road
Raleigh, North Carolina 27609

February 2020

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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.

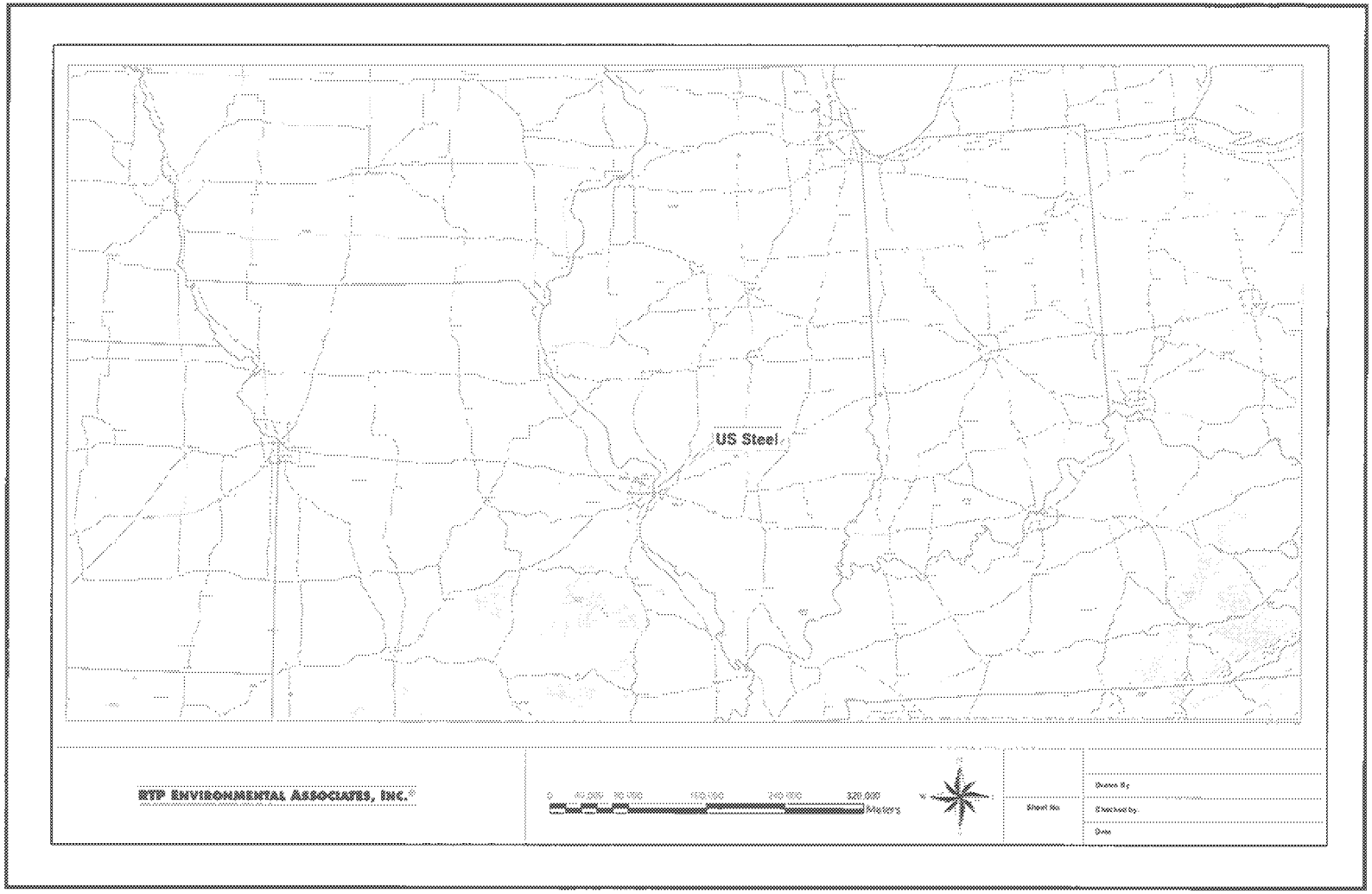


Figure 1. General Location of the US Steel Granite City Works

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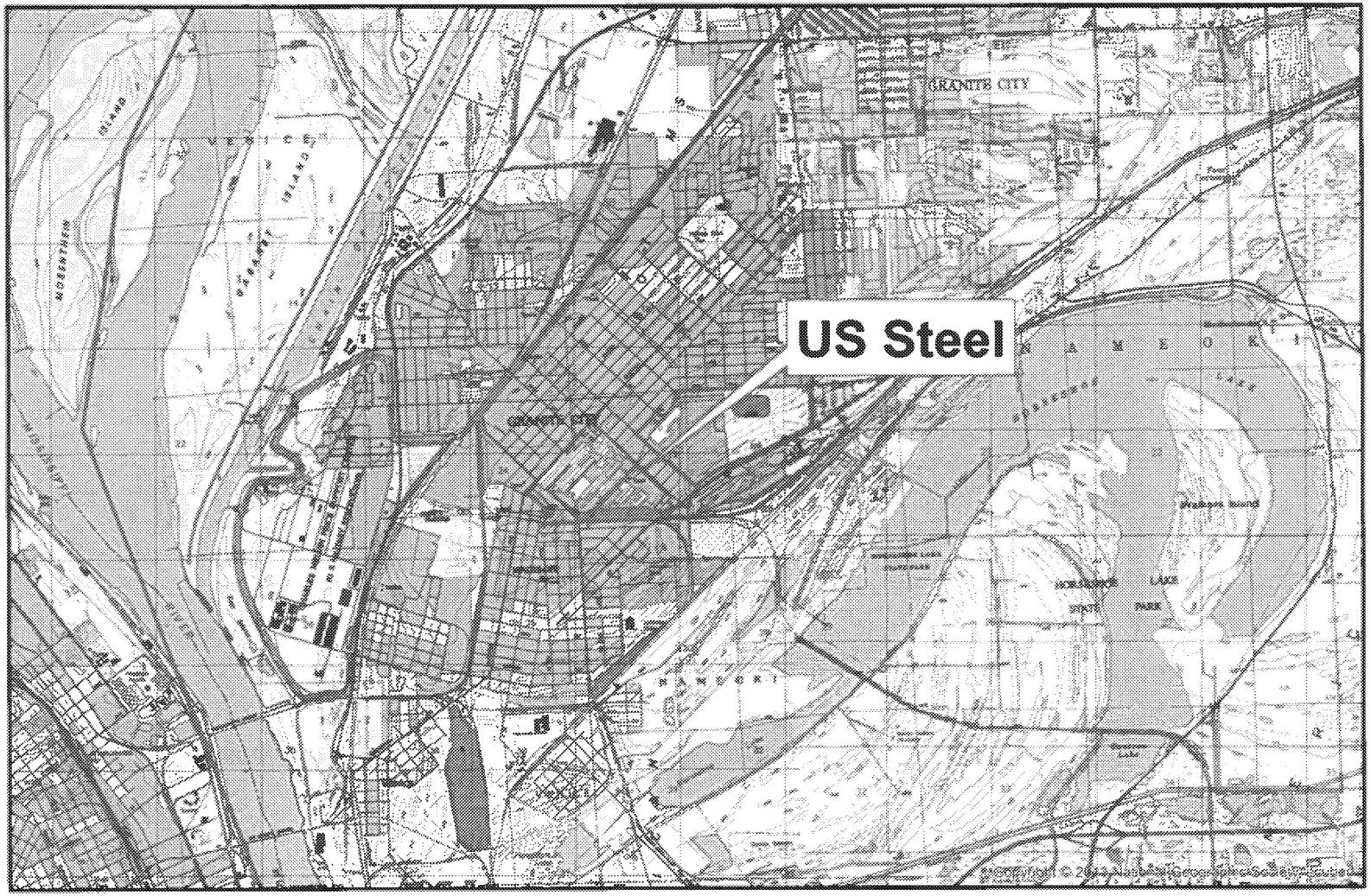


Figure 2. Specific Location of US Steel Granite City Works

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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.

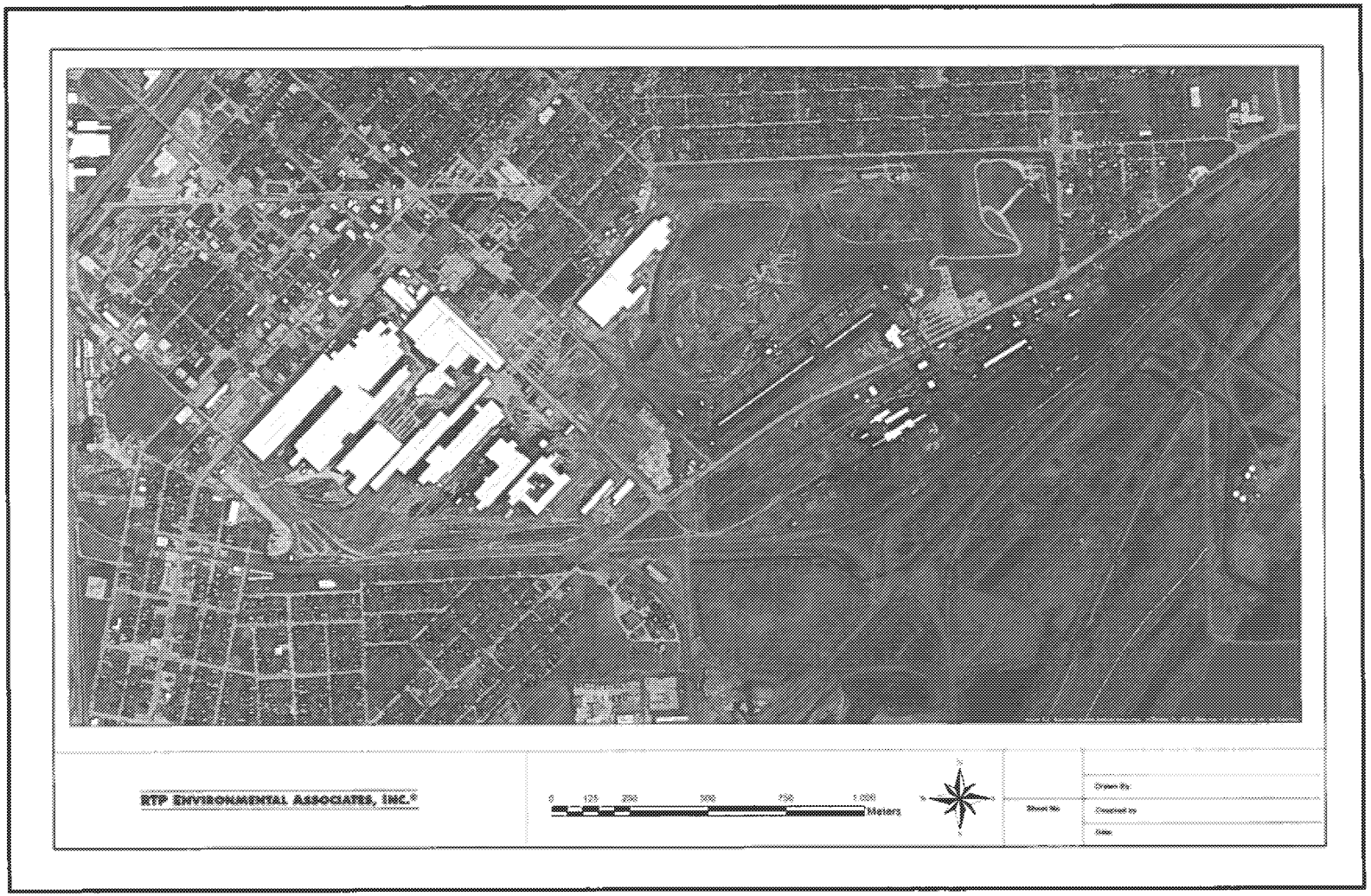


Figure 3. Structures Included in the US Steel GEP Analysis

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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

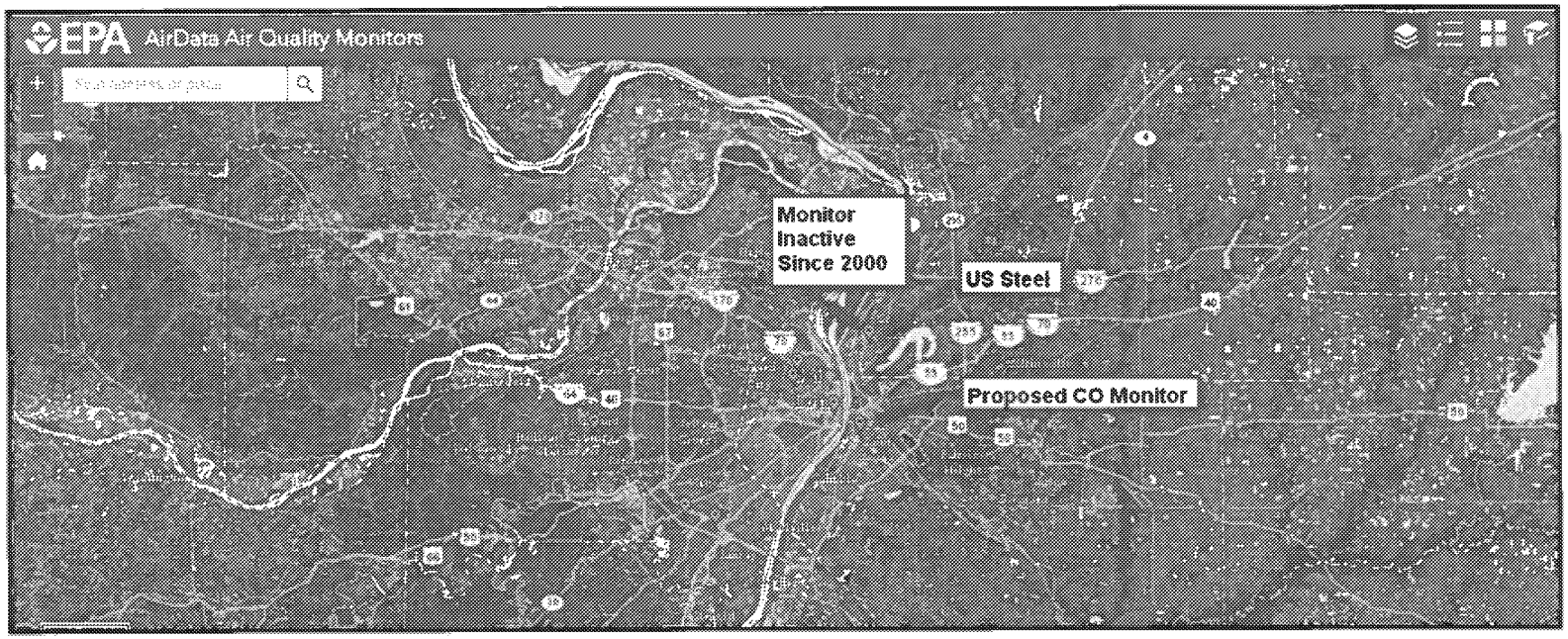


Figure 4. Ambient Air Quality Monitors in the Vicinity of the US Steel Facility

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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.

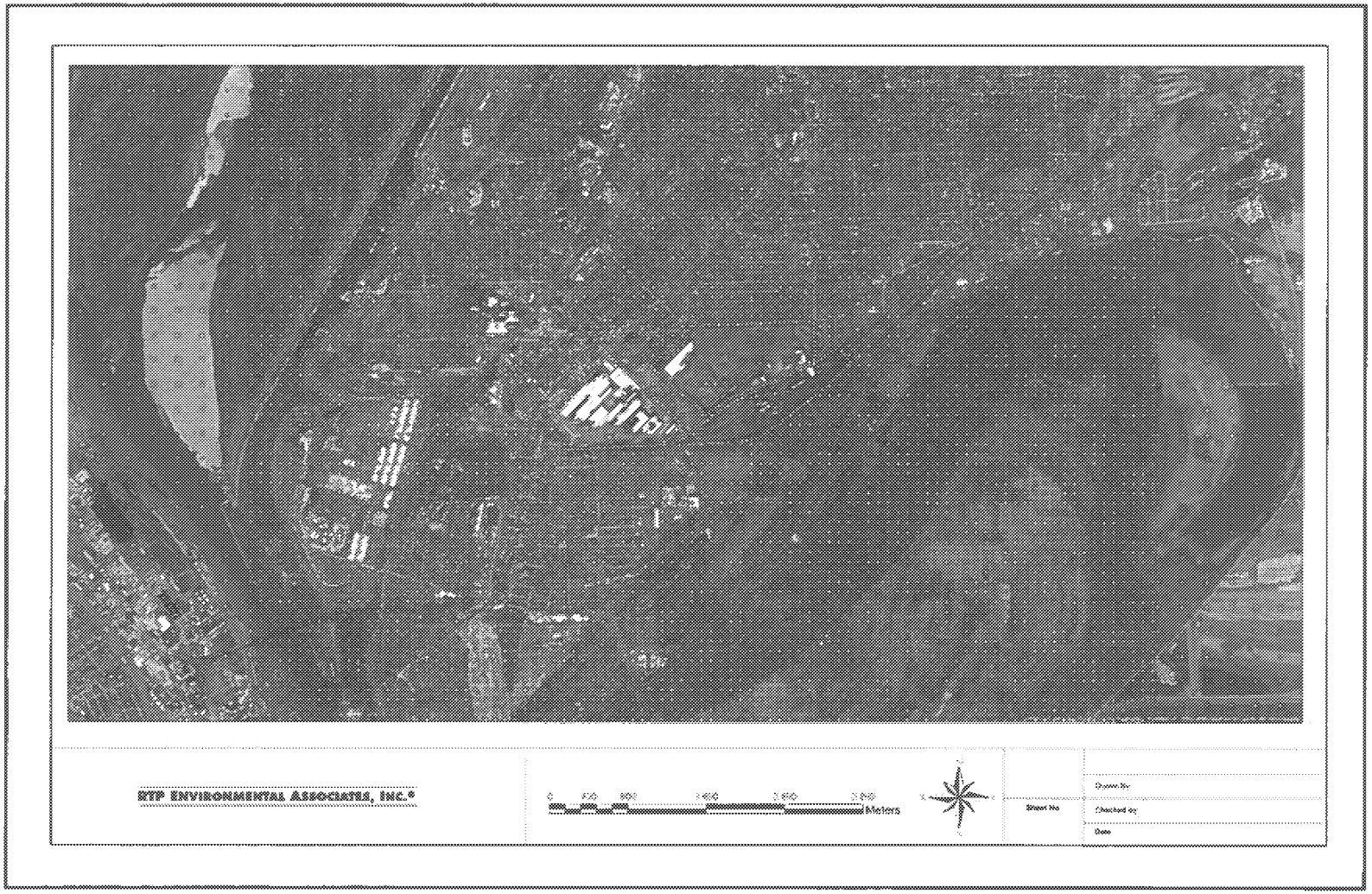


Figure 5. US Steel Facility Near-field Receptor Grid

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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.

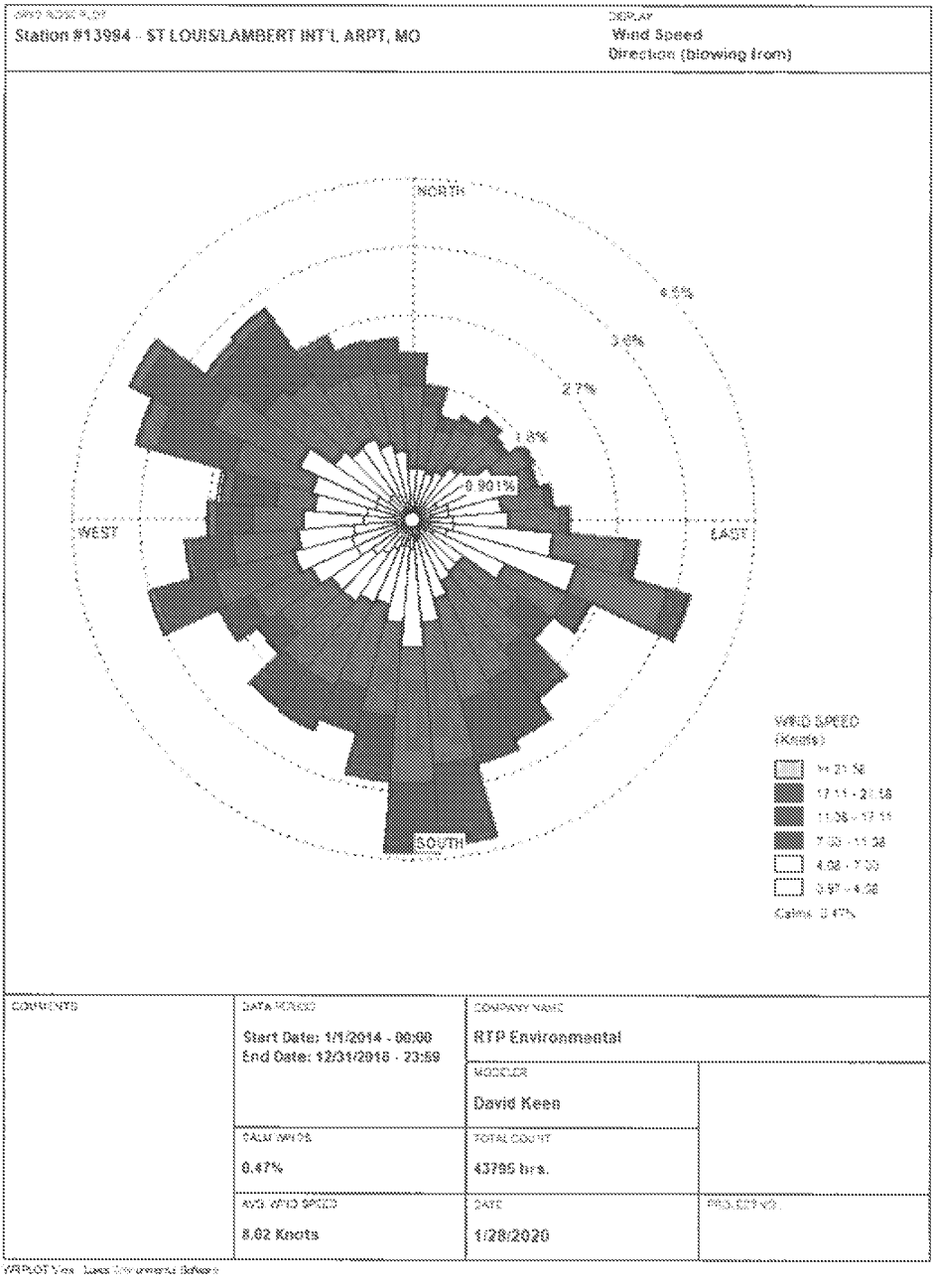


Figure 6. Lambert Field Windrose 2014-2018.

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 ($\mu g/m^3$)
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

R003822

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	43.88	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

R003825

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

R003826

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_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	4307812.00	483.07	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	482.64	106.0	700.0	2.394	16.0	2.40E+01	0.00E+00	0.00E+00
IL_131945	Alton Memorial Hospital - 3 Boilers	748364.00	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	495.63	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	495.89	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	495.53	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	495.30	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	495.27	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	30.678	2.5	1.30E-01	0.00E+00	0.00E+00
IL_132248	Prairie Farms Dairy, Inc. - Boiler #2	747505.00	4287550.00	424.84	28.0	375.0	65.010	2.5	2.40E-01	1.19E+00	1.19E+00
IL_132324	Precast Metals - Afterburner AB1 and AB2	749468.00	4292588.00	424.87	34.0	1000.0	64.518	4.0	9.23E+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	447.55	348.9	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	11.877	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	4303943.00	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	730.0	26.338	6.0	0.00E+00	1.20E+02	1.20E+02
IL_132519	ConocoPhillips Co. - Cracked absorption unit (HTR-CAU-ROSTIL1 - 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+01
IL_132551	ConocoPhillips Co. - Alkylation unit: HTR-ALKY-HM1 (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	28.768	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	14.008	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	756318.00	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 - Beghouse	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	762556.00	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	4277762.00	423.82	38.0	341.0	25.781	2.7	3.84E+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

R003827

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	87.671	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	4281435.00	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	319.1	86.592	3.5	1.54E+01	5.91E+00	5.91E+00
IL_142609	Magnesium Elektron North America - Combustion units	746452.00	4285724.00	415.49	60.0	450.1	30.537	2.0	1.01E+01	4.44E+00	4.44E+00
IL_143317	Waterloo City Light Plant - Engine #11	748328.00	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	748328.00	4246769.00	640.45	93.0	749.9	84.854	2.0	3.41E+01	0.00E+00	0.00E+00
IL_143320	Waterloo City Light Plant - Engine #8	748328.00	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 (STK8-3)	754415.00	4303016.00	445.93	311.9	530.0	57.970	14.0	7.81E+01	1.96E+01	1.96E+01
IL_145820	ConocoPhillips Co. - Sulfur recovery unit #1 (STK3-1)	752928.00	4303077.00	428.41	125.0	969.9	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	969.9	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	14.008	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_149875	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	445.14	25.0	295.1	86.289	4.0	5.74E+01	2.58E+01	2.58E+01
IL_154190	Milam Recycling and Disposal Facility - Engine #1	750844.00	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	750838.00	4282853.00	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	750848.00	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	279.1	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	708.1	20.730	1.8	8.80E-01	0.00E+00	0.00E+00
IL_155505	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_155507	Kraft Heinz Co. - Boiler 8	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	421.48	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	19.368	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	4.91E+00	0.00E+00	0.00E+00
IL_156970	Olin Winchester, LLC - Package Boiler (B-8)	750906.00	4280625.00	436.06	35.0	400.0	84.854	2.0	0.00E+00	4.60E+00	4.60E+00
IL_159940	Afton Chemical Corp. - 25B 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	59.366	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 McCleland, Inc. - Compaction plant	746818.00	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	4283438.00	414.93	35.0	450.1	54.448	2.6	1.96E+00	1.51E+01	1.51E+01
IL_160759	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	746658.00	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 (PP/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 (LOP-1)	747039.00	4287611.00	424.93	92.0	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	15.0	115.1	15.580	9.0	0.00E+00	1.72E+02	1.72E+02
IL_168226	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_172787	St. Anthony's Hospital - Boiler #4	745097.00	4310364.00	584.58	64.0	400.0	98.814	2.3	0.00E+00	6.02E+00	6.02E+00
IL_179611	Highland Electric Light Plant - Engine IC-1	788126.93	4293820.17	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	57.510	2.0	1.53E+00	0.00E+00	0.00E+00
IL_185733	Veolia ES Technical Solutions, LLC - Hazardous waste incinerator #4 (rotary kiln)	745532.00	4275942.00	414.76	57.0	650.9	82.570	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

R003828

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_192955	Midwest Metal Coatings, LLC - Chemical coater/infrared oven (CC/ IRO)	748281.00	4290395.00	423.68	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	800.1	23.780	6.0	9.28E-01	0.00E+00	0.00E+00
IL_192967	Midwest Metal Coatings, LLC - Boiler (B1)	748281.00	4290395.00	423.68	34.0	400.0	67.338	1.5	2.12E+00	0.00E+00	0.00E+00
IL_196552	Christ Bros Products, LLC - Drum mix asphalt plant	778702.00	4278843.00	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	749529.00	4266192.00	477.28	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	753386.00	4281367.00	422.21	80.0	70.1	0.394	0.5	8.00E+00	2.00E-01	2.00E-01
IL_208343	Center Point Terminal Co. - Asphalt and polymer modified blend tank (T-9)	748361.00	4289240.00	416.48	38.0	385.1	0.951	1.5	1.90E-01	0.00E+00	0.00E+00
IL_208736	Concrete Supply, LLC - Natural gas combustion	757766.00	4302270.00	444.69	20.0	341.0	29.781	2.7	9.89E-01	0.00E+00	0.00E+00
IL_209433	Alton Water Treatment Facility - Stack	742583.00	4309480.00	488.98	22.0	400.0	85.083	0.7	0.00E+00	5.50E-01	5.50E-01
IL_211274	Evanstra-Illinois, LLC - Natural gas combustion	764556.00	4286982.00	575.95	20.0	341.0	29.781	2.7	7.38E-01	0.00E+00	0.00E+00
IL_211772	Center Point Terminal Co. - Incinerator/waste heat boiler	748361.00	4289240.00	416.48	18.0	650.0	7.870	1.0	1.83E-01	1.05E+00	1.05E+00
IL_212692	Chain of Rocks Recycling & Disposal - Open flare	746945.00	4283274.00	431.59	20.0	1400.1	47.265	0.7	8.92E+00	1.06E+00	1.06E+00
IL_212681	Koch Fertilizer, LLC - Ammonia heater	750008.00	4305316.00	428.15	25.0	250.1	42.443	1.0	2.48E+00	5.80E-01	5.80E-01
IL_213573	Illinois Department of Transportation - R and R model 367-3 incinerator	732106.00	4332182.00	623.79	15.0	736.1	30.865	2.5	2.88E+00	0.00E+00	0.00E+00
IL_213654	Darling Ingredients, Inc. - Johnson boiler	747472.00	4283438.00	434.93	33.0	450.1	46.937	2.0	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	7.318	2.8	1.44E+00	0.00E+00	0.00E+00
IL_213815	Madison County Sand, LLC - Drum mix asphalt plant	758921.00	4289028.00	422.01	32.0	249.0	64.452	4.1	1.63E+01	5.90E-01	5.90E-01
IL_217756	Phillips 66 Pipeline, LLC - Truck loading racks	748935.00	4276152.00	407.25	20.0	70.1	39.594	2.0	1.10E+01	0.00E+00	0.00E+00
IL_218550	ConocoPhillips Co - North property ground flare (FLR1-2)	754486.00	4303327.00	445.98	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_218538	Custom Steel Processing - Sulfuric acid storage tank	746335.00	4286043.00	416.99	38.0	127.0	0.000	2.4	0.00E+00	1.00E-01	1.00E-01
IL_218569	Contract Services, LLC - Boiler #4	746787.00	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	1.08E+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	3.5	1.26E+00	0.00E+00	0.00E+00
IL_219420	Crown Fertile Services - Boiler	744767.00	4259382.00	466.40	54.0	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	23.768	5.3	1.28E+00	0.00E+00	0.00E+00
IL_220267	American Colloid Co - Space heaters	746862.00	4287239.00	419.91	36.0	199.1	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	88.322	4.3	7.61E+01	3.40E+01	3.40E+01
IL_220849	ConocoPhillips Co - Alkylation unit flare (FLR6-1)	755059.00	4303061.00	442.55	196.9	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	4246760.00	640.45	39.0	622.1	41.590	4.9	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	123.9	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	4302887.00	451.07	18.0	870.0	43.985	1.3	2.98E+00	0.00E+00	0.00E+00
IL_223796	Union Electric Co. - Turbine CT03	745785.00	4282930.00	429.98	38.0	803.1	74.948	3.4	4.90E+01	1.30E+00	1.30E+00
IL_223797	Union Electric Co. - Turbine CT04	745976.00	4282947.00	421.16	38.0	803.1	74.948	3.4	4.90E+01	1.30E+00	1.30E+00
IL_223798	Union Electric Co. - Turbine CT05	745938.00	4283610.00	429.90	38.0	803.1	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	51.469	1.3	1.10E+01	4.60E+00	0.00E+00
IL_224416	Belleville Landfill, Inc. - Flare	760402.00	4284040.00	571.88	35.0	1800.1	8.659	0.8	1.22E-01	0.00E+00	0.00E+00
IL_224592	Christ Bros Products, LLC - Drum mix asphalt plant	755885.00	4299823.00	481.10	32.0	251.0	53.628	4.1	3.08E+01	1.38E+01	1.38E+01
IL_224594	Christ Bros Products, LLC - Asphalt tank heaters and boilers	755701.00	4299841.00	427.46	18.0	416.0	47.433	1.0	1.19E+00	2.80E+00	2.80E+00
IL_224838	Enable Mississippi River Transmission, LLC - Compressor engine SN-01	750038.00	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	750.1	34.854	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	11.881	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	5.37E+00	0.00E+00	0.00E+00
IL_225844	City of O'Fallon - 900 kW (1 822 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	4246760.00	640.45	37.0	680.1	37.904	2.5	5.32E+01	0.00E+00	0.00E+00
IL_226013	Milam Recycling and Disposal Facility - 525 HP Tub grinder	750550.00	4282537.00	594.06	7.0	627.0	74.030	0.5	2.20E+00	8.00E-01	8.00E-01
IL_226014	Milam Recycling and Disposal Facility - Enclosed flare	750476.00	4282825.00	419.62	95.0	1400.1	0.656	12.0	2.40E+01	6.00E+00	6.00E+00
IL_226015	Milam Recycling and Disposal Facility - 750 HP Tub grinder	750550.00	4282537.00	594.06	9.0	627.0	70.883	0.7	5.10E+00	1.90E+00	1.90E+00
IL_226184	GBC Metals, LLC (d/b/a Olin Brass) - LF Melt muller (MM-2), Low profile turbine (LF-1) and Induction furn	750075.00	4305259.00	432.32	43.0	209.9	36.080	2.1	3.00E+00	0.00E+00	0.00E+00
IL_226204	GBC Metals, LLC (d/b/a Olin Brass) - Strip anneal #4 (SA-4)	750150.00	4306868.00	431.10	80.0	350.0	41.426	1.8	9.93E+01	0.00E+00	0.00E+00

R003829

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	4308528.00	485.83	100.0	350.0	82.746	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	483.20	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)	750485.00	4308287.00	484.42	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	748325.00	4275822.00	405.12	112.0	865.0	16.794	12.6	1.50E+01	0.00E+00	0.00E+00
IL_226783	Schuetknecht 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	26.297	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	660.1	27.093	7.5	6.97E+00	0.00E+00	0.00E+00
IL_227038	ConocoPhillips Co. - SZU Charge heater H-3	755219.00	4302567.00	442.29	150.0	567.1	25.513	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	926.0	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	4288987.00	419.36	96.0	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	4288326.00	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	745886.00	4275662.00	412.66	75.0	428.1	43.428	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	87.0	400.0	20.684	1.8	1.13E+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_230309	Alton Chemical Corp. - Flare 36-6090	746478.00	4276293.00	407.28	45.0	1600.1	0.656	8.0	2.30E+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	4289901.00	441.63	28.0	155.1	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	4302980.00	442.59	185.0	470.0	16.139	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	1800.1	20.008	12.0	1.31E+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 18-3	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	4308590.00	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	748158.00	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)	769544.00	4265585.00	474.70	28.0	617.0	73.767	1.2	2.87E+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	4300804.00	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	5.00E-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	413.88	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	4285469.00	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	746915.00	4287625.00	439.23	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	9.30E+00	0.00E+00	0.00E+00
IL_237903	Center Ethanol Co. - Ethanol loadout Rack	745886.00	4275662.00	412.66	19.0	99.1	7.806	0.7	8.88E-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	87.837	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	46.812	4.0	1.65E+00	0.00E+00	0.00E+00
IL_239385	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	412.89	39.0	284.1	23.157	2.0	8.30E-01	0.00E+00	0.00E+00
IL_240358	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	4.81E+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	4302820.00	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	746358.00	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	Staukey 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	1.64E+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_248739	Gateway Terminals, LLC. - 800 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	4301868.00	618.62	60.0	1800.1	46.838	13.0	1.25E+01	1.55E+01	1.55E+01
IL_250843	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_251098	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	1.60E+01	0.00E+00	0.00E+00
IL_251735	ConocoPhillips Co. - Diesel engine (805 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	30.0	841.0	4.756	0.5	4.95E-01	0.00E+00	0.00E+00
IL_253107	Alinex USA, Inc. - Natural gas combustion	749698.00	4276478.00	418.37	58.0	438.0	27.650	3.4	3.26E+00	0.00E+00	0.00E+00
IL_253166	Cerro Flow Products, LLC. - Generators	746228.00	4275272.00	407.82	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	4266851.00	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	414.68	83.0	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

R003831

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	750559.00	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	4279111.00	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	46.0	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	4.70E-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	P&T 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_257585	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	1.11E-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	1.95E-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	150.0	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

R003832

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	22.413	2.0		9.62E-03	9.62E-03
SJEFF131	ANIMAL CARE SERVICE INC FESTUS	724479.42	4236856.27	436.22	28.0	1418.0	18.734	2.0		3.50E-01	3.50E-01
SJEFF132	ANIMAL CARE SERVICE INC FESTUS	724479.42	4236856.27	436.22	28.0	1418.0	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	22.413	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	1800.0	18.734	2.0		7.50E-02	7.50E-02
SJEFF137	JEFFERSON COUNTY CREMATION SERVICES LC PEVELY	728536.97	4239554.88	583.28	10.0	1100.0	23.333	0.5		9.39E-02	9.39E-02
SJEFF138	SIMPSON CONSTRUCTION MATERIALS PAUUNA HILLS SITE	728489.86	4259186.04	426.64	17.0	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	3.81E-03	9.82E-08	9.82E-08
SSTC1	AMEREN MISSOURI SIOUX ENERGY CENTER	734752.14	4310260.61	445.64	696.5	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	2.88E+02
SSTC3	AMEREN MISSOURI SIOUX ENERGY CENTER	734752.14	4310260.61	445.64	212.0	525.0	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	29.333	1.0		1.42E+00	0.00E+00
SSTC9	SSM HEALTH ST JOSEPHS HOSPITAL	718488.57	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	718488.57	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	718488.57	4295433.59	515.16	10.0	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	718488.57	4295433.59	515.16	3.0	1011.0	154.085	0.8		1.08E+00	0.00E+00
SSTC18	SSM HEALTH ST JOSEPHS HOSPITAL	718499.57	4295433.59	515.16	14.0	1063.0	56.732	0.4		5.66E-01	2.38E-04
SSTC28	GENERAL MOTORS LLC WENTZVILLE CENTER	689428.03	4299089.70	522.57	250.0	365.0	12.999	10.0		2.16E+01	2.16E+01
SSTC29	GENERAL MOTORS LLC WENTZVILLE CENTER	689428.03	4299089.70	522.57	250.0	365.0	12.999	10.0		7.21E+02	7.21E+01
SSTC30	GENERAL MOTORS LLC WENTZVILLE CENTER	689428.03	4299089.70	522.57	250.0	365.0	12.999	10.0		2.16E+01	2.16E+01
SSTC31	GENERAL MOTORS LLC WENTZVILLE CENTER	689428.03	4299089.70	522.57	55.0	620.0	58.999	5.8		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		1.85E-02	2.84E-02
SSTC47	SSM HEALTH ST JOSEPH HOSPITAL WEST	693164.96	4297283.00	533.89	10.0	1160.0	73.333	0.5		1.92E+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	690219.88	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	27.651	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	38.0	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	39.418	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	24.603	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	27.509	2.3		0.00E+00	0.00E+00
SSTC73	TRUE MANUFACTURING CO O'FALLON	702777.57	4297717.78	496.26	10.0	1100.0	29.333	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	5.14E-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	1.30E+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

R003833

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	1.46E-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	1.38E+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	721918.39	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

R003834

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	NO2 (1-hour)
SSTL83	THE BOEING COMPANY ST. LOUIS	728742.77	4293777.11	545.54	15.0	955.0	19.500	0.7	7.52E+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	80.0	965.0	81.234	5.0	2.63E-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	28.0	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		1.84E-02	1.84E-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	50.725	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	21.823	4.7		1.08E-03	1.08E-03
SSTL98	BRIDGETON LANDFILL, LLC	722107.35	4294454.70	459.06	584.0	1450.0	21.823	4.7		1.07E-03	1.07E-03
SSTL100	SSM HEALTH ST MARYS HOSPITAL	734075.92	4279548.88	601.67	17.2	500.0	25.000	3.0		9.08E+00	9.08E+00
SSTL101	SSM HEALTH ST MARYS HOSPITAL	734075.92	4279548.88	601.67	17.2	500.0	25.000	3.0		7.14E-03	7.14E-03
SSTL102	SSM HEALTH ST MARYS HOSPITAL	734075.92	4279548.88	601.67	150.0	1009.0	59.156	1.0		2.59E+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		8.63E-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	4284089.53	506.83	45.0	425.0	1.667	2.0	9.01E+00	4.35E+00	4.35E+00
SSTL112	VETERANS ADMIN MEDICAL CENTER JEFFERSON BARRACKS DRIVE	736944.98	4284089.53	506.83	45.0	425.0	1.667	2.0	4.17E-01	2.85E-03	2.96E-03
SSTL113	VETERANS ADMIN MEDICAL CENTER JEFFERSON BARRACKS DRIVE	736944.98	4284089.53	506.83	45.0	425.0	1.667	2.0	4.40E-03	6.49E-03	8.49E-03
SSTL114	VETERANS ADMIN MEDICAL CENTER JEFFERSON BARRACKS DRIVE	736944.98	4284089.53	506.83	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	4284089.53	506.83	10.0	1100.0	23.333	0.5	1.02E+02	2.11E+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	3.17E-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	5.0	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	7.185	2.7		3.20E-03	3.20E-03
SSTL121	BODINE ALUMINUM INC WALTON ROAD	730791.15	4286068.83	618.60	16.0	75.0	26.949	5.1		8.96E-03	8.96E-03
SSTL122	BODINE ALUMINUM INC WALTON ROAD	730791.15	4286068.83	618.60	29.0	600.0	14.567	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		1.83E-01	1.83E-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	850.0	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	33.998	1.3		1.79E+01	1.79E+01
SSTL129	REICHHOLD LLC 2 VALLEY PARK	718899.54	4269850.38	422.90	26.0	650.0	18.284	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		4.88E-02	0.00E+00
SSTL147	MSD, MISSOURI RIVER WWTP MO RIVER WASTERWATER TREATMENT PLANT	718335.79	4290583.38	444.32	25.0	550.0	1.181	0.7	9.38E-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	718335.79	4290583.38	444.32	15.2	446.0	19.393	1.7	2.42E-01	2.26E-01	1.28E-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	718335.79	4290583.38	444.32	15.0	77.0	4.774	2.0	2.46E+00	4.74E-01	4.74E-01
SSTL152	SIMPSON CONSTRUCTION MATERIALS LLC VALLEY PARK	715996.20	4286469.87	430.05	42.0	900.0	38.494	4.2	2.48E+01	5.48E+00	5.48E+00
SSTL153	SIMPSON CONSTRUCTION MATERIALS LLC VALLEY PARK	715996.20	4286469.87	430.05	26.2	400.0	26.785	0.8	5.84E-03	1.20E-04	1.20E-04
SSTL154	SIMPSON CONSTRUCTION MATERIALS LLC VALLEY PARK	715996.20	4286469.87	430.05	26.2	400.0	26.785	0.8	4.60E-02	1.44E-03	1.44E-03
SSTL162	MACLAN INDUSTRIES	742056.49	4291496.76	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	4284896.79	451.44	22.0	871.0	24.016	0.8		1.02E-01	1.02E-01

R003835

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	1.29E-03	1.29E-03
SSTL170	SPIRE MISSOURI, EAST INC.	736637.09	4302290.45	525.66	25.0	-459.7	0.003	0.8	2.83E+01	3.69E-05	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	15.0	-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	155.0	950.0	19.567	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	1.08E-04	5.32E-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	5.32E-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	745821.30	4280225.01	423.00	111.0	300.0	72.900	4.0		2.58E-01	2.58E-01
SCITY49	ASHLEY ENERGY LLC	745821.30	4280225.01	423.00	111.0	300.0	72.900	4.0		2.42E-02	2.42E-02
SCITY50	ASHLEY ENERGY LLC	745821.30	4280225.01	423.00	111.0	300.0	72.900	4.0		1.20E+00	1.20E+00
SCITY51	ASHLEY ENERGY LLC	745821.30	4280225.01	423.00	111.0	300.0	72.900	4.0		1.51E-01	1.51E-01
SCITY52	ASHLEY ENERGY LLC	745821.30	4280225.01	423.00	115.0	280.0	41.099	5.0		1.17E+00	1.17E+00
SCITY53	ASHLEY ENERGY LLC	745821.30	4280225.01	423.00	115.0	280.0	41.099	5.0		6.91E-03	6.91E-03
SCITY54	ASHLEY ENERGY LLC	745821.30	4280225.01	423.00	115.0	280.0	41.099	5.0		1.17E+00	1.17E+00
SCITY55	ASHLEY ENERGY LLC	745821.30	4280225.01	423.00	115.0	280.0	41.099	5.0		7.87E-03	7.87E-03
SCITY56	ASHLEY ENERGY LLC	745821.30	4280225.01	423.00	30.0	975.0	237.694	0.8		3.10E-02	0.00E+00
SCITY57	ASHLEY ENERGY LLC	745821.30	4280225.01	423.00	161.0	250.0	34.101	4.0		2.59E+01	2.59E+01
SCITY58	ASHLEY ENERGY LLC	745821.30	4280225.01	423.00	161.0	250.0	34.101	4.0		5.09E+00	5.09E+00
SCITY59	ASHLEY ENERGY LLC	745821.30	4280225.01	423.00	161.0	250.0	34.101	4.0		3.48E-02	3.48E-02

R003836

Off-Site Point Source Model Input (NAD83, Zone 15)

Source ID	Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (K)	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	7.5	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	7.5	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	7.5	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	7.5	3.00E+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	7.5	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	7.5	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	518.0	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	518.0	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	7.5	3.04E+00	4.48E-02	4.48E+00
SCITY70	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	225.0	280.0	35.784	7.5	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-05	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	7.65E+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	4279043.36	414.11	32.0	170.0	15.453	2.0		2.08E-02	2.08E-02
SCITY111	ICL SPECIALTY PRODUCTS INC CARONDELET PLANT	737985.63	4279043.36	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	4279043.36	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	4279043.36	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	4279043.36	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	4279043.36	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	4279043.36	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	4279043.36	414.11	10.0	1100.0	23.333	0.5		1.91E-05	1.91E-05
SCITY121	ICL SPECIALTY PRODUCTS INC CARONDELET PLANT	737985.63	4279043.36	414.11	42.0	340.0	37.776	4.0		9.45E+01	9.45E+01
SCITY122	ICL SPECIALTY PRODUCTS INC CARONDELET PLANT	737985.63	4279043.36	414.11	42.0	340.0	37.776	4.0		5.91E-02	5.91E-02
SCITY123	ELANTAS PDG, INC. SECOND ST	743167.86	4284941.73	426.35	95.0	700.0	14.738	1.2		6.41E+00	6.41E+00
SCITY124	ELANTAS PDG, INC. SECOND ST	743167.86	4284941.73	426.35	95.0	700.0	14.738	1.2		7.35E-03	7.35E-03
SCITY125	ELANTAS PDG, INC. SECOND ST	743167.86	4284941.73	426.35	95.0	700.0	14.738	1.2		1.86E-02	1.86E-02
SCITY126	ELANTAS PDG, INC. SECOND ST	743167.86	4284941.73	426.35	95.0	700.0	14.738	1.2		5.88E-04	5.88E-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	15.0	712.2	32.451	1.8		7.85E-03	0.00E+00
SCITY129	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	34.0	1700.0	4.685	2.0		3.72E-03	3.72E-03
SCITY132	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	34.0	1700.0	6.818	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	99.649	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	1.2		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	1.2		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	14.965	1.0		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	88.883	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	60.700	9.5		7.80E-01	0.00E+00

R003837

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	4274861.73	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	3.96E+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	3.59E+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	1900.0	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-01	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	3.65E-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

R003838

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)
SCITY289	ARTCO ST. LOUIS-AMERICAN RIVER TRANS CO ST. LOUIS	741227.54	4278049.76	423.52	28.0	400.0	50.535	2.0		2.28E-03	2.28E-03
SCITY290	ARTCO ST. LOUIS-AMERICAN RIVER TRANS CO ST. LOUIS	741227.54	4278049.76	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	4278049.76	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	1550.0	19.255	2.5		1.28E+01	1.28E+01
SCITY293	SOUTHERN METAL PROCESSING	739807.53	4271091.77	426.02	31.0	1550.0	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	1.91E+00	1.79E-02	1.79E-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	1.80E+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	1.89E+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	9.99E-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	2.00E-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	5.98E-03	5.98E-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	6.48E-03	6.48E-03
SCITY330	NESTLE PURINA PETCARE COMPANY ST. LOUIS	743912.49	4278167.30	467.68	15.0	1007.0	51.650	0.7	4.88E-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	9.06E+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	8.0	1157.0	35.000	0.8	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	2.36E+00	7.82E-01	0.00E+00
SCITY335	NESTLE PURINA PETCARE COMPANY ST. LOUIS	743912.49	4278167.30	467.68	6.0	815.0	37.835	0.6	6.53E-01	1.35E-03	0.00E+00
SCITY344	PALLO PRODUCTS COMPANY	736597.70	4278778.67	503.12	32.0	200.0	2.935	1.2		5.04E-03	5.04E-03
SCITY353	CHRISTY REFRACTORIES CO L.L.C	738218.57	4278219.65	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	451.0	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	983.0	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	300.0	960.0	23.035	9.5		7.17E-01	7.17E-01
SCITY364	SOUTHWESTERN BELL TELEPHONE COMPANY	744346.61	4279152.95	459.35	300.0	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	98.401	2.0		1.19E+00	1.19E+00
SCITY366	SOUTHWESTERN BELL TELEPHONE COMPANY	744346.61	4279152.95	459.35	290.0	722.0	98.401	2.0		5.13E+00	5.13E+00
SCITY367	SOUTHWESTERN BELL TELEPHONE COMPANY	744346.61	4279152.95	459.35	290.0	722.0	98.401	2.0		8.24E+00	8.24E+00
SCITY368	SOUTHWESTERN BELL TELEPHONE COMPANY	744346.61	4279152.95	459.35	290.0	722.0	98.401	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	250.0	8.333	1.0		1.63E-01	1.63E-01
SCITY394	SAINT LOUIS UNIVERSITY FACILITIES SERVICES	740384.08	4280241.69	507.64	20.0	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-05	9.53E-05

R003839

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)
SCITY386	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	3.65E-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	279.0	195.951	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	3.68E-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		

R003840

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)
SJEFF84	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	739496.97	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		

R003841

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		
CJEFFS0	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	8.48E-04		
CJEFFS1	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	5.28E-02		
CJEFFS2	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	2.46E-03		
CJEFFS3	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	1.53E-01		
CJEFFS4	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	1.56E-02		
CJEFFS5	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	1.16E-01		
CJEFFS6	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	8.45E-03		
CJEFFS7	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	3.42E-01		
CJEFFS8	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	4.74E-03		
CJEFFS9	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	4284034.26	422.18	8.2	2.3	7.6	5.57E-02		

R003842

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_ICN15	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_ICN16	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	17051507	STL_ICN17	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_ICN14	12	1	14098
AERMOD 19191	Granite City SIL_2018_CO.SUM	CO	1-HR	ALL	1ST	969.3688	748400	4287100	128.28	128.28		0	18050802	STL_ICN18	12	1	14098
AERMOD 19191	Granite City SIL_2018_CO.SUM	CO	8-HR	ALL	2ST	669.2028	748481.6	4286378	126.67	126.67		0	18111224	STL_ICN18	12	1	14098
AERMOD 19191	Granite City SIL_2016_CO.SUM	CO	8-HR	ALL	2ST	645.9929	748434.9	4287033	127.16	127.16		0	16110308	STL_ICN16	12	1	14098
AERMOD 19191	Granite City SIL_2014_CO.SUM	CO	8-HR	ALL	2ST	628.7987	748756.2	4286732	125.76	125.76		0	14112416	STL_ICN14	12	1	14098
AERMOD 19191	Granite City SIL_2017_CO.SUM	CO	8-HR	ALL	2ST	612.1259	748434.9	4287033	127.16	127.16		0	17112624	STL_ICN17	12	1	14098
AERMOD 19191	Granite City SIL_2015_CO.SUM	CO	8-HR	ALL	2ST	607.0288	748434.9	4287033	127.16	127.16		0	15022808	STL_ICN15	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	669.3	NA	669.3	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_ICN15	564	1	47
AERMOD 19191	Granite City NAAQS_2016_CO.SUM	CO	1-HR	ALL	2ND	3309.502	748434.9	4287033	127.16	127.16		0	16050105	STL_ICN16	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_ICN14	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_ICN18	564	1	47
AERMOD 19191	Granite City NAAQS_2017_CO.SUM	CO	1-HR	ALL	2ND	3160.406	748434.9	4287033	127.16	127.16		0	17091706	STL_ICN17	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_ICN17	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_ICN16	564	1	47
AERMOD 19191	Granite City NAAQS_2018_CO.SUM	CO	8-HR	ALL	2ND	1849.688	748434.9	4287033	127.16	127.16		0	18050724	STL_ICN18	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	15122408	STL_ICN15	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_ICN18	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%

R003844

Appendix D – Copy of 1996 Construction Permit

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

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:

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, P, 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 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

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

- 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

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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

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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

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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

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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

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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

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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

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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)

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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.

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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

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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;

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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;

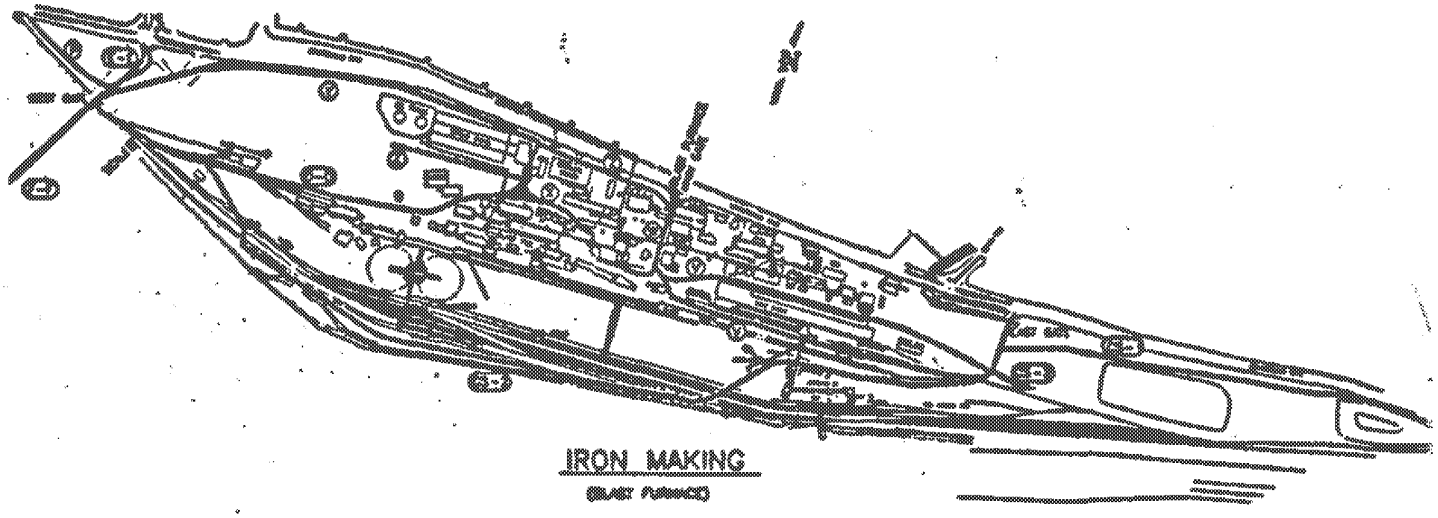
   c. Use the most beneficial furnace tilt angle;

   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

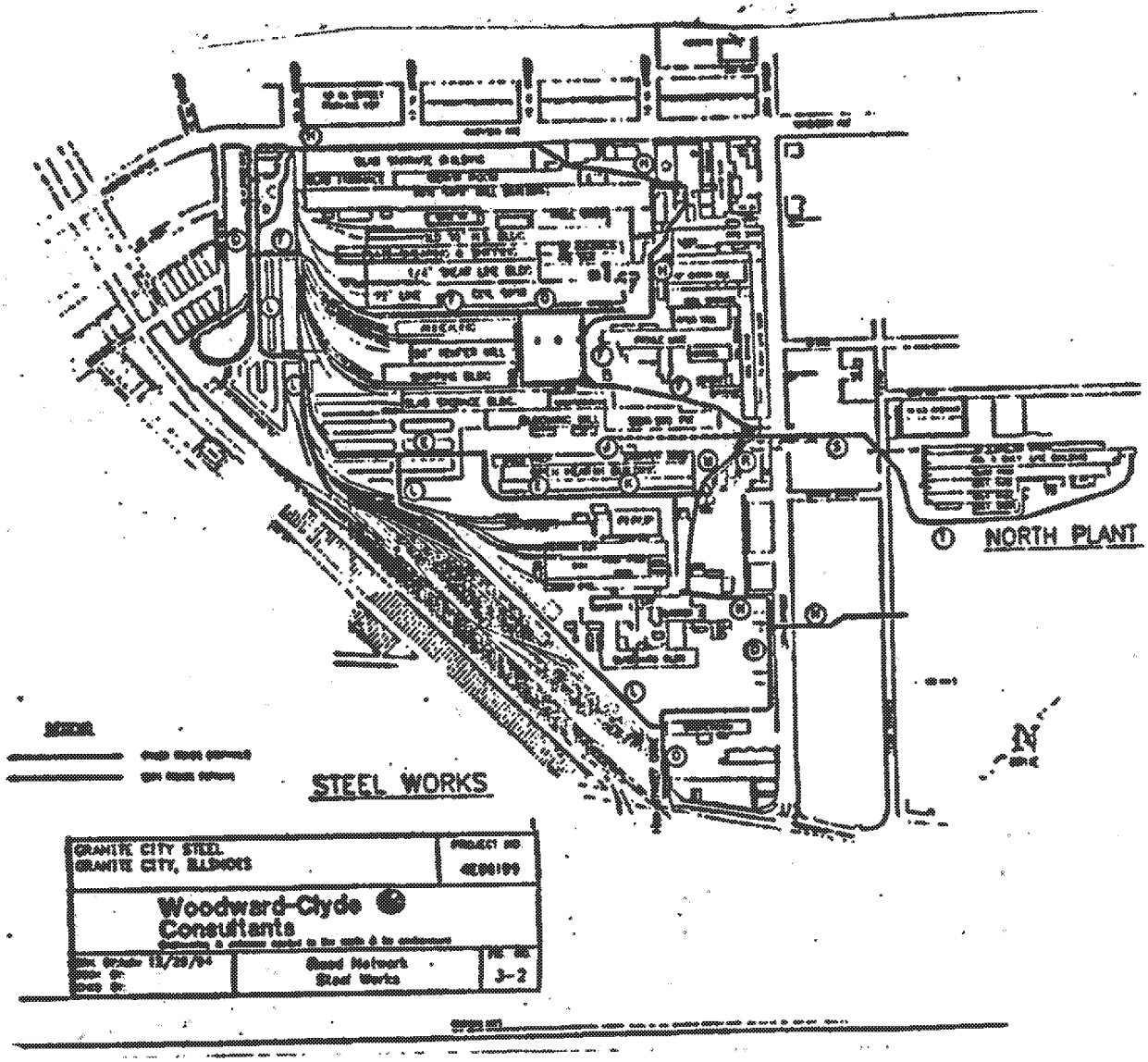


GRANITE CITY STEEL GRANITE CITY, ILLINOIS	PROJECT NO.
Woodward-Clyde Consultants	
DRN. BY: Date 12/29/94 CHKD. BY: APPD. BY:	Road Network Iron Making Area

3-3

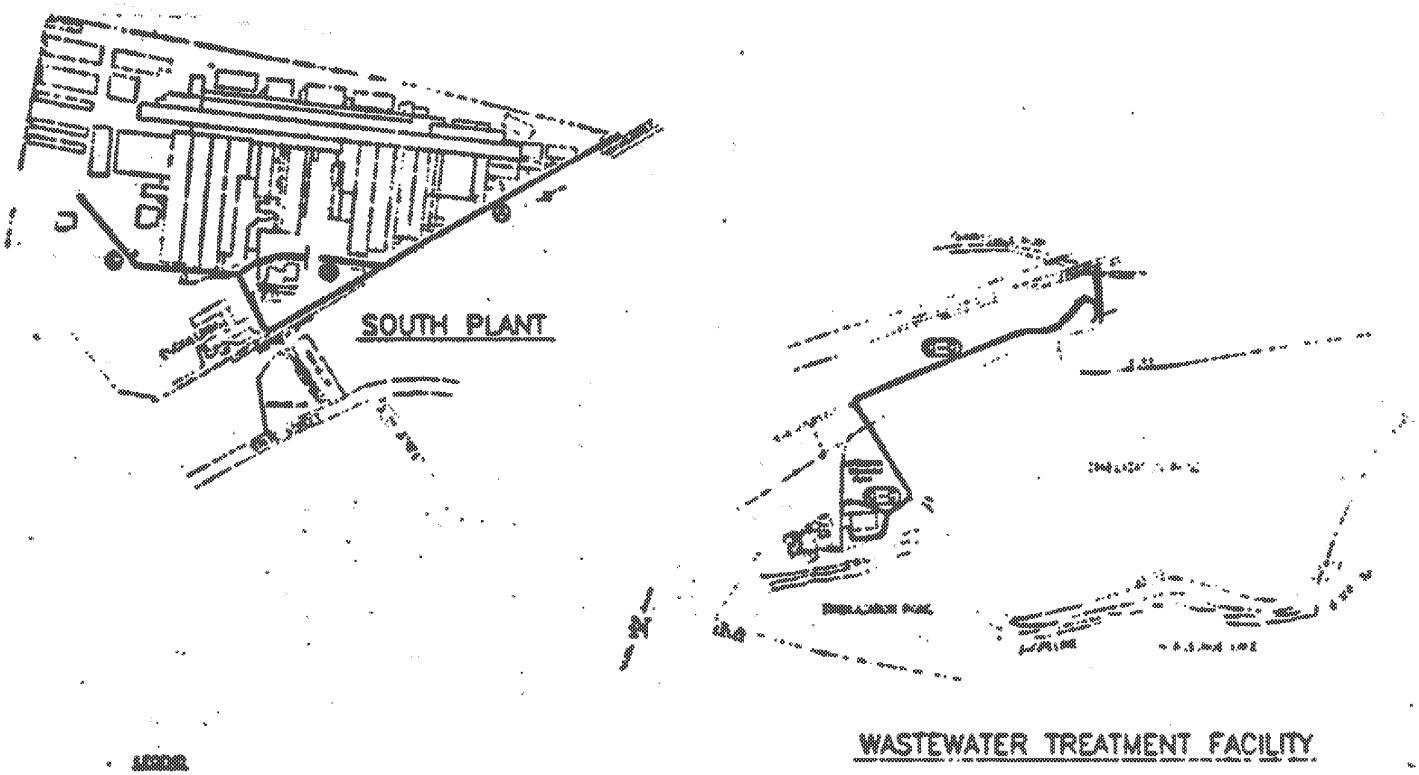
Permit Application #95010001

ATTACHMENT B (cont.)



Permit Application #95010001

ATTACHMENT B (cont.)



GRANITE CITY STEEL
GRANITE CITY, ILLINOIS

PROJECT NO.
4C8196

Woodward-Clyde Consultants

Flood 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.

JRR:jar

Appendix E – Copies EPA Determinations

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

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:

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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).

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*].

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

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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.

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

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[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[19] 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

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[19] Section 328 defines an OCS source as follows:

> The terms "Outer Continental Shelf source" and "OCS source" include any equipment, activity, or facility which –
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> (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).

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

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[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.

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:

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[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).

> [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.

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[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
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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

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(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. B-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.*

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).

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*].[39] 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

[39] 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

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[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.

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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

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[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-

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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

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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).

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 I: 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-

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, and CO was essentially a last resort method for calculating compliance, whereas the emission units that accounted for at least 90% of the NO, 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, 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.

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).

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[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).

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-
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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

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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).

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,

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[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.

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

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[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).

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.

> (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

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[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)).

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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

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(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.

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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,

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

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[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.

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.

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[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
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> 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

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[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).

> 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

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,

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*

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-

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

> 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*,

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[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

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

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[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).

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.

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

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[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

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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.

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.

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[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).

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.

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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-

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[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.

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

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[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.

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

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[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.

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.

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.*

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[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.*

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]

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[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 19. 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. PF-7).

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

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

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[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.

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-

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[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,

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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).

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.

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)).

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[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.

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-

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.

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[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.

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.

Inupiat interpreter for the hearing.[88] *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-

[88] 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

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[86] As discussed above, the regulatory requirement is for a permit issuer to respond to significant comments. *See* 40 C.F.R. § 71.11(f)(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).

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.

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[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 Inupiat speaker to be available to provide Inupiat interpretation at the hearing if requested by any participant. At the beginning of the hearing, participants were provided the opportunity to request Inupiat 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.

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

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.

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*,

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, *see* CAA § 111(a), (f), 40 U.S.C. § 7411(a),

§ 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).

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).

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,

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[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

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

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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-

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).

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.

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

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,

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

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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

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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.").

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,

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]

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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

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*

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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.

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

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[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.

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.

Kras, Kim

From: Ray, Sarah
Sent: Wednesday, June 24, 2020 10:11 AM
To: Sprague, Jeff
Cc: Rutherford, Cari
Subject: RE: U.S. Steel-Granite City Works Revised PSD Permit Application

Hi Jeff,

After talking this morning, Cari and I had some questions for you.

- Do you have an electronic copy of the protocol and/or modeling report? Cari just has a paper copy. I've also emailed Minesh to see if he has an electronic version that he could potentially share.

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Prior to the stay-at-home order, Cari had started her review of the consultant's CO modeling and had constructed modeling runs in BEEST. With that in mind, it seems like the most efficient way to tackle this project is to have Cari continue her work on the modeling analysis portion of the review and to have me focus on the additional impacts analysis, including resolving any potential gaps that may exist. Does this seem reasonable to you?

Thanks,
Sarah

From: Rutherford, Cari
Sent: Tuesday, June 23, 2020 3:40 PM
To: Ray, Sarah

Cc: Sprague, Jeff
Subject: RE: U.S. Steel-Granite City Works Revised PSD Permit Application

That sounds perfect! Talk to you then! -Cari

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Cc: Bloomberg, David E. <David.Bloomberg@Illinois.gov>; Carter, Sally <Sally.Carter@Illinois.gov>; Sprague, Jeff <Jeff.Sprague@Illinois.gov>
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Kras, Kim

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Subject: U.S. Steel-Granite City Works Revised PSD Permit Application

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Jeff

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Kras, Kim

From: Ray, Sarah
Sent: Wednesday, June 24, 2020 10:16 AM
To: Patel, Minesh
Subject: RE: Construction Permit Revision Application for USS Granite City Works

Hi Minesh,

Thank you!

Kind regards,
Sarah

From: Patel, Minesh <Minesh.Patel@Illinois.gov>
Sent: Wednesday, June 24, 2020 10:11 AM
To: Ray, Sarah <Sarah.Ray@illinois.gov>
Subject: FW: Construction Permit Revision Application for USS Granite City Works

This is what I have for US Steel. If you need more, we may have to contact Chris to see if we can get that info needed.

From: Gurinder (Gary) Saini <saini@rtpenv.com>
Sent: Monday, March 2, 2020 9:35 AM
To: Patel, Minesh <Minesh.Patel@Illinois.gov>
Cc: Colin Campbell <campbell@rtpenv.com>; Romaine, Chris <Chris.Romaine@Illinois.gov>
Subject: [External] Construction Permit Revision Application for USS Granite City Works

A construction permit revision application for the USS Granite City Works facility was shipped, via FedEx, for delivery on Monday March 2, 2020. The package includes the final application and appendices including the model files on a CD and a check for permit application fee.

Attached is the electronic version of the construction permit revision application. Please let us know if you need anything or have any questions.

Regards

GS
(919) 845-1422, 42
(919) 533-4558

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To: Ray, Sarah
Cc: Rutherford, Cari; Sprague, Jeff
Subject: RE: U.S. Steel-Granite City Works Revised PSD Permit Application

Hey Sarah,
Here are my responses to your questions:

- Do you have an electronic copy of the protocol and/or modeling report? Cari just has a paper copy. I've also emailed Minesh to see if he has an electronic version that he could potentially share. ***Response: As you indicated in your last email, you've already received an electronic copy from Minesh.***

- It looks like the consultant processed meteorology using the old version of AERSURFACE since at the time of their submission, the new version wasn't available. With that in mind, should we continue to use the 2014-2018 meteorology from the old AERSURFACE for consistency and because the surface parameters that we provided to the consultant for the review were also from the old version of AERSURFACE? ***Response: Yes, use the 2014-2018 meteorology from the old version of AERSURFACE for consistency. And, as you know, AERSURFACE is not technically a part of the regulatory-approved AERMOD modeling system (AERMAP, AERMET, and AERMOD), and thus both we and they should be using what we had previously recommended.***

- I need to check the project's potential impacts, but, if the project is not significant for VOM, would the consultant still need to address ozone impacts in either the modeling or additional impacts analyses since it doesn't sound like there are significant emissions for NOx? ***Response: If they are not significant for VOM, then under the current guidance they would not need to address ozone impacts.***

- Since the project is not significant for NOx or SO_2, should the additional impacts analysis have included any discussion of deposition? If not, my thought was to take an approach similar to Enbridge and look up existing ambient deposition levels in the area and compare them to critical thresholds for nitrogen and sulfur. Is that okay? ***Response: You should go with the approach that you adopted for Enbridge.***

- It doesn't look like there's any discussion of HAPs (or VOM) in the additional impacts analysis either. Should I send an email similar to what I sent to the consultant for Enbridge, to request that this be included? ***Response: Unlike Enbridge, there's no preliminary indication that USS-GCW was significant for VOM. You should find out from Minesh what organic HAPs were included in the original PSD application, and in what quantities. Based upon that information, we can then make a decision.***

- I talked with Cari and it sounded like the consultant included a brief discussion of potential Class I and Class II visibility impacts in the modeling protocol, – namely that the distance between the nearest Class I area and the project site was too far away to pose any concern and that CO was not a pollutant that would generate plume impacts for Class II areas – but not in the actual additional impacts analysis. Is this okay, so long as we discuss this in the memo? Response: ***Yes, that seems OK for this revised PSD application, but you should probably investigate what they did in the original PSD application (for NOx, SO2, and PM contributions to visibility degradation).***

Prior to the stay-at-home order, Cari had started her review of the consultant's CO modeling and had constructed modeling runs in BEEST. With that in mind, it seems like the most efficient way to tackle this project is to have Cari continue her work on the modeling analysis portion of the review and to have me focus on the additional impacts

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Thanks,

Jeff

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Pritchett, Jacob A.

Subject: FW: US Steel/IEPA Mtg
Location: IEPA, Springfield, IL

Start: Tue 6/28/2016 10:00 AM
End: Tue 6/28/2016 2:30 PM
Show Time As: Tentative

Recurrence: (none)

Meeting Status: Not yet responded

Organizer: Katherine D. Hodge

-----Original Appointment-----
From: Katherine D. Hodge [mailto:Katherine.Hodge@heplerbroom.com]
Sent: Thursday, April 21, 2016 3:37 PM
To: Katherine D. Hodge; 'David W Hacker (DWHacker@uss.com)'; 'BMKresak@uss.com'; 'CWHardin@uss.com'; 'VLMorton@uss.com'; Carter, Sally; Matthew C. Read; Springfield Docket Calendar
Subject: US Steel/IEPA Mtg
When: Tuesday, June 28, 2016 11:00 AM-3:30 PM (UTC-05:00) Eastern Time (US & Canada).
Where: IEPA, Springfield, IL

Meeting at IEPA beginning at 10:00 am.

HB# 7263.116823

HEPLERBROOM LLC NOTICES: This message, including attachments, is confidential and may contain information protected by the attorney-client privilege or work product doctrine. If you are not the addressee, any disclosure, copying, distribution, or use of the contents of this message are prohibited. If you have received this email in error, please destroy it and notify me immediately. In compliance with the IRS, any tax advice contained in this message is not intended or written to be used, and cannot be used, for the purpose of (1) avoiding penalties under the Internal Revenue Code or (2) promoting, marketing, or recommending to others any tax-related matter(s) addressed here.

Email communication is not a secure method of communication. Please contact me immediately if you want future communications to be sent via a different medium.

Pritchett, Jacob A.

From: Romaine, Chris
Sent: Wednesday, June 29, 2016 11:44 AM
To: Carter, Sally
Subject: Accepted: USS

Pritchett, Jacob A.

From: Romaine, Chris
Sent: Thursday, June 30, 2022 11:05 AM
To: Carter, Sally
Subject: Accepted: USS

Pritchett, Jacob A.

From: Romaine, Chris
Sent: Thursday, June 30, 2022 11:07 AM
To: Carter, Sally
Subject: Accepted: USS

Pritchett, Jacob A.

From: Romaine, Chris
Sent: Thursday, July 1, 2021 6:05 PM
To: Carter, Sally
Subject: Accepted: USS

Cass, Rylee

From: Patel, Minesh
Sent: Thursday, July 1, 2021 7:18 AM
To: Romaine, Chris
Subject: Cogen Boiler permit
Attachments: 06070023.doc

As requested.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
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217/785-1705

CONSTRUCTION PERMIT -- REVISED*
NSPS/NESHAP SOURCE

PERMITTEE

United States Steel Corporation - Granite City Works
Attn: Krista Armentrout
1951 State Street
Granite City, Illinois 62040

Application No.: 06070023 I.D. No.: 119813AAI
Subject: Cogeneration Boiler Project
Date Permit Originally Issued: January 30, 2008
Date Application for Revised Permit Received: February 6, 2017
Date Revised Permit Issued: March 25, 2021
Location: 1951 State Street, Granite City, Madison County

This Permit is hereby granted to the above-designated Permittee to CONSTRUCT emission source(s) and/or air pollution control equipment consisting of a cogeneration boiler, a flare, and cooling tower, as described in the above-referenced application. This Permit is subject to standard conditions attached hereto and the following special condition(s).

If you have any questions on this permit, please contact Minesh Patel at 217/785-5151.

William D Marx
Manager, Permit Section
Bureau of Air

WDM:MVP:tan

cc: CES

* This permit has been revised at the request of the Permittee to address operation of the cogeneration boiler as a natural gas-fired boiler, including operation without any blast furnace gas, as well as operation predominantly on blast furnace gas, as originally provided.

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1.0 LIST OF ABBREVIATIONS AND ACRONYMS COMMONLY USED

BFG	Blast Furnace Gas
CAAPP	Clean Air Act Permit Program
CFR	Code of Federal Regulations
CO	Carbon Monoxide
dscf	Dry standard cubic feet
gr	Grains
HAP	Hazardous Air Pollutant
H_2SO_4	Sulfuric Acid
hr	Hour
IAC	Illinois Administrative Code
I.D. No.	Identification Number of Source, assigned by Illinois EPA
Illinois EPA	Illinois Environmental Protection Agency
Lb	Pound
mg	Milligram
Mo	Month
mmBtu	Million British Thermal Units
MSSCAM	Major Stationary Sources Construction and Modification (35 Part IAC 203), also known as Nonattainment New Source Review (NA NSR)
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 (40 CFR 52.21)
scf	Standard Cubic Feet
scm	Standard Cubic Meter
SO_2	Sulfur Dioxide
USEPA	United States Environmental Protection Agency
VOM	Volatile Organic Material
Yr	Year

2.0 OVERALL SOURCE CONDITIONS

2.1 General Applicable Provisions and Regulations

2.1.1 The new units being constructed as part of this project are subject to particular regulations as set forth in Section 3 (Unit-Specific Conditions for Specific Emission Units) of this permit.

2.1.2 In addition, these emission units are subject to the following regulations of general applicability:

a. No person shall 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 overhead at a point beyond the property line of the source unless the wind speed is greater than 40.2 kilometers per hour (25 miles per hour), pursuant to 35 IAC 212.301 and 212.314.

b. 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.

2.2 General Non-Applicability Provisions

2.2.1 PSD/NA NSR

a. The Permittee has addressed the applicability of 40 CFR 52.21, PSD, and 35 IAC Part 203, Major Stationary Sources Construction and Modification (MSSCAM). The limits established by this permit are intended to ensure that the Cogeneration Boiler Project addressed in this construction permit does not constitute a major modification of the source pursuant to these rules (See Attachment 1). For the purpose of addressing whether this project is a major modification for emissions of particulate matter under MSSCAM, as US Steel did not provide separate $PM_{2.5}$ emission data for the project and given the netting analysis shows that the project would not be accompanied by a significant net increase in emissions is conducted in terms of emissions of PM_{10}, the limits for emissions of PM_{10} established by this permit are also applicable to emissions of $PM_{2.5}$.

2.3 General Work Practice Requirements

2.3.1 Operating Program

a. Pursuant to 35 IAC 212.309, emission units that are subject to a requirement in 35 IAC 212.304 through 212.308 or

212.316 shall be operated under the provisions of an operating program, consistent with the requirements set forth in 35 IAC 212.310 and 212.312, and 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.

i. At a minimum the operating program shall include the information and elements specified by 35 IAC 212.310, including: (1) a detailed description of the best management practices utilized to control fugitive dust; (2) estimated frequency of application of dust suppressants by location; and (3) such other information as may be necessary to facilitate the Illinois EPA's review of the operating program.

ii. This program shall also identify the specific control measures as may be needed to ensure that certain emission units comply with the opacity limits of 35 IAC 212.316.

iii. Pursuant to 35 IAC 212.312, this 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 35 IAC Part 212 Subpart K and shall be submitted to the Illinois EPA for its review.

2.4 General Recordkeeping Requirements

2.4.1 Retention and Availability of Records

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), shall be kept at a location at the source that is readily accessible to the Illinois EPA or USEPA, and shall be made available for inspection and copying by the Illinois EPA or USEPA 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.

2.5 General Reporting Requirements

2.5.1 Reporting and Notifications Associated with Emissions Tests

a. The Illinois EPA shall be notified prior to required emissions tests to enable the Illinois EPA to observe these tests. Notification of the expected date of testing shall

be submitted a minimum of 30 days prior to the expected testing date. Notification of the actual date and expected time of testing shall be submitted a minimum of 5 working days prior to the actual date of the test. The Illinois EPA may at its discretion accept notifications with shorter advance notice provided that the Illinois EPA will not accept such notifications if it interferes with the Illinois EPA's ability to observe testing.

b. At least 60 days prior to the actual date of required emissions testing, a written test plan shall be submitted to the Illinois EPA for review. This plan shall describe the specific procedures for testing, including at a minimum:

i. The person(s) 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 the operating parameters for the emission unit and any control equipment 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 method(s) that will be used, with the specific analysis method, if the method can be used with different analysis methods.

v. Any minor changes in standard methodology proposed to accommodate the specific circumstances of testing, with justification.

vi. Opacity observations during the period of testing.

c. Copies of the Final Reports(s) for required emissions tests shall be submitted to the Illinois EPA within 30 days after the test results are compiled and finalized. The Final Report shall include at a minimum:

i. A summary of results.

ii. General information.

iii. Description of test method(s), including description of sample points sampling train, analysis equipment, and test schedule.

iv. Detailed description of test conditions, including:

A. Process information.

B. Control equipment information, e.g., equipment condition and operating parameters during testing.

v. Data and calculations, including copies of all raw data sheets, opacity observation records and records of laboratory analyses, sample calculations, and data on equipment calibration.

2.5.2 Notification and Reporting of Deviations

a. Except as specified in a particular provision of this permit, notifications and reports for deviation from applicable requirements of this permit shall include at least the following information: the date and time of the event, a description of the event, information on the magnitude of the deviation, a description of the corrective measures taken, and a description of any preventative measures taken to prevent future occurrences.

2.6 RESERVED

(This condition originally addressed the requirements for permanent shutdown of existing emission units including Boilers 1 through 10, No. 6 Galvanizing line, No. 4 Coke Oven Gas Booster Pump and a Coke Oven Gas Blending Station, all of which have now been permanently shutdown.)

2.7 Authorization to Operate

The Permittee may operate the cogeneration boiler as a natural gas-fired boiler as addressed by this revised construction permit under this permit until this manner of operation is addressed in the source's CAAPP permit.

Note: The operation of the cogeneration boiler as a blast furnace gas-fired unit has been addressed in the CAAPP permit for the source, as issued on March 4, 2013.

3.0 UNIT-SPECIFIC CONDITIONS FOR SPECIFIC EMISSION UNITS

3.1 Cogeneration Boiler

3.1.1 Description

a. This project involves construction of a new cogeneration boiler.

The new boiler would be used for cogeneration, as it would supply high pressure steam to a steam turbine-generator, which would produce electricity for use at the source. Low-pressure steam from this turbine would then be used for manufacturing operations at the source.

Except when blast furnace(s) are idled, the new boiler would be primarily fed with blast furnace gas (BFG) which is by-product fuel from the blast furnaces at the source. Natural gas would be used for the pilot flame and for combustion stability. When both blast furnaces are idled, natural gas would be the primary fuel if steam were needed from this boiler.

This project would be accompanied by the permanent shut down of existing Boilers 1 through 10, with accompanying decreases in their emissions. Blast furnace gas previously sent to these boilers would now be sent to the new boiler.

b. i. This revised permit addresses an additional operational scenario for this new boiler, which entails operation primarily on natural gas, including operation only on natural gas, rather than operation predominantly on blast furnace gas, as initially addressed by this permit. This additional scenario addresses the operation of this boiler when the blast furnaces at the source, as well as other units, are not being operated or are being operated at reduced levels. The adjacent Gateway coke plant would continue to provide a portion of the steam powering the turbine generator.

ii. To accommodate this change, this revised permit no longer limits the usage of natural gas by this boiler. As a consequence:

A. This boiler is subject to a standard for emissions of nitrogen oxides (NOx), with accompanying requirements for continuous emissions monitoring, under the federal New Source Performance Standards (NSPS) for Industrial-Commercial-Institutional Steam Generating Units, 40 CFR 60 Subpart Db, as now addressed in this revised permit.

B. This boiler is also subject to a requirement for periodic tune ups of the boiler under the federal National Emission Standards for Hazardous Air Pollutant (NESHAP), 40 CFR 63 Subpart DDDDD, when operating as a natural gas-fired unit (i.e., a unit in the "unit designed to burn gas 1 subcategory" under this NESHAP) rather than as a blast furnace gas fuel-fired boiler, which requirement is now addressed by this revised permit.

iii. This revised permit also addresses the requirements of state rules for NOx emissions. 35 IAC Part 217 Subparts D and E, which took effect on January 1, 2015.

c. For purposes of these unit-specific conditions, in this revised permit, the cogeneration boiler is referred to as the "affected unit."

3.1.2 List of Emission Units and Air Pollution Control Measures

Emission Unit	Description	Emission Control Measures
Cogeneration Boiler	Blast furnace gas and natural gas-fired boiler (nominal capacity 505 mmBtu/hour)	*

* BFG undergoes pre-treatment to remove entrained dust before being burned.

3.1.3-1 Applicable Federal New Source Performance Standards (NSPS)

a. The affected unit is subject to the NSPS for Industrial-Commercial-Institutional Steam Generating Units, 40 CFR 60 Subpart Db, and applicable requirements of the General Provisions of the NSPS, 40 CFR 60 Subpart A.

b. Pursuant to 40 CFR 60.44b(h), (i) and (l)(1), as the affected unit is a low heat release boiler as defined by 40 CFR 60.41b, the NO_x emissions (expressed as NO_2) of the affected unit shall not exceed 43 ng/J (0.10 lb/million Btu) heat input, determined on a 30-day rolling average basis. This standard applies at all times including periods of startup, shutdown, or malfunction.

3.1.3-2 Applicable Federal National Emission Standards for Hazardous Air Pollutants (NESHAP)

a. During each compliance period in which the affected unit does not qualify as a "blast furnace gas fuel-fired boiler" as defined by 40 CFR 63.7575, the affected unit is subject to the National Emission Standards for Hazardous Air

Pollutants (NESHAP) for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters, 40 CFR 63 Subpart DDDDD (Boiler NESHAP) and related requirements of General Provisions 40 CFR 63 Subpart A. For this purpose, the Permittee shall comply with applicable requirements for an existing boiler in the "units designed to burn gas 1 fuel" category of the Boiler NESHAP, including the following:

i. Pursuant to 40 CFR 63.7500(a)(1) and Table 3 of Boiler NESHAP, the Permittee shall conduct periodic tune-ups of the affected unit as specified by the Boiler NESHAP.

ii. Pursuant to 40 CFR 60.11(d) and 63.7500(a)(3), the Permittee shall operate and maintain the affected unit, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions at all times including during startup, shutdown and malfunction.

3.1.3-3 Applicable State Emission Standards

a. The affected unit 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 (PM) 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/hour), having an opacity greater than 20 percent.

b. The affected unit is subject to 35 IAC 216.121, which provides that no person shall cause or allow the emission of carbon monoxide (CO) into the atmosphere from a fuel combustion unit with a heat input capacity of 10 million Btu per hour or more to exceed 200 ppm, corrected to 50 percent excess air.

c. The affected unit is subject to 35 IAC 217 Subparts D and E, pursuant to which the following requirements for NOx emissions apply:

i. 35 IAC 217.164(a), which provides that during each ozone season and calendar year in which the affected unit combusts only natural gas, the NOx emissions from the unit shall not exceed 0.08 lb/mmBtu on an ozone season and annual basis.

ii. 35 IAC 217.164(b), which provides that during each ozone season or calendar year in which the affected unit combusts a combination of blast furnace gas and natural gas, the NO_x emission of the unit shall not

exceed the limitation calculated using the equation in this rule on an ozone season and annual basis.

Note: This equation calculates a limitation for NOx in lb/mmBtu that is based on an emission rate of 0.0288 lb/mmBtu for blast furnace gas and 0.084 lb/mmBtu for natural gas, weighted by the fraction of the heat input to a unit during the ozone season or calendar year provided by each fuel.

iii. 35 IAC 217.150(e), which provides that the owner or operator of a subject unit must operate such unit in a manner consistent with good air pollution control practice to minimize NO_x emissions.

d. When the affected unit combusts blast furnace gas, the affected unit is subject to 35 IAC 214.161(b)(1) and 214.162, which provides that the sulfur content of blast furnace gas shall not exceed 1000 ppm.

3.1.4 Non-Applicability Provisions

a. The affected unit is not subject to the NSPS for Electric Utility Steam Generating Units (40 CFR 60 Subpart Da) because the affected unit is not an electric utility steam generating unit as the term is defined in 40 CFR 60.41Da.

b. The affected unit is not subject to 40 CFR 60 Subpart D because the affected unit meets the applicability criteria of 40 CFR Subpart Db at 40 CFR 60.40b(a) [40 CFR 60.40b(j)].

c. Under the NSPS, 40 CFR 60 Subpart Db:

i. The affected unit is not subject to the SO_2 standards because the affected unit meets the exemption provided at 40 CFR 60.42b(k)(2).

ii. The affected unit is not subject to the PM standards because these standards do not apply to boilers that only burn gaseous fuel.

Note: This revised permit is based on the affected unit being subject to the NO_x standards of the NSPS, 40 CFR 60 Subpart Db. This is different than Condition 7.10.4(c)(iv) of the CAAPP permit for the source, which indicates that these standards are not applicable for the affected unit because the annual capacity factor of this unit for natural gas is limited to 10 percent or less, which is no longer the case as a result of this revised permit.

d. Under the NESHAP, 40 CFR 63 Subpart DDDDD, when the affected unit qualifies as a "blast furnace gas fuel-fired boiler" as defined by 40 CFR 63.7575, this permit is issued

based on the affected unit not being subject to this NESHAP. This is because the affected unit would be excluded from this NESHAP by 40 CFR 63.7491(k).

Note: Under the NESHAP, 40 CFR 63 Subpart DDDDD, a boiler is considered a blast furnace gas fuel-fired boiler if blast furnace gas comprises at least 90 percent of the total volume of fuel burned in a unit during the compliance period.

e. This permit is issued based on the affected unit not being an affected source for purposes of the federal Acid Rain Program or Cross-State Air Pollution Rule. This is because the affected unit qualifies as a cogeneration unit since the electrical generator associated with this unit does not supply more than 219,000 MW-hour of electricity to any utility power distribution system for sale in any calendar year.

3.1.5 Control Requirements and Work Practices

a. When blast furnace gas (BFG) is used as a fuel for the affected unit, emissions of PM and PM_{10} from the affected unit shall be controlled by the existing BFG pretreatment system, which entails treatment of BFG by dust catchers and wet scrubbers.

b. Emissions of PM from the affected unit, as measured by USEPA Method 5, shall not exceed 0.03 lb/mmBtu.

c. BFG and natural gas shall be the only fuels fired in the affected unit.

d. Pursuant to 40 CFR 97.404(b)(1)(i) and 40 CFR 72.6(b)(4)(i), the affected unit shall not supply more than 219,000 MW-hour of excess electricity to any utility power distribution system for sale in any calendar year from the electrical generator associated with the unit.

3.1.6 Production and Emission Limit

a. i. The maximum design firing rate of the affected unit shall not exceed 505 mmBtu/hour.

ii. The maximum design BFG input of the affected unit shall not exceed 476 mmBtu/hour.

Note: As this revised permit allows operation of the affected unit as a natural gas-fired boiler, this revised permit no longer limits the annual capacity factor of the affected unit for natural gas to 10 percent. This is different than Condition 7.10.6(a)(iii) of the CAAPP permit for the source, which limits the annual capacity factor of this unit for natural gas to less than 10 percent,

consistent with the original construction permit issued for the affected unit.

b. i. The emission from the affected unit, the new BFG flare and the natural gas pilot for the new BFG flare, in lbs/mmBtu heat input, shall each not exceed the following limits. 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):

A. Emissions of pollutants other than NO_x and VOM:

Pollutant	Limit (Lbs/mmBtu)
CO	0.15
PM/PM_{10}	0.10
SO_2	0.20
Indiv. Metal HAP	0.0007
Total HAPs	0.005

B. Emissions of NO_x and VOM from the affected unit and the new BFG flare shall each not exceed the limit calculated using the following equation:

$$L = [(R_{BFG} \times H_{BFG}) + (R_{NG} \times H_{NG})]/(H_{BFG} + H_{NG})$$

Where:

L = Emission limit for NO_x or VOM, in lbs/mmBtu;

R = Emission rate for the pollutant for the type of fuel, as follows:

Pollutant	Emission Rates for Fuel Type (Lbs/mmBtu)	
	BFG (R_{BFG})	Natural Gas (R_{NG})
NO_x	0.05	0.12
VOM	0.003	0.0054

H_{BFG} = Heat input to the unit from BFG, in mmBtu;

H_{NG} = Heat input to the unit from natural gas, in mmBtu.

ii. Emissions from the affected unit and the new BFG flare, including emissions associated with natural gas pilot for the new BFG flare, combined, shall not exceed the following limits:

Pollutant	Emissions	
	Tons/Month	Tons/Year
NO_x	22.6	124.74
CO	33.9	338.36
VOM	2.78	12.2
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

c. Compliance with the above annual limits in Conditions 3.1.6(a)(ii) and (b)(ii) 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.

3.1.7-1 Emissions Testing Requirements

a. Within 60 days after achieving the maximum production rate at which the affected unit will be operated, but not later than 180 days after initial startup of the affected unit, the Permittee shall conduct performance test(s) and furnish the Illinois EPA a written report of the results of such test(s).

b. i. These tests shall be designed to measure the CO, SO_2, PM_{10}, PM and VOM emissions under operational conditions which are representative of maximum emissions when blast furnace gas is the primary fuel burned in the affected unit.

ii. These tests shall also include measurements of emissions of metals to verify compliance with the limits for metal HAPs.

c. The following USEPA test methods shall be used for testing of emissions, unless another 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
SO_2	Method 6
CO	Method 10
PM_{10}	Methods 201A* & 202
PM	Method 5
VOM	Method 18 or 25A
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}.

d. The Permittee shall submit a plan, notifications and a report for these emissions tests as required by Condition 2.5.1. For this purpose, in addition to other required information, the test report shall include data for the sulfur content of BFG, as determined pursuant to Condition 3.1.8-2.

Note: The issuance of this revised permit does not require that the testing of the affected unit addressed by this condition be repeated. This testing, which also addressed emissions of NO_x, was conducted after the affected units initially began operation in 2009. This revised permit also does not affect the periodic emission testing for the affected unit required in current CAAPP permit.

3.1.7-2 Performance Testing Requirements

a. Pursuant to 35 IAC Part 217 Subpart D, if the Permittee is not conducting continuous emissions monitoring for NOx for the affected unit, the Permittee shall comply with all applicable emission testing requirements of 35 IAC 217.157(a).

3.1.8-1 NO_x Emissions Monitoring Requirements

a. For the affected unit, the Permittee is subject to the following requirements for continuous emission monitoring for NOx:

i. Pursuant to 40 CFR 60.48b(b)(2), for the affected unit, the Permittee shall install a NO_x emission rate Continuous Emission Monitoring System (CEMS) that meets the requirement of 40 CFR Part 75. The Permittee shall comply with the requirements of 40 CFR 60.49b. Data reported to meet the requirements of 40 CFR 60.49b shall not include data substituted using the missing data procedures in Subpart D of the 40 CFR Part 75 nor shall the data have been bias adjusted in accordance with the procedures of 40 CFR Part 75.

ii. Pursuant to 40 CFR 60.48b(c), the CEMS shall be operated and data recorded during all periods of operation of the affected unit except for CEMS breakdowns and repairs. Data shall be recorded during calibration checks and zero and span adjustments.

iii. Pursuant to 40 CFR 60.48b(d), the 1-hour NO_x emission rates measured shall be expressed in ng/J or lb/mmBtu heat input and shall be used to calculate the average emission rates in 40 CFR 60.44b. The 1-hour averages shall be calculated using the data points required in 40 CFR 60.13(h)(2).

iv. Pursuant to 40 CFR 60.48b(e), the Permittee shall follow the procedures in 40 CFR 60.13 for installation, evaluation and operation of CEMS.

v. Pursuant to 40 CFR 60.48b(f), when NO_x emission data are not obtained because of CEMS breakdowns, repairs, calibration checks and zero and span adjustments, emission data shall be obtained by using standby monitoring systems, Method 7 or 7A of appendix A of 40 CFR 60 or other approved reference methods to provide emission data for a minimum of 75 percent of the operating hours in each steam generating unit operating day, in at least 22 out of 30 successive steam generating unit operating days.

b. Pursuant to 35 IAC 217.157(a)(1), unless blast furnace gas provides at least 90 percent of the actual heat input to the affected unit on a calendar year basis and testing for the affected unit shows NOx emissions that are less than 70 percent of the applicable limitations under 35 IAC 217.164 (Condition 2.1.3-3(c)(i) or (ii)), a continuous emission monitoring system for NO_x is also required on the affected unit, which the Permittee must install, calibrate, maintain, and operate to measure NO_x emissions in accordance with 40 CFR 75.

3.1.8-2 Analysis of Blast Furnace Gas (BFG)

When BFG is used as a fuel for the affected unit, the Permittee shall:

a. Sample and analyze cleaned BFG after the pretreatment system for sulfur content (lbs/mmBtu), using appropriate ASTM methods or other comparable methodology. These measurements shall be conducted on at least an annual 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.

3.1.9 Recordkeeping Requirements

a. For the affected unit, the Permittee shall comply with the applicable recordkeeping requirements of the NSPS, as specified in 40 CFR 60.7(b) and 60.49b.

b. For affected unit, the Permittee shall comply with the applicable recordkeeping requirements of the NESHAP, as specified in 40 CFR 63.7555.

c. For the affected unit, the Permittee shall comply with recordkeeping requirements of 35 IAC 217.156.

d. For periods when BFG is used as fuel for the affected unit, the Permittee shall maintain the following records for the BFG pretreatment system:

i. Records for pressure drop and water flow;

ii. Operating log; and

iii. Maintenance log.

e. The Permittee shall maintain the following emission records:

i. A file which contains:

A. The maximum design firing rate of the affected unit (mmBtu/hour) and the maximum design BFG input of the affected unit with supporting documentation.

B. For the affected unit and for the new BFG flare for CO, PM/PM_{10}, SO_2, individual metal HAPs and total HAPs, the emission factor(s) used by the Permittee to determine monthly and annual emissions and a demonstration of compliance with the emission limits in Condition 3.1.6(b)(i)(A), with supporting documentation and calculations.

C. For the affected unit and the new BFG flare for NO_x and VOM, the emission rate(s) used by the Permittee for different fuels to determine monthly and annual emissions and a demonstration of compliance for the emission rates for each fuel in Condition 3.1.6(b)(i)(B), with supporting documentation and calculations.

ii. Amounts of fuel burned by type (mmBtu/month and mmBtu/year) for the affected unit.

iii. Emissions of NO_x, CO, VOM, PM/PM_{10}, SO_2 and HAPs (tons/month and tons/year) from the affected unit.

iv. Amounts of fuel burned for the affected unit and the new BFG flare, combined, by type (mmBtu/month and mmBtu/year).

v. Summation of the emissions of NO_x, CO, VOM, PM/PM_{10}, SO_2 and HAPs from the affected unit and the new BFG flare (tons/month and tons/year).

f. The Permittee shall maintain records of the sulfur content of the fuels burned in the affected unit, including records for the sampling and analysis of BFG pursuant to Condition

3.1.8-2(a). Records may consist of copies of supplier specifications for the sulfur content of natural gas.

3.1.10 Reporting Requirements

a. The Permittee shall promptly notify the Illinois EPA of deviations of an affected unit with the permit requirements of this section (Section 3.1). Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken.

i. Emissions or operation of the affected unit in excess of the limits specified in Condition 3.1.6(b) shall be reported within 30 days of such occurrence.

ii. Other deviations shall be reported in a semi-annual compliance report.

b. For the affected unit, the Permittee shall comply with the applicable reporting requirements of the NSPS, as specified in 40 CFR 60.7 and 60.49b.

c. For the affected unit, the Permittee shall comply with the applicable notification and reporting requirements of the NESHAP, as specified in 40 CFR 63.7545 and 63.7550.

d. For the affected unit, the Permittee shall comply with the applicable notification and reporting requirements of 35 IAC 217.156.

e. The Permittee shall notify the Illinois EPA as follows, if the status of the affected unit changes to or from a blast furnace gas fuel-fired boiler for purposes of the Boiler NESHAP and the Permittee ceases or intends to cease conducting periodic tune ups in accordance with the provisions of the NESHAP or will be required to resume conducting such tune ups:

i. If the status of the unit changes so that the unit becomes a blast furnace gas fuel-fired boiler, the Permittee shall notify the Illinois EPA within 30 days of the date that it will no longer fulfill requirements of 40 CFR 63 Subpart DDDDD. In this notification, the Permittee shall provide the date that a tune up of the affected unit was last conducted, information showing that the affected unit now qualifies as a "blast furnace gas fuel-fired boiler" as defined by 40 CFR 63.7575 and the date that the Permittee ceased or will cease complying with the Boiler NESHAP. (This notification is not required if the status of the affected unit changes to a blast furnace gas fuel-fired boiler but the Permittee continues to conduct periodic tune ups for the unit in accordance with the Boiler NESHAP.)

ii. If the status of the unit changes so that it is no longer a blast furnace gas fuel-fired boiler and it must begin complying with the requirements of 40 CFR 63 Subpart DDDDD, the Permittee shall notify the Illinois EPA within 30 days. In this notification, the Permittee shall provide the date that the unit ceased to qualify as a blast furnace gas fuel-fired boiler and discuss the reason(s) for this change, and the action that have been or will be taken to comply with 40 CFR 63 Subpart DDDDD. (This notification is not required if the status of the effected unit changes to natural gas-fired unit but the Permittee has been conducting periodic tune ups for the unit in accordance with the Boiler NESHAP while it was a blast furnace gas fuel-fired boiler.)

3.2 Blast Furnace Gas Flare

3.2.1 Description

A new BFG flare (Flare 2) would be installed to safely combust excess BFG that cannot be productively used at the source as fuel. Although the primary disposition of BFG is the new cogeneration boiler, existing Boilers 11 and 12, and the blast furnace stoves, there may be periods of time when the existing BFG flare system is unable to handle all of the excess BFG (e.g., when the BFG boiler is down for maintenance). During these periods, the excess BFG would be routed to the new BFG flare.

3.2.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description
BFG Flare	New Blast Furnace Gas Flare (Flare 2)

3.2.3 Applicable Provisions and Regulations

a. The "affected unit" for the purpose of these unit-specific conditions, is the flare described in Conditions 3.2.1 and 3.2.2.

b. The affected unit is subject to 35 IAC 214.301, which generally provides that no person shall cause or allow the emission of sulfur dioxide into the atmosphere from a process emission unit to exceed 2,000 ppm.

3.2.4 Non-Applicability of Regulations of Concern

Non-applicability of regulations of concern are not set for the affected unit.

3.2.5 Control Requirements and Work Practices

a. i. The affected unit shall be designed and operated to comply with the following equipment design specifications and work practices.

A. The affected unit shall be designed for flaring of BFG.

B. The affected unit shall be designed for and 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.

C. The affected unit shall be operated with a flame present at all times when BFG may be sent to the affected unit.

D. The presence of a flare pilot flame shall be monitored using a thermocouple or any other equivalent device to detect the presence of a flame.

ii. Emissions of PM and PM_{10} from the affected unit shall be controlled by the existing BFG pretreatment system, which entails treatment by dust catchers and wet scrubbers.

iii. A. BFG and natural gas shall be the only fuels combusted in the affected unit.

B. The maximum design firing rate of the pilot burner of the affected unit shall not exceed 10.0 mmBtu/hour.

b. The Permittee shall not vent any gas stream containing reduced sulfur compound concentrations to the affected unit that would cause the sulfur dioxide emissions into the atmosphere from any affected unit to exceed 2,000 ppm. This limit ensures that the affected unit meets the emission limit in 35 IAC 214.301.

3.2.6 Production and Emission Limitations

a. The affected unit is subject to limitations addressing emissions from both the BFG Boiler and the affected unit set forth in Condition 3.1.6.

3.2.7 Testing Requirements

a. Within 180 days after initial startup of the affected unit or otherwise the first opportunity during normal working hours of environmental staff when the unit is operated for a period of at least 10 daylight hours, the Permittee shall conduct observations for visible emissions from the affected unit and furnish the Illinois EPA a written report of the results of such test(s).

b. The test shall be designed to measure the presence of visible emissions from the affected unit.

c. The Permittee shall submit reports for these tests as required by Condition 2.5.1(c).

3.2.8 Monitoring Requirements

a. The presence of a flare pilot flame shall be monitored using a thermocouple or any other equivalent device to detect the presence of a flame.

3.2.9 Recordkeeping Requirements

a. The Permittee shall maintain records of the following items related to the pilot flame:

i. Date and duration of any time when the pilot flame monitoring equipment of the affected unit was not in operation, with explanation.

ii. Date and duration of any time when there was no pilot flame present at the affected unit, with explanation.

iii. The Permittee shall maintain records of the following items for each exceedance of the limits in Conditions 3.2.3, 3.2.5, or 3.1.6, which shall include:

A. Identification of the limit that may have been exceeded.

B. Duration of the possible exceedance.

C. An estimate of the amount of emissions in excess of the applicable standard.

D. A description of the cause of the possible exceedance.

E. When compliance was reestablished.

b. The Permittee shall maintain records of the following items for the affected unit:

i. Amount of gas burned by type (mmBtu/month and mmBtu/year).

ii. Emissions of NO_x, CO, VOM, PM/PM_{10}, and SO_2 (tons/month and tons/year).

3.2.10 Reporting Requirements

a. Reporting of Deviations

The Permittee shall promptly notify the Illinois EPA of deviations of the affected unit with the permit requirements of this section (Section 3.2). Reports shall include information specified in Condition 3.2.10(a)(i).

i. Within 30 days of exceedance of the limits in Conditions 3.2.3 and 3.2.5 the notification shall include:

A. Identification of the limit that may have been exceeded.

B. Duration of the possible exceedance.

C. An estimate of the amount of emissions in excess of the applicable standard.

D. A description of the cause of the possible exceedance.

E. When compliance was reestablished.

ii. Other deviations shall be reported in a quarterly compliance report.

3.3 Cooling Water Tower

3.3.1 Description

A cooling tower would be installed with the new cogeneration boiler and associated turbine.

The cooling tower would be a source of particulate matter because of minerals contained in the water, which would be emitted if a water droplet completely evaporates in the cooling tower.

3.3.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
Cooling Tower	Provides cool water to condense steam.	Drift Eliminator

3.3.3 Applicable Provisions and Regulations

a. The "affected unit" for the purpose of these unit-specific conditions is the cooling water tower described in Conditions 3.3.1 and 3.3.2.

b. Pursuant to 40 CFR 63.402, the Permittee shall not use chromium-based water treatment chemicals in the affected unit.

3.3.4 Non-Applicability of Regulations of Concern

a. The affected unit is not subject to 35 IAC 219.986(d), because the cooling tower does not cool process water.

3.3.5 Control Requirements and Work Practices

a. The design drift loss from the drift eliminator on the affected unit shall not exceed 0.001 percent.

3.3.6 Production and Emission Limitations

a. i. The capacity of the affected unit, expressed in terms of design water circulation rate, shall not exceed 42,000 gallons per minute, hourly average.

ii. The total dissolved solids content of water circulating in the affected unit shall not exceed 4,190 ppm on a monthly basis.

b. Emissions of PM/PM_{10} from the affected unit 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.

3.3.7 Sampling and Analysis

a. The Permittee shall sample and analyze the water being circulated in the affected unit on at least a monthly basis for the total dissolved solids content.

b. Upon written request by the Illinois EPA, the Permittee shall promptly have the water circulating in the affected unit sampled and analyzed for the presence of hexavalent chromium in accordance with the procedures of 40 CFR 63.404(a) and (b).

c. The Permittee shall keep records for this sampling and analysis activity, including documentation for sampling and analysis as well the resulting data that is collected.

3.3.8 Monitoring Requirements

a. Upon written request by the Illinois EPA, the Permittee shall test the percent drift achieved by the drift eliminator pursuant to Cooling Technology Institute's Acceptance Test Code No. 140 or other appropriate procedure approved by the Illinois EPA. This test shall be performed by a licensed performance testing service.

3.3.9 Recordkeeping Requirements

a. The Permittee shall keep records of the capacity (gallons/minute, hourly average) and the design maximum drift loss rate of the affected unit with supporting documentation.

b. The Permittee shall keep records of emissions of PM/PM_{10}, with supporting calculations (tons/month and tons/year).

3.3.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA of deviations of the affected unit with the permit requirements of this section (Section 3.3). Reports shall include information specified in Condition 3.3.10(a).

a. Emissions or operation of the affected unit in excess of the limits specified in Condition 3.3.6 within 30 days of such occurrence.

4.0 ATTACHMENTS

Attachment 1: Netting Analysis (Tons/Year)

	NO_x (NA NSR)	NO_x (PSD)	CO	SO_2	VOM	PM	$PM_{10}/PM_{2.5}$	Lead	H_2SO_4
Project Emissions	124.74	124.74	338.36	451.14	12.2	232.25	232.25	---	---
Significance Threshold:	40	40	100	40	40	25	15	0.6	7
Greater Than Significant?	Yes	Yes	Yes	Yes	No	Yes	Yes	No	No
Contemporaneous[a] Increases									
NG Enrichment (04110018)	17.22	17.22	5.17	0.04	0.34	0.73	0.62	---	---
Slab Furnaces (06070022)	---	---	26.77	---	1.75	43.43	43.43	---	---
Contemporaneous[a] Decreases									
Boilers 1 thru 10 (06070022)	-278.89	-278.89	-313.61	-789.43	-1.22	-228.06	-228.06	---	---
COG Desulf (06070022)	---	---	---	-2,107.95	---	-94.15	-94.15	---	-63.11
Slab Furnaces (06070022)	-427.94	-427.94	---	-174.15	---	---	---	---	---
No. 6 Galv. Line (06070023)	-38.48	-38.48	-10.36	-0.07	-0.68	-0.94	-0.94	---	---
No. 4 COG Pump (06070023)	-77.30	-77.30	-117.97	-0.02	-0.99	-0.64	-0.64	---	---
NET EMISSIONS CHANGE	-680.65	-680.65	-71.64	-2,620.44	11.4	-47.38	-47.49	---	-63.11
Significance Threshold:	40	40	100	40	40	25	15	0.6	7
Greater Than Significant?	No	No	No	No	No	No	No	No	No

Notes:

a. Based on the projected date for initial startup of the proposed cogeneration boiler, the contemporaneous time period for PSD pollutants is April 2002 through July 2008. The contemporaneous time period for NA NSR pollutants is July 2001 through July 2008.

R004018

Attachment 2: Standard Permit Conditions

STANDARD CONDITIONS FOR CONSTRUCTION/DEVELOPMENT PERMITS
ISSUED BY THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

The Illinois Environmental Protection Act (Illinois Revised Statutes, Chapter 111-1/2, Section 1039) authorizes the Environmental Protection Agency to impose conditions on permits, which it issues.

The following conditions are applicable unless superseded by special condition(s).

1. Unless this permit has been extended or it has been voided by a newly issued permit, this permit will expire one year from the date of issuance, unless a continuous program of construction or development on this project has started by such time.

2. The construction or development covered by this permit shall be done in compliance with applicable provisions of the Illinois Environmental Protection Act and Regulations adopted by the Illinois Pollution Control Board.

3. There shall be no deviations from the approved plans and specifications unless a written request for modification, along with plans and specifications as required, shall have been submitted to the Illinois EPA and a supplemental written permit issued.

4. The Permittee shall allow any duly authorized agent of the Illinois EPA 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 emissions 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 to be 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 proposed facilities.

   c. Does not release the Permittee from compliance with other applicable statutes and regulations of the United States, of the State of Illinois, or with applicable local laws, ordinances and regulations.

   d. Does not take into consideration or attest to the structural stability of any units or parts of the project, and

   e. 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 proposed equipment or facility.

6a. Unless a joint construction/operation permit has been issued, a permit for operation shall be obtained from the Illinois EPA before the equipment covered by this permit is placed into operation.

b. For purposes of shakedown and testing, unless otherwise specified by a special permit condition, the equipment covered under this permit may be operated for a period not to exceed thirty (30) days.

7. The Illinois EPA may file a complaint with the Board for modification, suspension or revocation of a permit.

   a. Upon discovery that the permit application contained misrepresentations, misinformation or false statement or that all relevant facts were not disclosed, or

   b. Upon finding that any standard or special conditions have been violated, or

   c. Upon any violations of the Environmental Protection Act or any regulation effective thereunder as a result of the construction or development authorized by this permit.

STATE OF ILLINOIS
ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF AIR POLLUTION CONTROL
P. O. BOX 19506
SPRINGFIELD, ILLINOIS 62794-9506

STANDARD CONDITIONS FOR CONSTRUCTION/DEVELOPMENT PERMITS ISSUED BY THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

July 1, 1985

The Illinois Environmental Protection Act (Illinois Revised Statutes, Chapter 111-1/2, Section 1039) authorizes the Environmental Protection Agency to impose conditions on permits which it issues.

The following conditions are applicable unless superseded by special condition(s).

1. Unless this permit has been extended or it has been voided by a newly issued permit, this permit will expire one year from the date of issuance, unless a continuous program of construction or development on this project has started by such time.

2. The construction or development covered by this permit shall be done in compliance with applicable provisions of the Illinois Environmental Protection Act, and Regulations adopted by the Illinois Pollution Control Board.

3. There shall be no deviations from the approved plans and specifications unless a written request for modification, along with plans and specifications as required, shall have been submitted to the Agency and a supplemental written permit issued.

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 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 to be 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 proposed facilities,

   c. does not release the Permittee from compliance with the other applicable statues and regulations of the United States, of the State of Illinois, or with applicable local laws, ordinances and regulations,

   d. does not take into consideration or attest to the structural stability of any units or parts of the project, and

e. 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. a. Unless a joint construction/operation permit has been issued, a permit for operation shall be obtained from the Agency before the equipment covered by this permit is placed into operation.

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b. upon finding that any standard or special conditions have been violated, or

c. upon any violations of the Environmental Protection Act or any regulation effective thereunder as a result of the construction or development authorized by this permit.

Pritchett, Jacob A.

From: Romaine, Chris
Sent: Thursday, July 1, 2021 7:57 AM
To: Carter, Sally
Subject: Accepted: USS

Pritchett, Jacob A.

Subject: FW: USS

Start: Wed 9/7/2022 8:00 AM
End: Wed 9/7/2022 5:00 PM
Show Time As: Tentative

Recurrence: (none)

Meeting Status: Not yet responded

Organizer: Carter, Sally

FYI

September 8 has been selected.

-----Original Appointment-----
From: Romaine, Chris **On Behalf Of** Carter, Sally
Sent: Wednesday, July 6, 2022 11:27 AM
To: Marr, Bill
Subject: FW: USS
When: Wednesday, September 7, 2022 8:00 AM-5:00 PM (UTC-06:00) Central Time (US & Canada).
Where:

FYI

The next conversation with US Steel is scheduled for September 7 or 8.

-----Original Appointment-----
From: Carter, Sally <Sally.Carter@Illinois.gov>
Sent: Wednesday, June 29, 2022 3:15 PM
To: Carter, Sally; Carter, Sally; Romaine, Chris; Patel, Minesh
Subject: USS
When: Wednesday, September 7, 2022 8:00 AM-5:00 PM (UTC-06:00) Central Time (US & Canada).
Where:

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Cass, Rylee

Subject: FW: USS - Permitting and Enforcement
Location: Bowling Alley

Start: Thu 7/7/2016 10:30 AM
End: Thu 7/7/2016 3:30 PM
Show Time As: Tentative

Recurrence: (none)

Meeting Status: Not yet responded

Organizer: Carter, Sally

As discussed.

-----Original Appointment-----
From: Carter, Sally
Sent: Thursday, June 09, 2016 3:59 PM
To: Carter, Sally; Romaine, Chris; Patel, Minesh; Keppner-Bauman, Yasmine; Wong, Linda; Benbenek, Jeff; Mattison, Kevin; Pressnall, Chris; Kras, Kim
Subject: USS - Permitting and Enforcement
When: Thursday, July 07, 2016 10:30 AM-3:30 PM (UTC-06:00) Central Time (US & Canada).
Where: Bowling Alley

I HAVE CONFIRMED THAT THIS MEETING WILL TAKE PLACE AT THE AGENCY ON THURSDAY, JULY 7 AT 10:30.

The permitting meeting is scheduled to take place from 10:30 to 1. The enforcement discussion is tentatively scheduled to begin at 1:30. While I am sending this invite to everyone, please note that your participation is only required in your discipline. (Jeff and Kevin, this is your lucky day, you both will have the entire morning to stir up trouble elsewhere). Questions, please let me know.

Pritchett, Jacob A.

Subject:	USS - Permitting and Enforcement
Location:	Bowling Alley
Start:	Thu 7/7/2016 10:30 AM
End:	Thu 7/7/2016 3:30 PM
Show Time As:	Tentative
Recurrence:	(none)
Meeting Status:	Not yet responded
Organizer:	Carter, Sally
Required Attendees:	Romaine, Chris; Patel, Minesh; Keppner-Bauman, Yasmine; Wong, Linda; Benbenek, Jeff; Mattison, Kevin; Pressnall, Chris; Kras, Kim

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Kras, Kim

From: David Keen <keen@rtpenv.com>
Sent: Thursday, July 8, 2021 8:42 AM
To: Ray, Sarah
Cc: David Keen
Subject: [External] RE: Modeling for US Steel Granite City Works

Hi Sarah,

I'm baaack....

We need to do more modeling for the US Steel facility in Granite City. Can you please send me the surface characteristics for STL for 2019 and 2020.

Thanks again,
Dave

From: Ray, Sarah
Sent: Monday, August 19, 2019 4:35 PM
To: David Keen
Cc: Sprague, Jeff
Subject: Modeling for US Steel Granite City Works

Dear Dave,

Attached, please find an Excel spreadsheet containing your requested emission inventories for CO and SO2. I've also attached surface characteristics from the Lambert-St. Louis International Airport (STL) for the years 2014 through 2018.

Please let me know if you have any questions or if you would like any additional materials!

Kind regards,
Sarah Ray

Sarah Ray
Environmental Protection Engineer II
Modeling Unit / Air Quality Planning Section
Bureau of Air
Illinois EPA
ph. (217)558-6363

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Kras, Kim

From: Ray, Sarah
Sent: Thursday, July 8, 2021 9:41 AM
To: David Keen
Subject: RE: Modeling for US Steel Granite City Works
Attachments: stl2019.txt; stl2020.txt

Hi Dave,

Fantastic email introduction!

I've attached the surface characteristics files that you requested. Please let me know if you need anything else!

Thanks,
Sarah

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Dave

From: Ray, Sarah <Sarah.Ray@illinois.gov>
Sent: Monday, August 19, 2019 4:35 PM
To: David Keen <keen@rtpenv.com>
Cc: Sprague, Jeff <Jeff.Sprague@illinois.gov>
Subject: Modeling for US Steel Granite City Works

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Kras, Kim

From: David Keen <keen@rtpenv.com>
Sent: Thursday, July 8, 2021 9:45 AM
To: Ray, Sarah
Cc: David Keen
Subject: [External] RE: Modeling for US Steel Granite City Works

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From: Ray, Sarah <Sarah.Ray@illinois.gov>
Sent: Monday, August 19, 2019 4:35 PM
To: David Keen <keen@rtpenv.com>
Cc: Sprague, Jeff <Jeff.Sprague@illinois.gov>
Subject: Modeling for US Steel Granite City Works

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Cass, Rylee

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Location: Bowling Alley

Start: Thu 7/7/2016 10:30 AM
End: Thu 7/7/2016 3:30 PM
Show Time As: Tentative

Recurrence: (none)

Meeting Status: Not yet responded

Organizer: Carter, Sally

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Kras, Kim

From: Ray, Sarah
Sent: Thursday, July 16, 2020 2:02 PM
To: Sprague, Jeff
Subject: USS Granite City Update

Hi Jeff,

After a wild goose chase of sorts through DocuWare, I have found the original PSD application. Unfortunately, the additional impacts analysis was not particularly robust. The analysis discusses the two nearest Federal Class I areas (Mingo and Hercules-Glades). However, the document states that, "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." I will look through other sections of the application, to see if there is any additional mention of impacts from SO_2, NOx, and PM. However, if I can't find any, how should I proceed with the visibility section?

Thanks,
Sarah

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Kras, Kim

From: Ray, Sarah
Sent: Thursday, July 16, 2020 4:01 PM
To: Patel, Minesh
Subject: USS Granite City Application Question

Hi Minesh,

I had a quick clarification question for you. What is the project net emissions increase for VOM? Table 9-9 of the application lists the value as 5.70 tpy. However, Appendix B lists the value as 38.50 tpy. My initial thought was that the value listed in Appendix B was a typo, but I wanted to verify this with you.

Thanks,
Sarah

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Cass, Rylee

From: Patel, Minesh
Sent: Thursday, July 16, 2020 4:23 PM
To: Ray, Sarah
Cc: Romaine, Chris
Subject: RE: USS Granite City Application Question

The project net emissions is 5.7 tons per year as listed in Table 9-9 of the application. The 38.5 tons per year is increase in VOM emission of the project without considering any other increases and decreases that occurred at the source in the contemporaneous time period.

Let me know if you have further questions.

From: Ray, Sarah <Sarah.Ray@illinois.gov>
Sent: Thursday, July 16, 2020 4:01 PM
To: Patel, Minesh <Minesh.Patel@Illinois.gov>
Subject: USS Granite City Application Question

Hi Minesh,

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Thanks,
Sarah

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Kras, Kim

From: Ray, Sarah
Sent: Thursday, July 16, 2020 4:25 PM
To: Patel, Minesh
Cc: Romaine, Chris
Subject: RE: USS Granite City Application Question

Thank you!

From: Patel, Minesh <Minesh.Patel@Illinois.gov>
Sent: Thursday, July 16, 2020 4:23 PM
To: Ray, Sarah <Sarah.Ray@illinois.gov>
Cc: Romaine, Chris <Chris.Romaine@Illinois.gov>
Subject: RE: USS Granite City Application Question

The project net emissions is 5.7 tons per year as listed in Table 9-9 of the application. The 38.5 tons per year is increase in VOM emission of the project without considering any other increases and decreases that occurred at the source in the contemporaneous time period.

Let me know if you have further questions.

From: Ray, Sarah <Sarah.Ray@illinois.gov>
Sent: Thursday, July 16, 2020 4:01 PM
To: Patel, Minesh <Minesh.Patel@Illinois.gov>
Subject: USS Granite City Application Question

Hi Minesh,

I had a quick clarification question for you. What is the project net emissions increase for VOM? Table 9-9 of the application lists the value as 5.70 tpy. However, Appendix B lists the value as 38.50 tpy. My initial thought was that the value listed in Appendix B was a typo, but I wanted to verify this with you.

Thanks,
Sarah

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Pritchett, Jacob A.

From: Romaine, Chris
Sent: Monday, July 17, 2017 9:08 AM
To: Carter, Sally
Subject: Tentative: USS

I will try to make this meeting but if there is something more important happening...

Pritchett, Jacob A.

From: Romaine, Chris
Sent: Friday, July 19, 2019 12:13 PM
To: Carter, Sally
Subject: Accepted: USS

Kras, Kim

From: Sprague, Jeff
Sent: Monday, July 20, 2020 8:14 AM
To: Ray, Sarah
Cc: Sprague, Jeff
Subject: RE: USS Granite City Update

Hey Sarah,
Sorry for this late response. U.S.Steel in its original 1996 PSD application was probably justified in stating that "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." The guidance has subsequently evolved to consider Class I impacts up to 200 km away from the applicant's facility. Despite that, the Federal Land Managers for these Class I areas would probably feel that U.S. Steel's impacts would not be significant because of its relatively short stacks.
As you know, I was the one that provided comment on the modeling protocol for the current application revising the 1996 PSD application (email to David Keen dated February 3, 2020). Though I identified a number of deficiencies, I didn't provide comment on the Class II visibility analysis, and thus implicitly agreed with their comment: "Class II visibility analysis will not be conducted as CO is not a visibility impairing pollutant". I believe this is a situation for which we need to maintain consistency, not only because of our response to the protocol, but because of the singular focus on carbon monoxide in the PSD application revision. So, let's accept the statements regarding Class I and Class II visibility analyses that were made in the modeling protocol as sufficient, and forego any further follow-up regarding the extent of the analysis of visibility impairing pollutants (NOx, SO2, PM) in the original application. Sorry for the added time, and no doubt frustration, in trying to track down what was included in the 1996 application.
Unless my copy of the air quality analysis is incomplete, I didn't see a section addressing the additional impacts to soils and vegetation, and this was an area that I did give specific comment on in my remarks on the modeling protocol.

Jeff

From: Ray, Sarah
Sent: Thursday, July 16, 2020 2:02 PM
To: Sprague, Jeff
Subject: USS Granite City Update

Hi Jeff,

After a wild goose chase of sorts through DocuWare, I have found the original PSD application. Unfortunately, the additional impacts analysis was not particularly robust. The analysis discusses the two nearest Federal Class I areas (Mingo and Hercules-Glades). However, the document states that, "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." I will look through other sections of the application, to see if there is any additional mention of impacts from SO_2, NOx, and PM. However, if I can't find any, how should I proceed with the visibility section?

Thanks,
Sarah

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Kras, Kim

From: Ray, Sarah
Sent: Monday, July 20, 2020 10:03 AM
To: Sprague, Jeff
Subject: RE: USS Granite City Update
Attachments: Section 6 - Additional Impacts.pdf

Hi Jeff,

Thank you! There was a short section (Section 6) in the application that briefly described additional impacts. However, unlike the modeling section 5 (which had its own report that was provided in Appendix C), there was no appendix for the additional impacts analysis. So, I don't think your copy of the analysis was incomplete. Attached are the only mentions of the additional impacts analysis that I could find in the application. Additionally, I searched my email and couldn't find the one containing your comments. Would it be possible to share that again?

-Sarah

From: Sprague, Jeff
Sent: Monday, July 20, 2020 8:14 AM
To: Ray, Sarah
Cc: Sprague, Jeff
Subject: RE: USS Granite City Update

Hey Sarah,
Sorry for this late response. U.S.Steel in its original 1996 PSD application was probably justified in stating that "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." The guidance has subsequently evolved to consider Class I impacts up to 200 km away from the applicant's facility. Despite that, the Federal Land Managers for these Class I areas would probably feel that U.S. Steel's impacts would not be significant because of its relatively short stacks.
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Jeff

From: Ray, Sarah <Sarah.Ray@illinois.gov>
Sent: Thursday, July 16, 2020 2:02 PM
To: Sprague, Jeff <Jeff.Sprague@illinois.gov>
Subject: USS Granite City Update

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Sarah

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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.

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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).

Kras, Kim

From: Sprague, Jeff
Sent: Monday, July 20, 2020 10:36 AM
To: Ray, Sarah
Cc: Sprague, Jeff
Subject: FW: US Steel Granite City CO Modeling Protocol

Sarah,
Here you go (see below)!

Jeff

From: David Keen
Sent: Tuesday, February 4, 2020 7:21 AM
To: Sprague, Jeff
Cc: Carter, Sally ; Romaine, Chris ; Gurinder (Gary) Saini ; Colin Campbell ; David Keen
Subject: [External] RE: US Steel Granite City CO Modeling Protocol

Thank you Jeff, especially for such a quick turnaround. Will make sure to address all comments in our final model. We did use the IEPA's DRR BPIP inputs for USS as well as the surrounding sources.

Dave

From: Sprague, Jeff <Jeff.Sprague@Illinois.gov>
Sent: Monday, February 3, 2020 5:26 PM
To: David Keen <keen@rtpenv.com>
Cc: Carter, Sally <Sally.Carter@Illinois.gov>; Romaine, Chris <Chris.Romaine@Illinois.gov>; Sprague, Jeff <Jeff.Sprague@Illinois.gov>
Subject: RE: US Steel Granite City CO Modeling Protocol

David,
I've reviewed the modeling protocol entitled Carbon Monoxide Air Dispersion Modeling and Additional Impacts Analysis Protocol for a Prevention of Significant Deterioration and Construction Permit Revision for United States Steel Granite City Works, and I have the following remarks for your consideration:

1.) To assure consistency with the equation provided in the AERSCREEN User's Guide (pp. 13-14) for determining an effective flare stack diameter, the heat release rate of the flare (Q) should be input (expressed) in units of calories per second, not MMBtu/hour as stated in the modeling protocol text.
2.) The Illinois EPA has invested considerable time and energy in digitizing buildings, structures, stacks, and fenceline locations for the U.S. Steel facility. Unless there has been significant recent construction or demolition at this facility, I urge you to make use of the direction-specific building downwash inputs already generated by IEPA and attached to this e-mail (BPIP-PRIME input and output files). This will assure continuity with prior modeling and also represent a potential cost savings to your client. Furthermore, the attached files also provide direction-specific building downwash inputs, stack parameter inputs, and locational data for potential "nearby" sources that may be included in your NAAQS analysis (*.dta file).
3.) Section 4.5 ("Receptor Data") describes the use of three cartesian grids for the proposed receptor network. The incorporation of "fenceline" receptors has been omitted from the discussion, even though "fenceline" receptors are apparent in the near-field receptor grid illustrated in Figure 5. Please include "fenceline" receptors with a maximum 50-meter spacing in your modeling analysis.

4.) In assessing NAAQS compliance, the highest 2nd high monitored concentration over three years of data, for both 1-hour and 8-hour averaging times, is recommended over the maximum monitored value over three years (see Table 4) as proposed in the modeling protocol.
5.) Modeled emission rates for U.S. Steel sources and "nearby" sources should reflect current rule or permit condition limits. If there are modeled NAAQS exceedances, any adjustments to the allowable emission rates for nearby sources, consistent with Appendix W Table 8-2, should be undertaken in consultation with Illinois EPA staff.
6.) The Additional Impacts Analysis must include identification and description of the vegetation and soil types within the significant impact area. It is expected that the analysis will include a discussion of the potential phytotoxic effects to vegetation of commercial and/or recreational value as a result of carbon monoxide, and how the modeled impacts compare with "benchmark" concentrations. The NAAQS were not established at levels designed to be protective of sensitive vegetation species, particularly threatened and endangered species.

Please feel free to contact me if you have any questions in regard to these remarks.

Best regards,

Jeff

Jeffrey Sprague
Modeling Unit, Manager
Air Quality Planning Section
Bureau of Air
Illinois Environmental Protection Agency

(217) 524-4692
Jeff.Sprague@Illinois.gov

From: David Keen <keen@rtpenv.com>
Sent: Monday, February 3, 2020 9:48 AM
To: Sprague, Jeff <Jeff.Sprague@Illinois.gov>
Cc: Hacker, David W <DWHacker@uss.com>; LaDonna Driver <LaDonna.Driver@heplerbroom.com>; Hardin, Christopher W <CWHardin@uss.com>; Colin Campbell <campbell@rtpenv.com>; Gurinder (Gary) Saini <saini@rtpenv.com>; David Keen <keen@rtpenv.com>
Subject: [External] US Steel Granite City CO Modeling Protocol

Hi Jeff,

Please find attached the modeling protocol for the US Steel facility in Granite City. Please let me know if you have any questions or need additional information.

Thanks for your help,
Dave

David Keen
RTP Environmental
keen@rtpenv.com
(919) 845-1422 x41
(919) 845-1424 fax

(919) 906-6016 mobile

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Kras, Kim

From: Ray, Sarah
Sent: Monday, July 20, 2020 10:46 AM
To: Sprague, Jeff
Subject: RE: US Steel Granite City CO Modeling Protocol

Hi Jeff,

Thanks again! It looks like the information included in Section 6 addresses the additional impacts analysis comments. Section 6 includes both a soil survey and a vegetation survey for the area. There is also mention of a 100 ppm threshold at which CO impacts were observed, based on information from the Federal Register. However, there is no direct mention of the CO concentrations that were modeled. Instead, Section 6 advises that,

"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."

Is this sufficient, considering your comment that the NAAQS were not designed to protect sensitive species?

-Sarah

From: Sprague, Jeff
Sent: Monday, July 20, 2020 10:36 AM
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Subject: FW: US Steel Granite City CO Modeling Protocol

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Please feel free to contact me if you have any questions in regard to these remarks.

Best regards,

Jeff

Jeffrey Sprague
Modeling Unit, Manager
Air Quality Planning Section
Bureau of Air
Illinois Environmental Protection Agency

(217) 524-4692
Jeff.Sprague@Illinois.gov

From: David Keen <keen@rtpenv.com>
Sent: Monday, February 3, 2020 9:48 AM
To: Sprague, Jeff <Jeff.Sprague@Illinois.gov>
Cc: Hacker, David W <DWHacker@uss.com>; LaDonna Driver <LaDonna.Driver@heplerbroom.com>; Hardin, Christopher W <CWHardin@uss.com>; Colin Campbell <campbell@rtpenv.com>; Gurinder (Gary) Saini <saini@rtpenv.com>; David Keen <keen@rtpenv.com>
Subject: [External] US Steel Granite City CO Modeling Protocol

Hi Jeff,

Please find attached the modeling protocol for the US Steel facility in Granite City. Please let me know if you have any questions or need additional information.

Thanks for your help,
Dave

David Keen
RTP Environmental
keen@rtpenv.com
(919) 845-1422 x41
(919) 845-1424 fax
(919) 906-6016 mobile

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Kras, Kim

From: Sprague, Jeff
Sent: Monday, July 20, 2020 11:19 AM
To: Ray, Sarah
Cc: Sprague, Jeff
Subject: RE: US Steel Granite City CO Modeling Protocol

Sarah,
I consider their assessment to be deficient. They should review publicly available information and evaluate their modeled concentrations against ecological screening levels/benchmarks for soils and vegetation of commercial and/or recreational value (including sensitive species).

Jeff

From: Ray, Sarah
Sent: Monday, July 20, 2020 10:46 AM
To: Sprague, Jeff
Subject: RE: US Steel Granite City CO Modeling Protocol

Hi Jeff,

Thanks again! It looks like the information included in Section 6 addresses the additional impacts analysis comments. Section 6 includes both a soil survey and a vegetation survey for the area. There is also mention of a 100 ppm threshold at which CO impacts were observed, based on information from the Federal Register. However, there is no direct mention of the CO concentrations that were modeled. Instead, Section 6 advises that,

"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."

Is this sufficient, considering your comment that the NAAQS were not designed to protect sensitive species?

-Sarah

From: Sprague, Jeff <Jeff.Sprague@illinois.gov>
Sent: Monday, July 20, 2020 10:36 AM
To: Ray, Sarah <Sarah.Ray@illinois.gov>
Cc: Sprague, Jeff <Jeff.Sprague@illinois.gov>
Subject: FW: US Steel Granite City CO Modeling Protocol

Sarah,
Here you go (see below)!

Jeff

From: David Keen <keen@rtpenv.com>
Sent: Tuesday, February 4, 2020 7:21 AM
To: Sprague, Jeff <Jeff.Sprague@illinois.gov>

Cc: Carter, Sally <Sally.Carter@Illinois.gov>; Romaine, Chris <Chris.Romaine@Illinois.gov>; Gurinder (Gary) Saini <saini@rtpenv.com>; Colin Campbell <campbell@rtpenv.com>; David Keen <keen@rtpenv.com>
Subject: [External] RE: US Steel Granite City CO Modeling Protocol

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Dave

From: Sprague, Jeff <Jeff.Sprague@Illinois.gov>
Sent: Monday, February 3, 2020 5:26 PM
To: David Keen <keen@rtpenv.com>
Cc: Carter, Sally <Sally.Carter@Illinois.gov>; Romaine, Chris <Chris.Romaine@Illinois.gov>; Sprague, Jeff <Jeff.Sprague@Illinois.gov>
Subject: RE: US Steel Granite City CO Modeling Protocol

David,
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Please feel free to contact me if you have any questions in regard to these remarks.

Best regards,

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Jeffrey Sprague
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Air Quality Planning Section
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including all attachments. Receipt by an unintended recipient does not waive attorney-client privilege, attorney work product privilege, or any other exemption from disclosure.

Kras, Kim

From: Ray, Sarah
Sent: Monday, July 20, 2020 11:23 AM
To: Sprague, Jeff
Subject: RE: US Steel Granite City CO Modeling Protocol

Hi Jeff,

Okay. So, with that in mind, is it fair to email David Keen and basically request that he provide additional material that includes what you've mentioned below?

Thanks,
Sarah

From: Sprague, Jeff
Sent: Monday, July 20, 2020 11:19 AM
To: Ray, Sarah
Cc: Sprague, Jeff
Subject: RE: US Steel Granite City CO Modeling Protocol

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Kras, Kim

From: Ray, Sarah
Sent: Monday, July 20, 2020 11:32 AM
To: David Keen
Cc: Sprague, Jeff
Subject: US Steel Granite City Additional Impacts Analysis Request

Dear Mr. Keen,

After reviewing the additional impacts analysis provided in the application (Section 6), it looks like there is no specific discussion of ecological screening levels and benchmarks for soils and vegetation of commercial and/or recreational value, including sensitive species. Can you please review publicly available information and evaluate modeled concentrations of CO described in Appendix C of the application against ecological screening levels and benchmarks as an addition to what you have already provided?

Thank you,
Sarah

Sarah Ray
Environmental Protection Engineer II
Modeling Unit / Air Quality Planning Section
Bureau of Air
Illinois EPA
ph. 217.558.6363

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Pritchett, Jacob A.

From: Romaine, Chris
Sent: Sunday, July 21, 2019 6:32 PM
To: Carter, Sally
Subject: Accepted: USS

Kras, Kim

From: Carter, Sally
Sent: Wednesday, September 13, 2023 10:45 AM
To: Kras, Kim
Subject: FW: U.S. Steel Corporation: 119813AAI, 95010001
Attachments: US Steel - Public Notice Denial.pdf

From: Romaine, Chris <Chris.Romaine@Illinois.gov>
Sent: Friday, July 21, 2023 3:54 PM
To: LaDonna Driver <LaDonna.Driver@heplerbroom.com>; David W Hacker (DWHacker@uss.com) <DWHacker@uss.com>; Campbell, Colin <campbell@rtpenv.com>; Gurinder (Gary) Saini <saini@rtpenv.com>; Hardin, Christopher W <CWHardin@uss.com>; Piscitelli, Alexis S <apiscitelli@uss.com>; karmentrout@uss.com
Cc: Patel, Minesh <Minesh.Patel@Illinois.gov>
Subject: FW: U.S. Steel Corporation: 119813AAI, 95010001

FYI

From: McCurdy, Finnegan <Finnegan.McCurdy@Illinois.gov>
Sent: Friday, July 21, 2023 1:52 PM
To: Hart, Kristin L - DNR <Kristin.Hart@wisconsin.gov>; J Brush <JBRUSH@idem.in.gov>; Kendall Hale <kendall.hale@dnr.mo.gov>; Morse, James (EEC) <James.Morse@ky.gov>; Rex Lane <laner@michigan.gov>; Sarah Piziali <Sarah.Piziali@dnr.iowa.gov>
Cc: Frost, Brad <Brad.Frost@Illinois.gov>
Subject: U.S. Steel Corporation: 119813AAI, 95010001

U.S. Steel Corporation in Granite City has applied 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. The Illinois EPA has made a preliminary determination that the current application does not comply with the applicable air pollution control regulations and has prepared a draft permit denial. Attached is the public notice. The Illinois EPA will accept public comments from 7/21/2023 to 8/21/2023. The draft permit denial and other documents are available on our website http://bit.ly/2SiUSql.

ID #: 119813AAI
Permit #: 95010001
Source: U.S. Steel Corporation

Finnegan McCurdy, he/him
Illinois EPA
GPSI Intern
Office of Community Relations
(217) 785 6653

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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

Pritchett, Jacob A.

Subject:	USS
Location:	3 North
Start:	Tue 7/23/2019 1:30 PM
End:	Tue 7/23/2019 5:00 PM
Show Time As:	Tentative
Recurrence:	(none)
Meeting Status:	Not yet responded
Organizer:	Carter, Sally
Required Attendees:	Chris Romaine; Minesh Patel; Kras, Kim

Kim,

Lets talk about finding a big conference room for this meeting.

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Kras, Kim

From: Ray, Sarah
Sent: Thursday, July 23, 2020 1:21 PM
To: Gurinder (Gary) Saini
Subject: RE: US Steel Granite City Additional Impacts Analysis Request

Hello,

As far as identifying sensitive species (both threatened, endangered, and otherwise), some resources to consider might be the following:

1. University of Illinois Cooperative Extension (Madison County Office)
2. Granite City and Granite City Township Websites – specifically, they may have an urban forester on staff who could provide more information
3. Illinois DNR Website

I may have missed this in the application, but have you communicated with either USEPA or the Illinois Department of Natural Resources (DNR)? If so, you can potentially incorporate results from their consultation(s) into the additional impacts analysis. The DNR website focuses on endangered and threatened species. They provide a list of species, by county: https://www2.illinois.gov/dnr/conservation/NaturalHeritage/Documents/Database/etcountylist.pdf

Additionally, as far as CO impacts, examples of citations provided by previous applications include:

1. Additional Impact Assessment for Plants and Soils from the Sunflower Station, Sunflower Electric Power Corporation.

2. 175 Directive 2008/50/EC of the European Parliament and of the Council of the European Union: On ambient air quality and cleaner air for Europe, 21 May 2008.

3. *Air Quality Criteria for Carbon Monoxide*. U.S. Department of Health, Education, and Welfare, Public Health Service, National Air Pollution Control Administration, Washington, D.C., pp. 7-1 -- 7-3, March 1970.

4. Flagler, Richard B., Recognition of Air Pollution Injury to Vegetation: A Pictorial Atlas, 2nd, ed., Air & Waste Management Association, Pittsburg, Pennsylvania, 1998.

Beyond these, I'm also in the process of reviewing my own reference materials, to see if I can come up with anything else that may be helpful for CO and will forward along what I find.

Thanks,
Sarah

Sarah Ray
Environmental Protection Engineer II
Modeling Unit / Air Quality Planning Section
Bureau of Air
Illinois EPA
ph. 217.558.6363

From: Gurinder (Gary) Saini
Sent: Thursday, July 23, 2020 11:43 AM
To: Ray, Sarah
Subject: [External] RE: US Steel Granite City Additional Impacts Analysis Request

Thanks for your call this morning.

In case identifying resources for sensitive vegetation takes longer than expected, please send us a recent PSD application that Illinois EPA received that addresses that item for some other site. If not readily available, just let us know the name and we can try to FOIA the application.

We appreciate you reviewing this information and hope to respond soon with requisite information.

Regards

GS
(919) 845-1422, 42
(919) 533-4558

> **From:** Gurinder (Gary) Saini
> **Sent:** Thursday, July 23, 2020 09:56
> **To:** 'Sarah.Ray@illinois.gov' <Sarah.Ray@illinois.gov>
> **Subject:** RE: US Steel Granite City Additional Impacts Analysis Request
>
> Dave forwarded your email to me as I worked on the additional impacts section of the application.
>
> I need to understand what exactly is needed to address the information you requested regarding CO impacts. Please give me a call at your convenience.
>
> Regards
>
> GS
> (919) 845-1422, 42
> (919) 533-4558
>
> > Begin forwarded message:
> >
> > **From:** "Ray, Sarah" <Sarah.Ray@illinois.gov>
> > **Date:** July 20, 2020 at 12:32:35 PM EDT
> > **To:** David Keen <keen@rtpenv.com>
> > **Cc:** "Sprague, Jeff" <Jeff.Sprague@illinois.gov>
> > **Subject: US Steel Granite City Additional Impacts Analysis Request**

Dear Mr. Keen,

After reviewing the additional impacts analysis provided in the application (Section 6), it looks like there is no specific discussion of ecological screening levels and benchmarks for soils and vegetation of commercial and/or recreational value, including sensitive species. Can you please review publicly available information and evaluate modeled concentrations of CO described in Appendix C of the application against ecological screening levels and benchmarks as an addition to what you have already provided?

Thank you,
Sarah

Sarah Ray
Environmental Protection Engineer II
Modeling Unit / Air Quality Planning Section
Bureau of Air
Illinois EPA
ph. 217.558.6363

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Kras, Kim

From: Gurinder (Gary) Saini <saini@rtpenv.com>
Sent: Thursday, July 23, 2020 8:56 AM
To: Ray, Sarah
Subject: [External] RE: US Steel Granite City Additional Impacts Analysis Request

Dave forwarded your email to me as I worked on the additional impacts section of the application.

I need to understand what exactly is needed to address the information you requested regarding CO impacts. Please give me a call at your convenience.

Regards

GS
(919) 845-1422, 42
(919) 533-4558

Begin forwarded message:

From: "Ray, Sarah" <Sarah.Ray@illinois.gov>
Date: July 20, 2020 at 12:32:35 PM EDT
To: David Keen <keen@rtpenv.com>
Cc: "Sprague, Jeff" <Jeff.Sprague@illinois.gov>
Subject: US Steel Granite City Additional Impacts Analysis Request

Dear Mr. Keen,

After reviewing the additional impacts analysis provided in the application (Section 6), it looks like there is no specific discussion of ecological screening levels and benchmarks for soils and vegetation of commercial and/or recreational value, including sensitive species. Can you please review publicly available information and evaluate modeled concentrations of CO described in Appendix C of the application against ecological screening levels and benchmarks as an addition to what you have already provided?

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Sarah Ray
Environmental Protection Engineer II
Modeling Unit / Air Quality Planning Section
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Kras, Kim

From: Gurinder (Gary) Saini <saini@rtpenv.com>
Sent: Thursday, July 23, 2020 11:43 AM
To: Ray, Sarah
Subject: [External] RE: US Steel Granite City Additional Impacts Analysis Request

Thanks for your call this morning.

In case identifying resources for sensitive vegetation takes longer than expected, please send us a recent PSD application that Illinois EPA received that addresses that item for some other site. If not readily available, just let us know the name and we can try to FOIA the application.

We appreciate you reviewing this information and hope to respond soon with requisite information.

Regards

GS
(919) 845-1422, 42
(919) 533-4558

> **From:** Gurinder (Gary) Saini
> **Sent:** Thursday, July 23, 2020 09:56
> **To:** 'Sarah.Ray@illinois.gov'
> **Subject:** RE: US Steel Granite City Additional Impacts Analysis Request
>
> Dave forwarded your email to me as I worked on the additional impacts section of the application.
>
> I need to understand what exactly is needed to address the information you requested regarding CO impacts. Please give me a call at your convenience.
>
> Regards
>
> GS
> (919) 845-1422, 42
> (919) 533-4558
>
> Begin forwarded message:
>
> > **From:** "Ray, Sarah" <Sarah.Ray@illinois.gov>
> > **Date:** July 20, 2020 at 12:32:35 PM EDT
> > **To:** David Keen <keen@rtpenv.com>
> > **Cc:** "Sprague, Jeff" <Jeff.Sprague@illinois.gov>
> > **Subject: US Steel Granite City Additional Impacts Analysis Request**
> >
> > Dear Mr. Keen,

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Sarah Ray
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Kras, Kim

From: Gurinder (Gary) Saini <saini@rtpenv.com>
Sent: Tuesday, July 28, 2020 6:01 PM
To: Ray, Sarah
Cc: Colin Campbell; David Keen; Christopher W Hardin - United States Steel Corporation (CWHardin@uss.com)
Subject: [External] RE: US Steel Granite City Additional Impacts Analysis Request
Attachments: EcoCAT_2101461.pdf; 2020 5 27 EPA Determination Email for ESA NHPA.pdf

Thanks for providing us this information. I contacted the University of Illinois Cooperative Extension in Madison County the and Granite City Township office regarding the sensitive plant species information or staff, such as urban forester, that may be involved in this regard. They did not have any information or any staff responsible for those issues. I also reviewed information on the Granite City's website and did not find any specific information regarding urban forestry department or responsible staff.

We reviewed the information available on the Illinois DNR website regarding the endangered and threatened species in Madison County, where the USS Granite City facility is located. This review identified two endangered and two threatened plant species in Madison County. These were: Decurrent False Aster, Blue Hearts, Spring Ladies' Tresses, Prairie Spiderwort. Only two of the four plant species (Decurrent False Aster and Spring Ladies' Tresses) were last observed in 2018. Prairie Spiderwort was observed over 18 years ago. Blue Hearts Was observed in 1993.

We also completed the EcoCAT review for the USS Granite City site on the Illinois DNR website. See attached. It concluded that there were no threatened or endangered species in the vicinity of the project location.

We have addressed the consultation requirements under the Endangered Species Act (ESA) and the National Historic Preservation Act (NHPA) for this PSD permit application with the U.S. EPA Region 5. In the attached email, the U.S. EPA provided their "no effect determination" for purposes of the ESA consultation for this application.

I reviewed the information under subsection 1.5.2 of Part 7.0 of the Sunflower Station application regarding CO impacts. This application relies on compliance with the CO NAAQS to avoid "the potential and real adverse vegetation effects of CO emissions from the proposed project." This is similar to the approach in the USS Granite City application under subsection 6.2 where we noted that "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." There is no secondary CO NAAQS.

I also looked through the EU directive 2008/50/EC on ambient air quality. In Annex XI of this document EU established CO limit value 10 mg/m^3 (8-hour average) for protection of human health. This is same as the CO NAAQS established by the U.S. EPA (9 ppm (8-hour average). Under Article 5 EU requires the upper and lower assessment thresholds for pollutants for classification of zones. In Annex II, the lower assessment threshold for CO is specified as 5 mg/m^3. In appendix C of the USS Granite City application, ambient total CO concentration (project + background) is shown as 3,290 $\mu g/m^3$. Thus, modeled impacts under this PSD application for CO are below the lower assessment threshold for CO under the EU document.

I reviewed the CO Air Quality Criteria document published by Public Health Service in March 1970. Under Chapter 7 of this document, it noted that, CO does not result in "..detrimental effects on the higher-type plant life at concentrations below 115 mg/m^3 (100 ppm) during exposure for 1 to 3 weeks." Further "..no inhibition of nitrogen fixation was detected, but at [CO level of] 115 mg/m^3 (100 ppm) a 20% reduction in total nitrogen production occurred." As noted above, the modeled CO impacts at 3,290 $\mu g/m^3$ are well below the levels noted in this report.

We were unsuccessful in locating the reference from Richard Flagler.

We hope this information addresses the items listed in your emails below. Please let us know if you need anything else or have any questions.

Regards

GS
(919) 845-1422, 42
(919) 533-4558

From: Ray, Sarah
Sent: Thursday, July 23, 2020 14:21
To: Gurinder (Gary) Saini
Subject: RE: US Steel Granite City Additional Impacts Analysis Request

Hello,

As far as identifying sensitive species (both threatened, endangered, and otherwise), some resources to consider might be the following:

1. University of Illinois Cooperative Extension (Madison County Office)
2. Granite City and Granite City Township Websites – specifically, they may have an urban forester on staff who could provide more information
3. Illinois DNR Website

I may have missed this in the application, but have you communicated with either USEPA or the Illinois Department of Natural Resources (DNR)? If so, you can potentially incorporate results from their consultation(s) into the additional impacts analysis. The DNR website focuses on endangered and threatened species. They provide a list of species, by county:
https://www2.illinois.gov/dnr/conservation/NaturalHeritage/Documents/Database/etcountylist.pdf

Additionally, as far as CO impacts, examples of citations provided by previous applications include:

1. Additional Impact Assessment for Plants and Soils from the Sunflower Station, Sunflower Electric Power Corporation.

2. 175 Directive 2008/50/EC of the European Parliament and of the Council of the European Union: On ambient air quality and cleaner air for Europe, 21 May 2008.

3. *Air Quality Criteria for Carbon Monoxide*. U.S. Department of Health, Education, and Welfare, Public Health Service, National Air Pollution Control Administration, Washington, D.C., pp. 7-1 – 7-3, March 1970.

4. Flagler, Richard B., Recognition of Air Pollution Injury to Vegetation: A Pictorial Atlas, 2nd, ed., Air & Waste Management Association, Pittsburg, Pennsylvania, 1998.

Beyond these, I'm also in the process of reviewing my own reference materials, to see if I can come up with anything else that may be helpful for CO and will forward along what I find.

Thanks,
Sarah

Sarah Ray
Environmental Protection Engineer II
Modeling Unit / Air Quality Planning Section
Bureau of Air
Illinois EPA
ph. 217.558.6363

From: Gurinder (Gary) Saini <saini@rtpenv.com>
Sent: Thursday, July 23, 2020 11:43 AM
To: Ray, Sarah <Sarah.Ray@illinois.gov>
Subject: [External] RE: US Steel Granite City Additional Impacts Analysis Request

Thanks for your call this morning.

In case identifying resources for sensitive vegetation takes longer than expected, please send us a recent PSD application that Illinois EPA received that addresses that item for some other site. If not readily available, just let us know the name and we can try to FOIA the application.

We appreciate you reviewing this information and hope to respond soon with requisite information.

Regards

GS
(919) 845-1422, 42
(919) 533-4558

> **From:** Gurinder (Gary) Saini
> **Sent:** Thursday, July 23, 2020 09:56
> **To:** 'Sarah.Ray@illinois.gov' <Sarah.Ray@illinois.gov>
> **Subject:** RE: US Steel Granite City Additional Impacts Analysis Request
>
> Dave forwarded your email to me as I worked on the additional impacts section of the application.
>
> I need to understand what exactly is needed to address the information you requested regarding CO impacts. Please give me a call at your convenience.
>
> Regards
>
> GS
> (919) 845-1422, 42
> (919) 533-4558

Begin forwarded message:

From: "Ray, Sarah" <Sarah.Ray@illinois.gov>
Date: July 20, 2020 at 12:32:35 PM EDT
To: David Keen <keen@rtpenv.com>
Cc: "Sprague, Jeff" <Jeff.Sprague@Illinois.gov>
Subject: US Steel Granite City Additional Impacts Analysis Request

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EcoCAT
Ecological Compliance Assessment Tool

Applicant:	RTP Environmental Associates Inc.	*IDNR Project Number:*	2101461
Contact:	Gurinder Saini	*Date:*	07/27/2020
Address:	304A West Millbrook Road Raleigh, NC 27609		
Project:	1996 Construction Permit Revision Project		
Address:	1951 State Street, Granite City		

Description: PSD permit revision application for USS Granite City site.

Natural Resource Review Results

This project was submitted for information only. It is not a consultation under Part 1075.

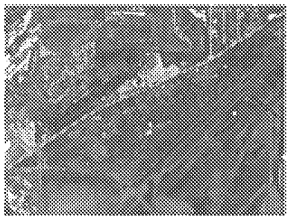
The Illinois Natural Heritage Database contains no record of State-listed threatened or endangered species, Illinois Natural Area Inventory sites, dedicated Illinois Nature Preserves, or registered Land and Water Reserves in the vicinity of the project location.

Location

The applicant is responsible for the accuracy of the location submitted for the project.

County: Madison

Township, Range, Section:
3N, 9W, 19
3N, 9W, 20



IL Department of Natural Resources Contact
Impact Assessment Section
217-785-5500
Division of Ecosystems & Environment

Disclaimer

The Illinois Natural Heritage Database cannot provide a conclusive statement on the presence, absence, or condition of natural resources in Illinois. This review reflects the information existing in the Database at the time of this inquiry, and should not be regarded as a final statement on the site being considered, nor should it be a substitute for detailed site surveys or field surveys required for environmental assessments. If additional protected resources are encountered during the project's implementation, compliance with applicable statutes and regulations is required.

Terms of Use

By using this website, you acknowledge that you have read and agree to these terms. These terms may be revised by IDNR as necessary. If you continue to use the EcoCAT application after we post changes to these terms, it will mean that you accept such changes. If at any time you do not accept the Terms of Use, you may not continue to use the website.

IDNR Project Number: 2101461

1. The IDNR EcoCAT website was developed so that units of local government, state agencies and the public could request information or begin natural resource consultations on-line for the Illinois Endangered Species Protection Act, Illinois Natural Areas Preservation Act, and Illinois Interagency Wetland Policy Act. EcoCAT uses databases, Geographic Information System mapping, and a set of programmed decision rules to determine if proposed actions are in the vicinity of protected natural resources. By indicating your agreement to the Terms of Use for this application, you warrant that you will not use this web site for any other purpose.

2. Unauthorized attempts to upload, download, or change information on this website are strictly prohibited and may be punishable under the Computer Fraud and Abuse Act of 1986 and/or the National Information Infrastructure Protection Act.

3. IDNR reserves the right to enhance, modify, alter, or suspend the website at any time without notice, or to terminate or restrict access.

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EcoCAT operates on a state of Illinois computer system. We may use software to monitor traffic and to identify unauthorized attempts to upload, download, or change information, to cause harm or otherwise to damage this site. Unauthorized attempts to upload, download, or change information on this server is strictly prohibited by law.

Unauthorized use, tampering with or modification of this system, including supporting hardware or software, may subject the violator to criminal and civil penalties. In the event of unauthorized intrusion, all relevant information regarding possible violation of law may be provided to law enforcement officials.

Privacy

EcoCAT generates a public record subject to disclosure under the Freedom of Information Act. Otherwise, IDNR uses the information submitted to EcoCAT solely for internal tracking purposes.

IDNR Project Number: 2101461

EcoCAT
Ecological Compliance Assessment Tool

ILLINOIS DEPARTMENT OF NATURAL RESOURCES

EcoCAT Receipt

Project Code 2101461

APPLICANT	DATE
RTP Environmental Associates Inc. Gurinder Saini 304A West Millbrook Road Raleigh, NC 27609	7/27/2020

DESCRIPTION	FEE	CONVENIENCE FEE	TOTAL PAID
EcoCAT Consultation	$ 25.00	$ 1.00	$ 26.00

TOTAL PAID $ 26.00

Illinois Department of Natural Resources
One Natural Resources Way
Springfield, IL 62702
217-785-5500
dnr.ecocat@illinois.gov

From:	Lim, YeChan
To:	Gurinder (Gary) Saini; Ogulei, David
Cc:	Marcus, Danny; Damico, Genevieve; Colin Campbell; Michalik, Sarah K; Christopher W Hardin - United States Steel Corporation (CWHardin@uss.com)
Subject:	RE: USS Granite City Works PSD Permit NHPA Consultation
Date:	Friday, May 29, 2020 11:32:27

Hello,
Based on the potential emission increases for this project and the land use land cover (LULC) analysis provided, we are making a no effect determination for this project.

Thank you.

YeChan Lim
Environmental Engineer
U.S. Environmental Protection Agency – Region 5
Air and Radiation Division | Air Permits Section
77 W. Jackson Blvd., Chicago, IL 60604 (AR-18J)
Phone: (312) 886-7259
Email: lim.yechan@epa.gov

From: Gurinder (Gary) Saini <saini@rtpenv.com>
Sent: Wednesday, May 27, 2020 3:35 PM
To: Ogulei, David <Ogulei.David@epa.gov>
Cc: Marcus, Danny <marcus.danny@epa.gov>; Lim, YeChan <lim.yechan@epa.gov>; Damico, Genevieve <damico.genevieve@epa.gov>; Colin Campbell <campbell@rtpenv.com>; Michalik, Sarah K <skmichalik@uss.com>; Christopher W Hardin - United States Steel Corporation (CWHardin@uss.com) <CWHardin@uss.com>
Subject: RE: USS Granite City Works PSD Permit NHPA Consultation

Thanks for your email response. We really appreciate your help in this regard and will forward your email to Illinois EPA.

Meanwhile, we haven't heard from Rachel regarding ESA consultation for this project. Do you have any information regarding the ESA process or know if Rachel needs anything else?

Regards

GS
(919) 845-1422, 42
(919) 533-4558

> **From:** Ogulei, David <Ogulei.David@epa.gov>
> **Sent:** Wednesday, May 27, 2020 16:20
> **To:** Gurinder (Gary) Saini <saini@rtpenv.com>

Cc: Marcus, Danny <marcus.danny@epa.gov>; Lim, YeChan <lim.yechan@epa.gov>; Damico, Genevieve <damico.genevieve@epa.gov>; Colin Campbell <campbell@rtpenv.com>; Michalik, Sarah K <skmichalik@uss.com>; Christopher W Hardin - United States Steel Corporation (CWHardin@uss.com) <CWHardin@uss.com>; Jeffery.Kruchten@illinois.gov
Subject: RE: USS Granite City Works PSD Permit NHPA Consultation

Gary,

The U.S. Environmental Protection Agency has reviewed the attached cultural resource assessment you submitted on behalf of U.S. Steel Granite City Works (USSGCW), on March 24 and May 22, 2020. The submittal includes a finding by the Illinois Deputy State Historic Preservation Officer, dated May 1, 2020, that "no significant historic, architectural or archaeological resources are located within the proposed project area."

Section 106 of the National Historic Preservation Act (NHPA) requires Federal agencies to take into account the effects of their undertakings on historic properties, and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings. If the Federal agency determines that an undertaking, as defined in 40 C.F.R § 800.16(y), does not have the potential to cause effects on historic properties, assuming such historic properties were present, the agency official has no further obligations under section 106 or 36 C.F.R. Part 800. For this permit action, EPA has determined that the undertaking is not likely to affect historic properties; therefore, no further action is required under Section 106 of the NHPA.

If there are any questions regarding this determination, please contact me.

David Ogulei
U.S. Environmental Protection Agency
Region 5 | Air & Radiation Division | AR-18J
77 West Jackson Blvd. | Chicago, Illinois 60604
Phone: (312) 353-0987 | Ogulei.David@epa.gov

From: Gurinder (Gary) Saini <saini@rtpenv.com>
Sent: Friday, May 22, 2020 8:09 AM
To: Ogulei, David <Ogulei.David@epa.gov>
Cc: Marcus, Danny <marcus.danny@epa.gov>; Lim, YeChan <lim.yechan@epa.gov>; Damico, Genevieve <damico.genevieve@epa.gov>; Colin Campbell <campbell@rtpenv.com>; Michalik, Sarah K <skmichalik@uss.com>; Christopher W Hardin - United States Steel Corporation (CWHardin@uss.com) <CWHardin@uss.com>
Subject: RE: USS Granite City Works PSD Permit ESA and NHPA Consultation

Attached are the responses to the questions/comments in the email below. Sorry for the late response but it took us some time to get information from State Historic Preservation Office (under the current stay-at-home conditions).

Please let us know if you need anything else or have any other questions.

Regards

GS
(919) 845-1422, 42
(919) 533-4558

From: Ogulei, David <Ogulei.David@epa.gov>
Sent: Tuesday, March 24, 2020 17:01
To: Gurinder (Gary) Saini <saini@rtpenv.com>
Cc: Marcus, Danny <marcus.danny@epa.gov>; Lim, YeChan <lim.yechan@epa.gov>; Damico, Genevieve <damico.genevieve@epa.gov>
Subject: RE: USS Granite City Works PSD Permit ESA and NHPA Consultation

Gary,

EPA has reviewed the cultural resource and endangered species assessment you submitted on March 24, 2020. U.S. Steel Granite City Works is proposing to revise limitations and requirements contained in an existing construction permit for the blast furnaces and basic oxygen process furnace shop at the Granite City Works facility. We have determined that we need additional information before we can determine the level of consultation necessary for the project. Specifically, please submit the following information to facilitate our review of the project under the ESA and NHPA:

1. Complete description of the project, including a quantification of all emissions increases expected from the project. To address this request, please identify and quantify all pollutants, including any hazardous air pollutants, that will increase due to the project;
2. List of historic and eligible historic properties within the project's "area of potential effects." Historic and eligible properties are available from the National Park Service (https://www.nps.gov/subjects/nationalregister/index.htm) and the Illinois State Historic Preservation Office (https://www2.illinois.gov/dnrhistoric/Preserve/Pages/Contact-Staff.aspx). For purposes of this project, the "area of potential effects," is the area within a three-mile radius of the facility as measured from the centroid of the project's geographical footprint;
3. Map of facility in relation to historic properties;
4. Identification of any excavation areas;
5. Identification of any interests by Tribal entities and/or local preservation societies, or other interested parties.

If you have any questions, do not hesitate to contact me.

David Ogulei
U.S. Environmental Protection Agency
Region 5 | Air & Radiation Division | AR-18J
77 West Jackson Blvd. | Chicago, Illinois 60604

Phone: (312) 353-0987 | Fax: (312) 692-2080
Ogulei.David@epa.gov

From: Ogulei, David
Sent: Tuesday, March 24, 2020 10:28 AM
To: Gurinder (Gary) Saini <saini@rtpenv.com>
Cc: Marcus, Danny <marcus.danny@epa.gov>; Lim, YeChan <lim.yechan@epa.gov>; Rineheart, Rachel <Rineheart.Rachel@epa.gov>
Subject: RE: USS Granite City Works PSD Permit ESA and NHPA Consultation

Gary,

Thank you this information. We will get back to you once we've had a chance to review the project information you shared.

David Ogulei
U.S. Environmental Protection Agency
Region 5 | Air & Radiation Division | AR-18J
77 West Jackson Blvd. | Chicago, Illinois 60604
Phone: (312) 353-0987 | Ogulei.David@epa.gov

From: Gurinder (Gary) Saini <saini@rtpenv.com>
Sent: Tuesday, March 24, 2020 8:12 AM
To: Ogulei, David <Ogulei.David@epa.gov>
Cc: Colin Campbell <campbell@rtpenv.com>; Michalik, Sarah K <skmichalik@uss.com>; Christopher W Hardin - United States Steel Corporation (CWHardin@uss.com) <CWHardin@uss.com>; Chris Romaine (Chris.Romaine@Illinois.gov) <Chris.Romaine@Illinois.gov>; Patel, Minesh <Minesh.Patel@illinois.gov>
Subject: USS Granite City Works PSD Permit ESA and NHPA Consultation

Mr. Ogulei,

U.S. Steel Granite City Works is an existing iron and steel manufacturing facility located in Granite City, Illinois. As you may already know, Illinois EPA is currently reviewing a PSD permit application to revise some of the CO emission limits for the existing combustion units at the facility. This application does not involve any new construction activity at the site.

Attached is a letter from U.S. Steel detailing anticipated air quality impacts and potential threatened or endangered species for your use in initiating a consultation with the US Fish and Wildlife Service or if this application meets the "no effect

determination." Also, please let us know if NHPA cultural resource assessment is required for this application.

If you have any questions or need additional information, please do not hesitate to contact me or Sarah Michalik of U.S. Steel at (412) 433-7302 or skmichalik@uss.com.

Regards

Gurinder (Gary) Saini
RTP Environmental Associates Inc.
304A West Millbrook Road
Raleigh, NC 27609
(919) 845-1422, 42
(919) 533-4558

Pritchett, Jacob A.

From: Ogulei, David <Ogulei.David@epa.gov>
Sent: Tuesday, July 28, 2020 11:44 AM
To: Romaine, Chris
Subject: [External] FW: USS Granite City Works PSD Permit NHPA Consultation
Attachments: State HPA Background Draft - final.pdf; USSGCW NHPA Supplement May 2020.pdf

FYI, not sure if I copied you on this email.

From: Ogulei, David
Sent: Wednesday, May 27, 2020 3:20 PM
To: Gurinder (Gary) Saini <saini@rtpenv.com>
Cc: Marcus, Danny <marcus.danny@epa.gov>; Lim, YeChan <lim.yechan@epa.gov>; Damico, Genevieve <damico.genevieve@epa.gov>; Colin Campbell <campbell@rtpenv.com>; Michalik, Sarah K <skmichalik@uss.com>; Christopher W Hardin - United States Steel Corporation (CWHardin@uss.com) <CWHardin@uss.com>; Jeffery.kruchten@illinois.gov
Subject: RE: USS Granite City Works PSD Permit NHPA Consultation

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The U.S. Environmental Protection Agency has reviewed the attached cultural resource assessment you submitted on behalf of U.S. Steel Granite City Works (USSGCW), on March 24 and May 22, 2020. The submittal includes a finding by the Illinois Deputy State Historic Preservation Officer, dated May 1, 2020, that "no significant historic, architectural or archaeological resources are located within the proposed project area."

Section 106 of the National Historic Preservation Act (NHPA) requires Federal agencies to take into account the effects of their undertakings on historic properties, and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings. If the Federal agency determines that an undertaking, as defined in 40 C.F.R § 800.16(y), does not have the potential to cause effects on historic properties, assuming such historic properties were present, the agency official has no further obligations under section 106 or 36 C.F.R. Part 800. For this permit action, EPA has determined that the undertaking is not likely to affect historic properties; therefore, no further action is required under Section 106 of the NHPA.

If there are any questions regarding this determination, please contact me.

David Ogulei
U.S. Environmental Protection Agency
Region 5 | Air & Radiation Division | AR-18J
77 West Jackson Blvd. | Chicago, Illinois 60604
Phone: (312) 353-0987 | Ogulei.David@epa.gov

From: Gurinder (Gary) Saini <saini@rtpenv.com>
Sent: Friday, May 22, 2020 8:09 AM
To: Ogulei, David <Ogulei.David@epa.gov>
Cc: Marcus, Danny <marcus.danny@epa.gov>; Lim, YeChan <lim.yechan@epa.gov>; Damico, Genevieve <damico.genevieve@epa.gov>; Colin Campbell <campbell@rtpenv.com>; Michalik, Sarah K <skmichalik@uss.com>; Christopher W Hardin - United States Steel Corporation (CWHardin@uss.com) <CWHardin@uss.com>
Subject: RE: USS Granite City Works PSD Permit ESA and NHPA Consultation

Attached are the responses to the questions/comments in the email below. Sorry for the late response but it took us some time to get information from State Historic Preservation Office (under the current stay-at-home conditions). Please let us know if you need anything else or have any other questions.

Regards
GS
(919) 845-1422, 42
(919) 533-4558

From: Ogulei, David <Ogulei.David@epa.gov>
Sent: Tuesday, March 24, 2020 17:01
To: Gurinder (Gary) Saini <saini@rtpenv.com>
Cc: Marcus, Danny <marcus.danny@epa.gov>; Lim, YeChan <lim.yechan@epa.gov>; Damico, Genevieve <damico.genevieve@epa.gov>
Subject: RE: USS Granite City Works PSD Permit ESA and NHPA Consultation

Gary,

EPA has reviewed the cultural resource and endangered species assessment you submitted on March 24, 2020. U.S. Steel Granite City Works is proposing to revise limitations and requirements contained in an existing construction permit for the blast furnaces and basic oxygen process furnace shop at the Granite City Works facility. We have determined that we need additional information before we can determine the level of consultation necessary for the project. Specifically, please submit the following information to facilitate our review of the project under the ESA and NHPA:

1. Complete description of the project, including a quantification of all emissions increases expected from the project. To address this request, please identify and quantify all pollutants, including any hazardous air pollutants, that will increase due to the project;
2. List of historic and eligible historic properties within the project's "area of potential effects." Historic and eligible properties are available from the National Park Service (https://www.nps.gov/subjects/nationalregister/index.htm) and the Illinois State Historic Preservation Office (https://www2.illinois.gov/dnrhistoric/Preserve/Pages/Contact-Staff.aspx). For purposes of this project, the "area of potential effects," is the area within a three-mile radius of the facility as measured from the centroid of the project's geographical footprint;
3. Map of facility in relation to historic properties;
4. Identification of any excavation areas;
5. Identification of any interests by Tribal entities and/or local preservation societies, or other interested parties.

If you have any questions, do not hesitate to contact me.

David Ogulei
U.S. Environmental Protection Agency
Region 5 | Air & Radiation Division | AR-18J
77 West Jackson Blvd. | Chicago, Illinois 60604
Phone: (312) 353-0987 | Fax: (312) 692-2080
Ogulei.David@epa.gov

From: Ogulei, David
Sent: Tuesday, March 24, 2020 10:28 AM
To: Gurinder (Gary) Saini <saini@rtpenv.com>
Cc: Marcus, Danny <marcus.danny@epa.gov>; Lim, YeChan <lim.yechan@epa.gov>; Rineheart, Rachel <Rineheart.Rachel@epa.gov>
Subject: RE: USS Granite City Works PSD Permit ESA and NHPA Consultation

Gary,

Thank you this information. We will get back to you once we've had a chance to review the project information you shared.

David Ogulei
U.S. Environmental Protection Agency
Region 5 | Air & Radiation Division | AR-18J
77 West Jackson Blvd. | Chicago, Illinois 60604
Phone: (312) 353-0987 | Ogulei.David@epa.gov

From: Gurinder (Gary) Saini <saini@rtpenv.com>
Sent: Tuesday, March 24, 2020 8:12 AM
To: Ogulei, David <Ogulei.David@epa.gov>
Cc: Colin Campbell <campbell@rtpenv.com>; Michalik, Sarah K <skmichalik@uss.com>; Christopher W Hardin -

United States Steel Corporation (CWHardin@uss.com) <CWHardin@uss.com>; Chris Romaine (Chris.Romaine@Illinois.gov) <Chris.Romaine@Illinois.gov>; Patel, Minesh <Minesh.Patel@illinois.gov>
Subject: USS Granite City Works PSD Permit ESA and NHPA Consultation

Mr. Oguiei,

U.S. Steel Granite City Works is an existing iron and steel manufacturing facility located in Granite City, Illinois. As you may already know, Illinois EPA is currently reviewing a PSD permit application to revise some of the CO emission limits for the existing combustion units at the facility. This application does not involve any new construction activity at the site.

Attached is a letter from U.S. Steel detailing anticipated air quality impacts and potential threatened or endangered species for your use in initiating a consultation with the US Fish and Wildlife Service or if this application meets the "no effect determination." Also, please let us know if NHPA cultural resource assessment is required for this application.

If you have any questions or need additional information, please do not hesitate to contact me or Sarah Michalik of U.S. Steel at (412) 433-7302 or skmichalik@uss.com.

Regards

Gurinder (Gary) Saini
RTP Environmental Associates Inc.
304A West Millbrook Road
Raleigh, NC 27609
(919) 845-1422, 42
(919) 533-4558

United States Steel Corporation
1350 Penn Avenue
Pittsburgh, PA 15222

VIA EMAIL

April 9, 2020

Illinois Department of Natural Resources
Illinois State Historic Preservation Office
Attn: Review and Compliance
1 Old State Capitol Plaza
Springfield, IL 62701

Subject: **Request State Historic Preservation Officer Review**
Background Information for the Revision to the 1996 PSD Permit for Expansion Project at U.S. Steel Granite City Works
Permit application under review with Illinois Environmental Protection Agency

Dear Madam / Sir:

U. S. Steel ("USS") owns and operates an integrated iron and steel manufacturing facility in Granite City, Illinois ("Granite City Works" or "GCW"). USS submitted a permit application to Illinois Environmental Protection Agency ("IEPA") requesting revisions of certain limitations and requirements for the blast furnaces and basic oxygen process furnace ("BOPF") shop at Granite City Works, which are contained in the Construction Permit 95010001 ("Revision of 1996 Construction Permit"). This request does not involve any physical changes for GCW. This letter provides initial documentation requested by Illinois Department of Natural Resources for Illinois State Historic Preservation Officer review.

Background
USS operates two blast furnaces, a BOPF shop, and other associated equipment/operations at Granite City Works to produce steel products. The site address is:

20th and State Street
Granite City, IL 62040

In February 2020, USS applied for a revision to a prevention of significant deterioration (PSD) permit in order to revise some of the carbon monoxide (CO) emissions limits for the existing operations. The 1996 Construction Permit authorized iron and steel production increases at GCW and established CO emission limitations for some of the fuel combustion operations as part of the PSD review. The USS requested permit revisions involve changes to the emission factors for some of the fuels and update the annual CO emission limitations. This permit revision is also subject to PSD review for CO.

Site Description
Granite City Works is located near the Illinois – Missouri border in south central Illinois. The site is 1,040 acres in Madison County, near the city of St Louis, as illustrated in Figure 1. The approximate centering UTM coordinates (Zone 15, NAD83) for the plant are X = 749,000 meters; Y = 4,287,000 meters. The facility is situated at an elevation of approximately 416 feet above mean sea level. The terrain is generally level in the immediate vicinity of the facility.

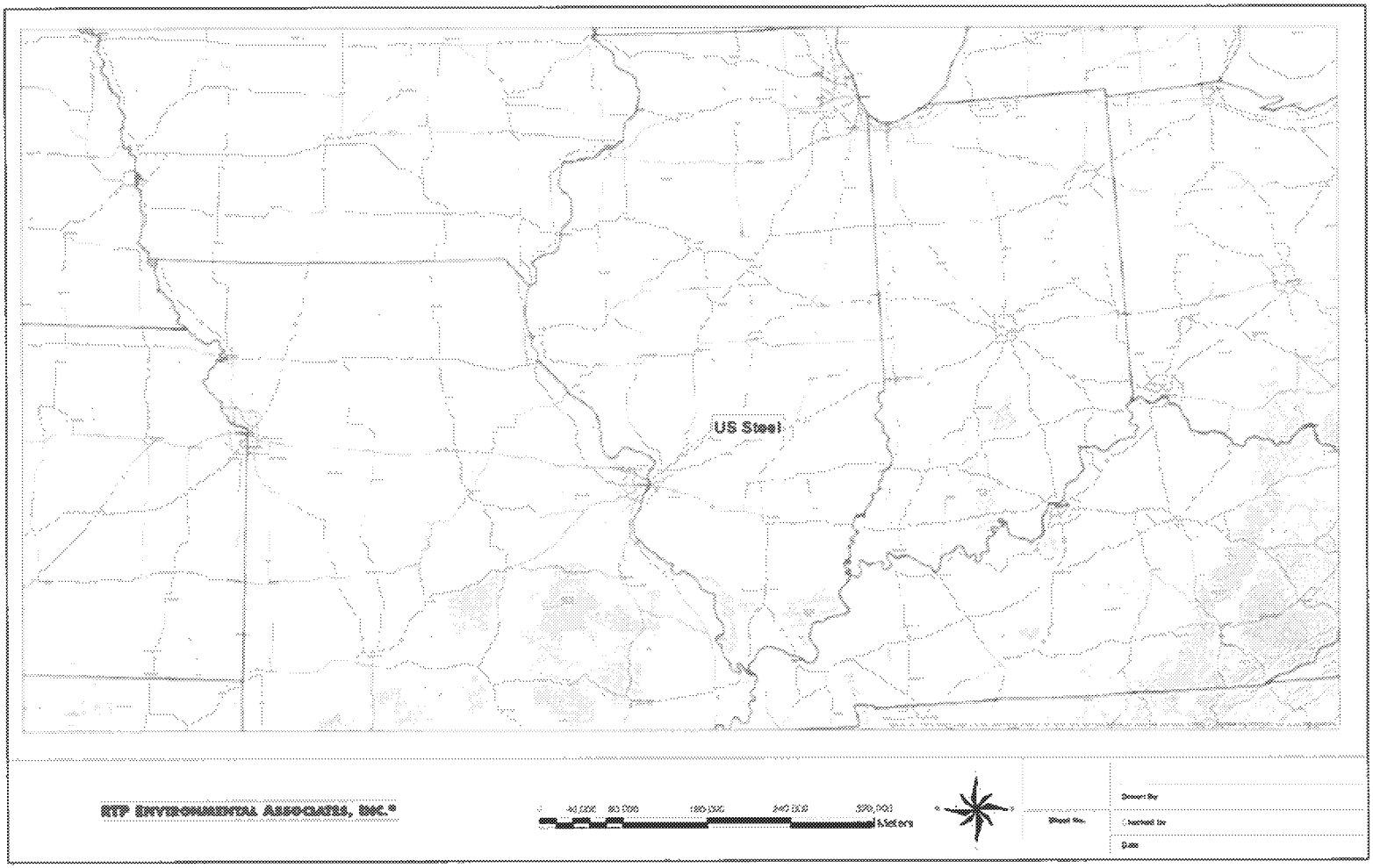


Figure 1. Regional Map

R004091

Structure Impacts
The 1996 Construction Permit involved changes in permitted production limits. There were no physical or structural changes at the site. Similarly, the proposed revisions to the 1996 Construction Permit by USS also do not involve any physical or structural changes at the site.

USS is not aware of any structural or archaeological cultural resources effected within the community. Please let us know if you need any other information to complete State Agency Historic Resource Protection Act or National Historic Preservation Act. If you have any questions on the information in this document or you need to reach us, please contact me at skmichalik@uss.com or (412) 433-7302 or Gary Saini at saini@rtpenv.com or (919) 845-1422 x 42.

Sincerely,
United States Steel Corporation



Sarah Michalik
Environmental Engineer

Responses to the items in David Ogulei's email dated March 24, 2020.

Item 1. Complete description of the project, including a quantification of all emissions increases expected from the project. To address this request, please identify and quantify all pollutants, including any hazardous air pollutants, that will increase due to the project.

USS Response *On March 2, 2020 U. S. Steel (USS) submitted a permit application to revise the 1996 Construction Permit (Permit Number 95010001) ("2020 Application"). The 1996 Construction Permit issued by Illinois EPA authorized National Steel (prior owners of Granite City Works) to increase throughput and fuel use at the iron and steel manufacturing facility ("1996 Project"). The 1996 Project was a major modification for SO_2 and CO. Net emissions increases for PM, PM10, NO_x, and VOM were below the applicable significant emission rates. The table below presents a summary of net emissions increases as calculated by National Steel for the 1996 Construction Permit.*

1996 Construction Permit	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

As part of the 2020 Application, as shown in the table below, USS is requesting revisions to CO emission rates for the 1996 Project affected combustion units to correct and update CO emission factors for gaseous fuels (natural gas and blast furnace gas). The CO emission limits in the 1996 permit were based upon emission factors published in version of AP-42 in effect at that time. The permit action is not based upon any actual increase of CO, but rather, it is based upon better information regarding CO that has developed since National Steel submitted the application for the 1996 project and the corresponding permit was issued by IEPA. The CO emission factors were updated based on the revised AP-42 Chapter 1.4 for natural gas combustion (Supplement D from July 1998) and CO testing conducted at units combusting blast furnace gas at Granite City Works and other representative facilities.

Permitted emissions of PM, PM10, NO_x, and VOM will decrease relative to the de minimis rates originally permitted for the 1996 Project, as shown in the table below. (No calculations have been performed for hazardous air pollutants, but it is reasonable to expect there will be no increases, as PM and VOM emission rates are decreasing relative to the current permitted levels.) No changes are proposed for SO_2 and Pb emissions as permitted in 1996. ("Contemporaneous" in the table refers to the period contemporaneous with the 1996 Project.")

2020 Application	Emissions (tons/year)						
	PM	PM10	NOx		CO	VOM	
Project Emissions Increases	-50.5	50.3	262.8		23,737.6	38.5	
Contemporaneous Decreases	-58.0	-58.0	-226.5		-23.31	-32.8	
Contemporaneous Increases	0	16.6	0		11.8	0	
Net Emissions Increases	**-108.5**	**8.9**	**36.3**		**23,726**	**5.7**	
Significant Emission Rate	25.0	15.0	40.0		100.0	40.0	

Neither the 1996 Project nor the 2020 Application involve any physical changes at the Granite City Works. The fuel burning emissions units affected by the requested changes to the CO emissions rates are:

(a) Blast Furnace Stoves,
(b) Blast Furnace Flare 1,
(c) Boilers 11 and 12,
(d) Ladle Drying Preheaters, and
(e) Ancillary Fuel Burning Units at the Continuous Casters.

As part of the 2020 Application, USS completed areawide CO air dispersion modeling that includes the operations at Granite City Works and the other offsite facilities. Results of the CO NAAQS analysis are summarized in the table below.

Averaging Period	*CO Modeled Concentration ($\mu g/m^3$)*	*CO Background Concentration ($\mu g/m^3$)*	*CO Total Concentration ($\mu g/m^3$)*	*CO NAAQS ($\mu g/m^3$)*
1-hour	*3,414*	*2,286*	*5,700*	*40,000*
8-hour	*1,941*	*1,349*	*3,290*	*10,000*

The air dispersion modeling confirmed that the modeled CO impacts remain below the applicable CO NAAQS for all averaging periods.

Item 2. List of historic and eligible historic properties within the project's "area of potential effects." Historic and eligible properties are available from the National Park Service (https://www.nps.gov/subjects/nationalregister/index.htm) and the Illinois State Historic Preservation Office (https://www2.illinois.gov/dnrhistoric/Preserve/Pages/Contact-Staff.aspx). For purposes of this project, the "area of potential effects," is the area within a three-mile radius of the facility as measured from the centroid of the project's geographical footprint.

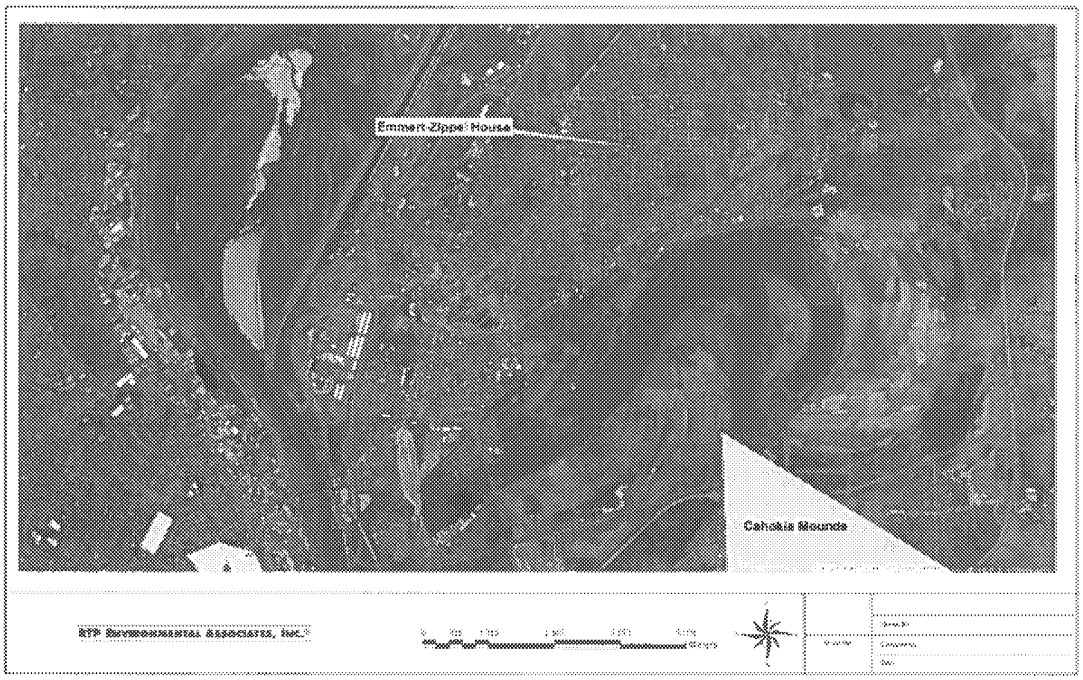
USS Response *A list of historic and eligible historic properties within the project's area of potential effects is provided below.*

S No.	Ref #	Property Name	Address
1	96000511	Emmert--Zippel House	3279 Maryville Rd., 2mi. N of IL 162, Granite City
2	100001564	Granite City YMCA	2001 Edison Ave., Granite City (not shown on the map)
3	80001396	Horseshoe Lake Mound and Village Site	Restricted site (not shown on the map)
4	66000899	Cahokia Mounds	7850 Collinsville Rd., Cahokia Mounds State Park, Collinsville (may fall outside the 3 mile distance)

Also, attached is a letter from Illinois Department of Natural Resources confirming "..that no significant historic, architectural or archeological resources are located within the proposed project area."[1]

Item 3. Map of facility in relation to historic properties.

USS Response *The requested map is provided below.*



[1] Letter from Robert F. Appleman, Deputy State Historic Preservation Officer, Illinois Department of Natural Resources to Sara Michalik of USS, May 1, 2020. Note – the letter erroneously refers storm water permit. This letter was issued in response to the letter from USS outlining air permit application information for Granite City.

Item 4. Identification of any excavation areas.

USS Response *There is no excavation – indeed no physical changes of any type – In conjunction with either the 1996 Project or the 2020 Application.*

Item 5. Identification of any interests by Tribal entities and/or local preservation societies, or other interested parties.

USS Response *American Bottom Conservancy (ABC) is an interested party in the 2020 Application project. In addition, on or about March 24, 2020, Illinois EPA issued and distributed an Environmental Justice notice notifying potentially interested parties of the pending permit application.*

ILLINOIS DEPARTMENT OF NATURAL RESOURCES

Illinois Department of Natural Resources

One Natural Resources Way Springfield, Illinois 62702-1271
www.dnr.illinois.gov

JB Pritzker, Governor
Colleen Callahan, Director

Mailing address: State Historic Preservation Office, 1 Old State Capitol Plaza, Springfield, IL 62701

Madison County
Granite City
20th & State Street
IEPA
General Permit to discharge storm water-PERMIT ONLY - US Steel Granite City Works

PLEASE REFER TO: SHPO LOG #008041520

May 1, 2020

Sarah Michalik
United States Steel Corporation
1350 Penn Avenue
Pittsburgh, PA 15222

Dear Ms. Michalik:

The Illinois State Historic Preservation Office is required by the Illinois State Agency Historic Resources Preservation Act (20 ILCS 3420, as amended, 17 IAC 4180) to review all state funded, permitted or licensed undertakings for their effect on cultural resources. Pursuant to this, we have received information regarding the referenced project for our comment.

Our staff has reviewed the specifications under the state law and assessed the impact of the project as submitted by your office. We have determined, based on the available information, that no significant historic, architectural or archaeological resources are located within the proposed project area.

According to the information you have provided concerning your proposed project, apparently there is no federal involvement in your project. However, please note that the state law is less restrictive than the federal cultural resource laws concerning archaeology. If your project will use federal loans or grants, need federal agency permits, use federal property, or involve assistance from a federal agency, then your project must be reviewed under the National Historic Preservation Act of 1966, as amended. Please notify us immediately if such is the case.

This clearance remains in effect for two (2) years from date of issuance. It does not pertain to any discovery during construction, nor is it a clearance for purposes of the IL Human Skeletal Remains Protection Act (20 ILCS 3440).

Please retain this letter in your files as evidence of compliance with the Illinois State Agency Historic Resources Preservation Act.

If further assistance is needed please contact Jeff Kruchten, Chief Archaeologist at 217/785-1279 or jeffery.kruchten@illinois.gov.

Sincerely,

Robert P. Appleman
Deputy State Historic
Preservation Officer

Kras, Kim

From: Sprague, Jeff
Sent: Wednesday, July 29, 2020 2:43 PM
To: Ray, Sarah
Cc: Sprague, Jeff
Subject: RE: US Steel Granite City Additional Impacts Analysis Request

Hey Sarah,
Well, they followed your suggestions for potential information sources, but didn't do much more than that. That's a bit of a disappointment. That said, they have provided a response that provides some assurance that there won't be any adverse additional impacts. So, I think we can consider this submittal, together with the previously provided information, as being adequate. Go ahead and add to your memo any necessary and appropriate remarks with regard to this latest e-mail and the attachments.

Thanks,

Jeff

From: Ray, Sarah
Sent: Wednesday, July 29, 2020 9:58 AM
To: Sprague, Jeff
Subject: FW: US Steel Granite City Additional Impacts Analysis Request

Hi Jeff,

I received this email yesterday evening and wanted to see what your thoughts were as far as whether the response is satisfactory, or whether more is needed. I can plan to incorporate this information into the memorandum, with a note that I received supplemental additional impacts analysis information via email correspondence.

Thanks,
Sarah

From: Gurinder (Gary) Saini <saini@rtpenv.com>
Sent: Tuesday, July 28, 2020 6:01 PM
To: Ray, Sarah <Sarah.Ray@illinois.gov>
Cc: Colin Campbell <campbell@rtpenv.com>; David Keen <keen@rtpenv.com>; Christopher W Hardin - United States Steel Corporation (CWHardin@uss.com) <CWHardin@uss.com>
Subject: [External] RE: US Steel Granite City Additional Impacts Analysis Request

Thanks for providing us this information. I contacted the University of Illinois Cooperative Extension in Madison County the and Granite City Township office regarding the sensitive plant species information or staff, such as urban forester, that may be involved in this regard. They did not have any information or any staff responsible for those issues. I also reviewed information on the Granite City's website and did not find any specific information regarding urban forestry department or responsible staff.

We reviewed the information available on the Illinois DNR website regarding the endangered and threatened species in Madison County, where the USS Granite City facility is located. This review identified two endangered and two threatened plant species in Madison County. These were: Decurrent False Aster, Blue Hearts, Spring Ladies' Tresses,

Prairie Spiderwort. Only two of the four plant species (Decurrent False Aster and Spring Ladies' Tresses) were last observed in 2018. Prairie Spiderwort was observed over 18 years ago. Blue Hearts Was observed in 1993.

We also completed the EcoCAT review for the USS Granite City site on the Illinois DNR website. See attached. It concluded that there were no threatened or endangered species in the vicinity of the project location.

We have addressed the consultation requirements under the Endangered Species Act (ESA) and the National Historic Preservation Act (NHPA) for this PSD permit application with the U.S. EPA Region 5. In the attached email, the U.S. EPA provided their "no effect determination" for purposes of the ESA consultation for this application.

I reviewed the information under subsection 1.5.2 of Part 7.0 of the Sunflower Station application regarding CO impacts. This application relies on compliance with the CO NAAQS to avoid "the potential and real adverse vegetation effects of CO emissions from the proposed project." This is similar to the approach in the USS Granite City application under subsection 6.2 where we noted that "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." There is no secondary CO NAAQS.

I also looked through the EU directive 2008/50/EC on ambient air quality. In Annex XI of this document EU established CO limit value 10 mg/m^3 (8-hour average) for protection of human health. This is same as the CO NAAQS established by the U.S. EPA (9 ppm (8-hour average). Under Article 5 EU requires the upper and lower assessment thresholds for pollutants for classification of zones. In Annex II, the lower assessment threshold for CO is specified as 5 mg/m^3. In appendix C of the USS Granite City application, ambient total CO concentration (project + background) is shown as 3,290 $\mu g/m^3$. Thus, modeled impacts under this PSD application for CO are below the lower assessment threshold for CO under the EU document.

I reviewed the CO Air Quality Criteria document published by Public Health Service in March 1970. Under Chapter 7 of this document, it noted that, CO does not result in "..detrimental effects on the higher-type plant life at concentrations below 115 mg/m^3 (100 ppm) during exposure for 1 to 3 weeks." Further "..no inhibition of nitrogen fixation was detected, but at [CO level of] 115 mg/m^3 (100 ppm) a 20% reduction in total nitrogen production occurred." As noted above, the modeled CO impacts at 3,290 $\mu g/m^3$ are well below the levels noted in this report.

We were unsuccessful in locating the reference from Richard Flagler.

We hope this information addresses the items listed in your emails below. Please let us know if you need anything else or have any questions.

Regards

GS
(919) 845-1422, 42
(919) 533-4558

From: Ray, Sarah <Sarah.Ray@illinois.gov>
Sent: Thursday, July 23, 2020 14:21
To: Gurinder (Gary) Saini <saini@rtpenv.com>
Subject: RE: US Steel Granite City Additional Impacts Analysis Request

Hello,

As far as identifying sensitive species (both threatened, endangered, and otherwise), some resources to consider might be the following:

1. University of Illinois Cooperative Extension (Madison County Office)
2. Granite City and Granite City Township Websites – specifically, they may have an urban forester on staff who could provide more information
3. Illinois DNR Website

I may have missed this in the application, but have you communicated with either USEPA or the Illinois Department of Natural Resources (DNR)? If so, you can potentially incorporate results from their consultation(s) into the additional impacts analysis. The DNR website focuses on endangered and threatened species. They provide a list of species, by county:
https://www2.illinois.gov/dnr/conservation/NaturalHeritage/Documents/Database/etcountylist.pdf

Additionally, as far as CO impacts, examples of citations provided by previous applications include:

1. Additional Impact Assessment for Plants and Soils from the Sunflower Station, Sunflower Electric Power Corporation.

2. 175 Directive 2008/50/EC of the European Parliament and of the Council of the European Union: On ambient air quality and cleaner air for Europe, 21 May 2008.

3. *Air Quality Criteria for Carbon Monoxide*. U.S. Department of Health, Education, and Welfare, Public Health Service, National Air Pollution Control Administration, Washington, D.C., pp. 7-1 – 7-3, March 1970.

4. Flagler, Richard B., Recognition of Air Pollution Injury to Vegetation: A Pictorial Atlas, 2nd, ed., Air & Waste Management Association, Pittsburg, Pennsylvania, 1998.

Beyond these, I'm also in the process of reviewing my own reference materials, to see if I can come up with anything else that may be helpful for CO and will forward along what I find.

Thanks,
Sarah

Sarah Ray
Environmental Protection Engineer II
Modeling Unit / Air Quality Planning Section
Bureau of Air
Illinois EPA
ph. 217.558.6363

From: Gurinder (Gary) Saini <saini@rtpenv.com>
Sent: Thursday, July 23, 2020 11:43 AM
To: Ray, Sarah <Sarah.Ray@illinois.gov>
Subject: [External] RE: US Steel Granite City Additional Impacts Analysis Request

Thanks for your call this morning.

In case identifying resources for sensitive vegetation takes longer than expected, please send us a recent PSD application that Illinois EPA received that addresses that item for some other site. If not readily available, just let us know the name and we can try to FOIA the application.

We appreciate you reviewing this information and hope to respond soon with requisite information.

Regards

GS
(919) 845-1422, 42
(919) 533-4558

From: Gurinder (Gary) Saini
Sent: Thursday, July 23, 2020 09:56
To: 'Sarah.Ray@illinois.gov' <Sarah.Ray@illinois.gov>
Subject: RE: US Steel Granite City Additional Impacts Analysis Request

Dave forwarded your email to me as I worked on the additional impacts section of the application.

I need to understand what exactly is needed to address the information you requested regarding CO impacts. Please give me a call at your convenience.

Regards

GS
(919) 845-1422, 42
(919) 533-4558

Begin forwarded message:

From: "Ray, Sarah" <Sarah.Ray@illinois.gov>
Date: July 20, 2020 at 12:32:35 PM EDT
To: David Keen <keen@rtpenv.com>
Cc: "Sprague, Jeff" <Jeff.Sprague@illinois.gov>
Subject: US Steel Granite City Additional Impacts Analysis Request

Dear Mr. Keen,

After reviewing the additional impacts analysis provided in the application (Section 6), it looks like there is no specific discussion of ecological screening levels and benchmarks for soils and vegetation of commercial and/or recreational value, including sensitive species. Can you please review publicly available information and evaluate modeled concentrations of CO described in Appendix C of the application against ecological screening levels and benchmarks as an addition to what you have already provided?

Thank you,
Sarah

Sarah Ray
Environmental Protection Engineer II
Modeling Unit / Air Quality Planning Section
Bureau of Air
Illinois EPA
ph. 217.558.6363

State of Illinois - CONFIDENTIALITY NOTICE: The information contained in this communication is confidential, may be attorney-client privileged or attorney work product, may constitute inside information or internal deliberative staff communication, and is intended only for the use of the addressee. Unauthorized use, disclosure or copying of this communication or any part thereof is strictly prohibited and may be unlawful. If you have received this communication in error, please notify the sender immediately by return e-mail and destroy this communication and all copies thereof, including all attachments. Receipt by an unintended recipient does not waive attorney-client privilege, attorney work product privilege, or any other exemption from disclosure.

Kras, Kim

From: Ray, Sarah
Sent: Wednesday, July 29, 2020 9:58 AM
To: Sprague, Jeff
Subject: FW: US Steel Granite City Additional Impacts Analysis Request
Attachments: EcoCAT_2101461.pdf; 2020 5 27 EPA Determination Email for ESA NHPA.pdf

Hi Jeff,

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Thanks,
Sarah

From: Gurinder (Gary) Saini
Sent: Tuesday, July 28, 2020 6:01 PM
To: Ray, Sarah
Cc: Colin Campbell ; David Keen ; Christopher W Hardin - United States Steel Corporation (CWHardin@uss.com)
Subject: [External] RE: US Steel Granite City Additional Impacts Analysis Request

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impacts are expected from this permit revision request." There is no secondary CO NAAQS.

I also looked through the EU directive 2008/50/EC on ambient air quality. In Annex XI of this document EU established CO limit value 10 mg/m^3 (8-hour average) for protection of human health. This is same as the CO NAAQS established by the U.S. EPA (9 ppm (8-hour average). Under Article 5 EU requires the upper and lower assessment thresholds for pollutants for classification of zones. In Annex II, the lower assessment threshold for CO is specified as 5 mg/m^3. In appendix C of the USS Granite City application, ambient total CO concentration (project + background) is shown as 3,290 µg/m^3. Thus, modeled impacts under this PSD application for CO are below the lower assessment threshold for CO under the EU document.

I reviewed the CO Air Quality Criteria document published by Public Health Service in March 1970. Under Chapter 7 of this document, it noted that, CO does not result in "..detrimental effects on the higher-type plant life at concentrations below 115 mg/m^3 (100 ppm) during exposure for 1 to 3 weeks." Further "..no inhibition of nitrogen fixation was detected, but at [CO level of] 115 mg/m^3 (100 ppm) a 20% reduction in total nitrogen production occurred." As noted above, the modeled CO impacts at 3,290 µg/m^3 are well below the levels noted in this report.

We were unsuccessful in locating the reference from Richard Flagler.

We hope this information addresses the items listed in your emails below. Please let us know if you need anything else or have any questions.

Regards

GS
(919) 845-1422, 42
(919) 533-4558

From: Ray, Sarah <Sarah.Ray@illinois.gov>
Sent: Thursday, July 23, 2020 14:21
To: Gurinder (Gary) Saini <saini@rtpenv.com>
Subject: RE: US Steel Granite City Additional Impacts Analysis Request

Hello,

As far as identifying sensitive species (both threatened, endangered, and otherwise), some resources to consider might be the following:

1. University of Illinois Cooperative Extension (Madison County Office)
2. Granite City and Granite City Township Websites – specifically, they may have an urban forester on staff who could provide more information
3. Illinois DNR Website

I may have missed this in the application, but have you communicated with either USEPA or the Illinois Department of Natural Resources (DNR)? If so, you can potentially incorporate results from their consultation(s) into the additional impacts analysis. The DNR website focuses on endangered and threatened species. They provide a list of species, by county:
https://www2.illinois.gov/dnr/conservation/NaturalHeritage/Documents/Database/etcountylist.pdf

Additionally, as far as CO impacts, examples of citations provided by previous applications include:

1. Additional Impact Assessment for Plants and Soils from the Sunflower Station, Sunflower Electric Power Corporation.

2. 175 Directive 2008/50/EC of the European Parliament and of the Council of the European Union: On ambient air quality and cleaner air for Europe, 21 May 2008.

3. *Air Quality Criteria for Carbon Monoxide*. U.S. Department of Health, Education, and Welfare, Public Health Service, National Air Pollution Control Administration, Washington, D.C., pp. 7-1 – 7-3, March 1970.

4. Flagler, Richard B., Recognition of Air Pollution Injury to Vegetation: A Pictorial Atlas, 2nd, ed., Air & Waste Management Association, Pittsburg, Pennsylvania, 1998.

Beyond these, I'm also in the process of reviewing my own reference materials, to see if I can come up with anything else that may be helpful for CO and will forward along what I find.

Thanks,
Sarah

Sarah Ray
Environmental Protection Engineer II
Modeling Unit / Air Quality Planning Section
Bureau of Air
Illinois EPA
ph. 217.558.6363

From: Gurinder (Gary) Saini <saini@rtpenv.com>
Sent: Thursday, July 23, 2020 11:43 AM
To: Ray, Sarah <Sarah.Ray@illinois.gov>
Subject: [External] RE: US Steel Granite City Additional Impacts Analysis Request

Thanks for your call this morning.

In case identifying resources for sensitive vegetation takes longer than expected, please send us a recent PSD application that Illinois EPA received that addresses that item for some other site. If not readily available, just let us know the name and we can try to FOIA the application.

We appreciate you reviewing this information and hope to respond soon with requisite information.

Regards

GS
(919) 845-1422, 42
(919) 533-4558

From: Gurinder (Gary) Saini
Sent: Thursday, July 23, 2020 09:56

To: 'Sarah.Ray@illinois.gov' <Sarah.Ray@illinois.gov>
Subject: RE: US Steel Granite City Additional Impacts Analysis Request

Dave forwarded your email to me as I worked on the additional impacts section of the application.

I need to understand what exactly is needed to address the information you requested regarding CO impacts. Please give me a call at your convenience.

Regards

GS
(919) 845-1422, 42
(919) 533-4558

Begin forwarded message:

From: "Ray, Sarah" <Sarah.Ray@illinois.gov>
Date: July 20, 2020 at 12:32:35 PM EDT
To: David Keen <keen@rtpenv.com>
Cc: "Sprague, Jeff" <Jeff.Sprague@illinois.gov>
Subject: US Steel Granite City Additional Impacts Analysis Request

Dear Mr. Keen,

After reviewing the additional impacts analysis provided in the application (Section 6), it looks like there is no specific discussion of ecological screening levels and benchmarks for soils and vegetation of commercial and/or recreational value, including sensitive species. Can you please review publicly available information and evaluate modeled concentrations of CO described in Appendix C of the application against ecological screening levels and benchmarks as an addition to what you have already provided?

Thank you,
Sarah

Sarah Ray
Environmental Protection Engineer II
Modeling Unit / Air Quality Planning Section
Bureau of Air
Illinois EPA
ph. 217.558.6363

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EcoCAT
Ecological Compliance Assessment Tool

Applicant:	RTP Environmental Associates Inc.	*IDNR Project Number:*	2101461
Contact:	Gurinder Saini	*Date:*	07/27/2020
Address:	304A West Millbrook Road Raleigh, NC 27609		
Project:	1996 Construction Permit Revision Project		
Address:	1951 State Street, Granite City		

Description: PSD permit revision application for USS Granite City site.

Natural Resource Review Results

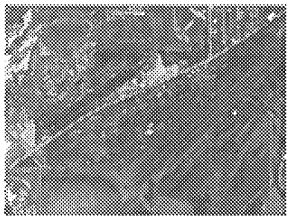
This project was submitted for information only. It is not a consultation under Part 1075.

The Illinois Natural Heritage Database contains no record of State-listed threatened or endangered species, Illinois Natural Area Inventory sites, dedicated Illinois Nature Preserves, or registered Land and Water Reserves in the vicinity of the project location.

Location
The applicant is responsible for the accuracy of the location submitted for the project.

County: Madison

Township, Range, Section:
3N, 9W, 19
3N, 9W, 20



IL Department of Natural Resources Contact
Impact Assessment Section
217-785-5500
Division of Ecosystems & Environment

Disclaimer

The Illinois Natural Heritage Database cannot provide a conclusive statement on the presence, absence, or condition of natural resources in Illinois. This review reflects the information existing in the Database at the time of this inquiry, and should not be regarded as a final statement on the site being considered, nor should it be a substitute for detailed site surveys or field surveys required for environmental assessments. If additional protected resources are encountered during the project's implementation, compliance with applicable statutes and regulations is required.

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IDNR Project Number: 2101461

1. The IDNR EcoCAT website was developed so that units of local government, state agencies and the public could request information or begin natural resource consultations on-line for the Illinois Endangered Species Protection Act, Illinois Natural Areas Preservation Act, and Illinois Interagency Wetland Policy Act. EcoCAT uses databases, Geographic Information System mapping, and a set of programmed decision rules to determine if proposed actions are in the vicinity of protected natural resources. By indicating your agreement to the Terms of Use for this application, you warrant that you will not use this web site for any other purpose.

2. Unauthorized attempts to upload, download, or change information on this website are strictly prohibited and may be punishable under the Computer Fraud and Abuse Act of 1986 and/or the National Information Infrastructure Protection Act.

3. IDNR reserves the right to enhance, modify, alter, or suspend the website at any time without notice, or to terminate or restrict access.

Security

EcoCAT operates on a state of Illinois computer system. We may use software to monitor traffic and to identify unauthorized attempts to upload, download, or change information, to cause harm or otherwise to damage this site. Unauthorized attempts to upload, download, or change information on this server is strictly prohibited by law.

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Privacy

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IDNR Project Number: 2101461

EcoCAT
Ecological Compliance Assessment Tool

EcoCAT Receipt

Project Code 2101461

APPLICANT	DATE
RTP Environmental Associates Inc. Gurinder Saini 304A West Millbrook Road Raleigh, NC 27609	7/27/2020

DESCRIPTION	FEE	CONVENIENCE FEE	TOTAL PAID
EcoCAT Consultation	$ 25.00	$ 1.00	$ 26.00

TOTAL PAID $ 26.00

Illinois Department of Natural Resources
One Natural Resources Way
Springfield, IL 62702
217-785-5500
dnr.ecocat@illinois.gov

From:	Lim, YeChan
To:	Gurinder (Gary) Saini; Ogulei, David
Cc:	Marcus, Danny; Damico, Genevieve; Colin Campbell; Michalik, Sarah K; Christopher W Hardin - United States Steel Corporation (CWHardin@uss.com)
Subject:	RE: USS Granite City Works PSD Permit NHPA Consultation
Date:	Friday, May 29, 2020 11:32:27

Hello,
Based on the potential emission increases for this project and the land use land cover (LULC) analysis provided, we are making a no effect determination for this project.

Thank you.

YeChan Lim
Environmental Engineer
U.S. Environmental Protection Agency – Region 5
Air and Radiation Division | Air Permits Section
77 W. Jackson Blvd., Chicago, IL 60604 (AR-18J)
Phone: (312) 886-7259
Email: lim.yechan@epa.gov

From: Gurinder (Gary) Saini <saini@rtpenv.com>
Sent: Wednesday, May 27, 2020 3:35 PM
To: Ogulei, David <Ogulei.David@epa.gov>
Cc: Marcus, Danny <marcus.danny@epa.gov>; Lim, YeChan <lim.yechan@epa.gov>; Damico, Genevieve <damico.genevieve@epa.gov>; Colin Campbell <campbell@rtpenv.com>; Michalik, Sarah K <skmichalik@uss.com>; Christopher W Hardin - United States Steel Corporation (CWHardin@uss.com) <CWHardin@uss.com>
Subject: RE: USS Granite City Works PSD Permit NHPA Consultation

Thanks for your email response. We really appreciate your help in this regard and will forward your email to Illinois EPA.

Meanwhile, we haven't heard from Rachel regarding ESA consultation for this project. Do you have any information regarding the ESA process or know if Rachel needs anything else?

Regards

GS
(919) 845-1422, 42
(919) 533-4558

> **From:** Ogulei, David <Ogulei.David@epa.gov>
> **Sent:** Wednesday, May 27, 2020 16:20
> **To:** Gurinder (Gary) Saini <saini@rtpenv.com>

Cc: Marcus, Danny <marcus.danny@epa.gov>; Lim, YeChan <lim.yechan@epa.gov>; Damico, Genevieve <damico.genevieve@epa.gov>; Colin Campbell <campbell@rtpenv.com>; Michalik, Sarah K <skmichalik@uss.com>; Christopher W Hardin - United States Steel Corporation (CWHardin@uss.com) <CWHardin@uss.com>; Jeffery.kruchten@illinois.gov
Subject: RE: USS Granite City Works PSD Permit NHPA Consultation

Gary,

The U.S. Environmental Protection Agency has reviewed the attached cultural resource assessment you submitted on behalf of U.S. Steel Granite City Works (USSGCW), on March 24 and May 22, 2020. The submittal includes a finding by the Illinois Deputy State Historic Preservation Officer, dated May 1, 2020, that "no significant historic, architectural or archaeological resources are located within the proposed project area."

Section 106 of the National Historic Preservation Act (NHPA) requires Federal agencies to take into account the effects of their undertakings on historic properties, and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings. If the Federal agency determines that an undertaking, as defined in 40 C.F.R § 800.16(y), does not have the potential to cause effects on historic properties, assuming such historic properties were present, the agency official has no further obligations under section 106 or 36 C.F.R. Part 800. For this permit action, EPA has determined that the undertaking is not likely to affect historic properties; therefore, no further action is required under Section 106 of the NHPA.

If there are any questions regarding this determination, please contact me.

David Ogulei
U.S. Environmental Protection Agency
Region 5 | Air & Radiation Division | AR-18J
77 West Jackson Blvd. | Chicago, Illinois 60604
Phone: (312) 353-0987 | Ogulei.David@epa.gov

From: Gurinder (Gary) Saini <saini@rtpenv.com>
Sent: Friday, May 22, 2020 8:09 AM
To: Ogulei, David <Ogulei.David@epa.gov>
Cc: Marcus, Danny <marcus.danny@epa.gov>; Lim, YeChan <lim.yechan@epa.gov>; Damico, Genevieve <damico.genevieve@epa.gov>; Colin Campbell <campbell@rtpenv.com>; Michalik, Sarah K <skmichalik@uss.com>; Christopher W Hardin - United States Steel Corporation (CWHardin@uss.com) <CWHardin@uss.com>
Subject: RE: USS Granite City Works PSD Permit ESA and NHPA Consultation

Attached are the responses to the questions/comments in the email below. Sorry for the late response but it took us some time to get information from State Historic Preservation Office (under the current stay-at-home conditions).

Please let us know if you need anything else or have any other questions.

Regards

GS
(919) 845-1422, 42
(919) 533-4558

From: Ogulei, David <Ogulei.David@epa.gov>
Sent: Tuesday, March 24, 2020 17:01
To: Gurinder (Gary) Saini <saini@rtpenv.com>
Cc: Marcus, Danny <marcus.danny@epa.gov>; Lim, YeChan <lim.yechan@epa.gov>; Damico, Genevieve <damico.genevieve@epa.gov>
Subject: RE: USS Granite City Works PSD Permit ESA and NHPA Consultation

Gary,

EPA has reviewed the cultural resource and endangered species assessment you submitted on March 24, 2020. U.S. Steel Granite City Works is proposing to revise limitations and requirements contained in an existing construction permit for the blast furnaces and basic oxygen process furnace shop at the Granite City Works facility. We have determined that we need additional information before we can determine the level of consultation necessary for the project. Specifically, please submit the following information to facilitate our review of the project under the ESA and NHPA:

1. Complete description of the project, including a quantification of all emissions increases expected from the project. To address this request, please identify and quantify all pollutants, including any hazardous air pollutants, that will increase due to the project;
2. List of historic and eligible historic properties within the project's "area of potential effects." Historic and eligible properties are available from the National Park Service (https://www.nps.gov/subjects/nationalregister/index.htm) and the Illinois State Historic Preservation Office (https://www2.illinois.gov/dnrhistoric/Preserve/Pages/Contact-Staff.aspx). For purposes of this project, the "area of potential effects," is the area within a three-mile radius of the facility as measured from the centroid of the project's geographical footprint;
3. Map of facility in relation to historic properties;
4. Identification of any excavation areas;
5. Identification of any interests by Tribal entities and/or local preservation societies, or other interested parties.

If you have any questions, do not hesitate to contact me.

David Ogulei
U.S. Environmental Protection Agency
Region 5 | Air & Radiation Division | AR-18J
77 West Jackson Blvd. | Chicago, Illinois 60604

Phone: (312) 353-0987 | Fax: (312) 692-2080
Ogulei.David@epa.gov

From: Ogulei, David
Sent: Tuesday, March 24, 2020 10:28 AM
To: Gurinder (Gary) Saini <saini@rtpenv.com>
Cc: Marcus, Danny <marcus.danny@epa.gov>; Lim, YeChan <lim.yechan@epa.gov>; Rineheart, Rachel <Rineheart.Rachel@epa.gov>
Subject: RE: USS Granite City Works PSD Permit ESA and NHPA Consultation

Gary,

Thank you this information. We will get back to you once we've had a chance to review the project information you shared.

David Ogulei
U.S. Environmental Protection Agency
Region 5 | Air & Radiation Division | AR-18J
77 West Jackson Blvd. | Chicago, Illinois 60604
Phone: (312) 353-0987 | Ogulei.David@epa.gov

From: Gurinder (Gary) Saini <saini@rtpenv.com>
Sent: Tuesday, March 24, 2020 8:12 AM
To: Ogulei, David <Ogulei.David@epa.gov>
Cc: Colin Campbell <campbell@rtpenv.com>; Michalik, Sarah K <skmichalik@uss.com>; Christopher W Hardin - United States Steel Corporation (CWHardin@uss.com) <CWHardin@uss.com>; Chris Romaine (Chris.Romaine@Illinois.gov) <Chris.Romaine@Illinois.gov>; Patel, Minesh <Minesh.Patel@illinois.gov>
Subject: USS Granite City Works PSD Permit ESA and NHPA Consultation

Mr. Ogulei,

U.S. Steel Granite City Works is an existing iron and steel manufacturing facility located in Granite City, Illinois. As you may already know, Illinois EPA is currently reviewing a PSD permit application to revise some of the CO emission limits for the existing combustion units at the facility. This application does not involve any new construction activity at the site.

Attached is a letter from U.S. Steel detailing anticipated air quality impacts and potential threatened or endangered species for your use in initiating a consultation with the US Fish and Wildlife Service or if this application meets the "no effect

determination." Also, please let us know if NHPA cultural resource assessment is required for this application.

If you have any questions or need additional information, please do not hesitate to contact me or Sarah Michalik of U.S. Steel at (412) 433-7302 or skmichalik@uss.com.

Regards

Gurinder (Gary) Saini
RTP Environmental Associates Inc.
304A West Millbrook Road
Raleigh, NC 27609
(919) 845-1422, 42
(919) 533-4555

Romaine, Chris

To: Ogulei, David
Cc: Frost, Brad
Subject: RE: Romaine, Chris shared "WORKING DRAFT FOR DENIAL LETTER 7-17-23" with you.

Sorry about that. We have new filesharing software.

Brad: Thanks

From: Ogulei, David <Ogulei.David@epa.gov>
Sent: Monday, July 31, 2023 8:24 AM
To: Romaine, Chris <Chris.Romaine@Illinois.gov>
Subject: [External] RE: Romaine, Chris shared "WORKING DRAFT FOR DENIAL LETTER 7-17-23" with you.

I can't download these but don't worry about it, Brad sent us pdfs of what was public noticed.

From: Romaine, Chris <Chris.Romaine@Illinois.gov>
Sent: Friday, July 28, 2023 3:50 PM
To: Ogulei, David <Ogulei.David@epa.gov>
Subject: FW: Romaine, Chris shared "WORKING DRAFT FOR DENIAL LETTER 7-17-23" with you.

Per your request.

I didn't come in this week until now and don't know whether this was already handled. Simpler to just send.

From: Romaine, Chris
Sent: Thursday, July 20, 2023 2:39 PM
To: Frost, Brad <Brad.Frost@Illinois.gov>; Patel, Minesh <Minesh.Patel@Illinois.gov>
Subject: Romaine, Chris shared "WORKING DRAFT FOR DENIAL LETTER 7-17-23" with you.

Romaine, Chris shared a file with you

And here is the draft denial letter

WORKING DRAFT FOR DENIAL LETTER 7-17-23

This link only works for the direct recipients of this message.

Open

Microsoft

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Kras, Kim

From: Rutherford, Cari
Sent: Monday, August 3, 2020 1:45 PM
To: Ray, Sarah
Subject: RE: Question about Granite City US Steel

Hi Sarah,

That makes perfect sense – I ended up asking Jeff the same question and got a similar response. I haven't completed this part of an air quality analysis yet, so I am just learning new things every day. Thanks for your help!!!

Cari

From: Ray, Sarah
Sent: Monday, August 3, 2020 12:39 PM
To: Rutherford, Cari
Subject: RE: Question about Granite City US Steel

Hi Cari,

I don't think you need to use the full receptor grid from the SIL analysis. What I normally do is take the results from the SIL modeling and screen out insignificant receptors to build a more refined grid. In BEEST, I just load the results, select the "Radius of Impact" button on the left tool bar, defined my radius based on the SIL value, and include all receptors within that radius for use in NAAQS and PSD increment modeling.

-Sarah

From: Rutherford, Cari <Cari.Rutherford@Illinois.gov>
Sent: Monday, August 3, 2020 11:35 AM
To: Ray, Sarah <Sarah.Ray@illinois.gov>
Subject: RE: Question about Granite City US Steel

Hi Sarah,

Thank you!! I was definitely cc'd on that email response from Jeff, but I had just forgotten about it. Thanks for the clarification.

My Monday is going pretty smoothly so far – it's been way more productive than a typical Monday morning, so I am happy.

I do have a secondary question for you now - although I may go talk to Jeff about it soon too.

They have 14098 receptors in the significant impact analysis; but they have just 47 receptors in the NAAQS analysis. They address it in the modeling report as follows: "the receptors modeled in the NAAQS analyses were limited to those showing a significant CO impact."

My understanding of the NAAQS analysis was to do a more refined receptor grid to locate the area of maximum modeled impact, but not to exclude all insignificant receptors? How would you proceed in the modeling? I was thinking

that I could apply the full receptor grid from the significant impact analysis, and refine it as necessary? Or am I just misunderstanding – maybe we don't need to use as many receptors for the NAAQS analysis?

-Cari

From: Ray, Sarah <Sarah.Ray@illinois.gov>
Sent: Monday, August 3, 2020 11:03 AM
To: Rutherford, Cari <Cari.Rutherford@Illinois.gov>
Subject: RE: Question about Granite City US Steel

Hi Cari,

Thanks! It was last Wednesday. ☺

As for the meteorology, I had asked Jeff about that as well. This was his response: "***Yes, use the 2014-2018 meteorology from the old version of AERSURFACE for consistency. And, as you know, AERSURFACE is not technically a part of the regulatory-approved AERMOD modeling system (AERMAP, AERMET, and AERMOD), and thus both we and they should be using what we had previously recommended.***"

So, you are good to use the meteorology data that you had been using prior to the work-from-home situation.

I hope your Monday is going well!

-Sarah

From: Rutherford, Cari <Cari.Rutherford@Illinois.gov>
Sent: Monday, August 3, 2020 10:34 AM
To: Ray, Sarah <Sarah.Ray@illinois.gov>
Subject: Question about Granite City US Steel

Hey Sarah!

I forgot my phone in my car, so that is why I am emailing you instead of texting. This is a relatively simple question, but I always forget which is correct: should I use the five year period of 2015-2019 or 2014-2018 for the met data? The submitted modeling uses 2014-2018, but my gut is telling me to update and use the most recent available met data?

Also – Happy belated Birthday, Sarah!!! I can't remember the exact date, but I remember it's the last week of July! Hope you had an enjoyable day. ☺

-Cari

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Kras, Kim

From: Rutherford, Cari
Sent: Monday, August 3, 2020 10:34 AM
To: Ray, Sarah
Subject: Question about Granite City US Steel

Hey Sarah!
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-Cari

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Kras, Kim

From: Ray, Sarah
Sent: Monday, August 3, 2020 11:03 AM
To: Rutherford, Cari
Subject: RE: Question about Granite City US Steel

Hi Cari,

Thanks! It was last Wednesday. ☺

As for the meteorology, I had asked Jeff about that as well. This was his response: "***Yes, use the 2014-2018 meteorology from the old version of AERSURFACE for consistency. And, as you know, AERSURFACE is not technically a part of the regulatory-approved AERMOD modeling system (AERMAP, AERMET, and AERMOD), and thus both we and they should be using what we had previously recommended.***"

So, you are good to use the meteorology data that you had been using prior to the work-from-home situation.

I hope your Monday is going well!

-Sarah

From: Rutherford, Cari
Sent: Monday, August 3, 2020 10:34 AM
To: Ray, Sarah
Subject: Question about Granite City US Steel

Hey Sarah!

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Also – Happy belated Birthday, Sarah!!! I can't remember the exact date, but I remember it's the last week of July! Hope you had an enjoyable day. ☺

-Cari

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Kras, Kim

From: Rutherford, Cari
Sent: Monday, August 3, 2020 11:35 AM
To: Ray, Sarah
Subject: RE: Question about Granite City US Steel

Hi Sarah,

Thank you!! I was definitely cc'd on that email response from Jeff, but I had just forgotten about it. Thanks for the clarification.

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My understanding of the NAAQS analysis was to do a more refined receptor grid to locate the area of maximum modeled impact, but not to exclude all insignificant receptors? How would you proceed in the modeling? I was thinking that I could apply the full receptor grid from the significant impact analysis, and refine it as necessary? Or am I just misunderstanding – maybe we don't need to use as many receptors for the NAAQS analysis?

-Cari

From: Ray, Sarah
Sent: Monday, August 3, 2020 11:03 AM
To: Rutherford, Cari
Subject: RE: Question about Granite City US Steel

Hi Cari,

Thanks! It was last Wednesday. 😉

As for the meteorology, I had asked Jeff about that as well. This was his response: "***Yes, use the 2014-2018 meteorology from the old version of AERSURFACE for consistency. And, as you know, AERSURFACE is not technically a part of the regulatory-approved AERMOD modeling system (AERMAP, AERMET, and AERMOD), and thus both we and they should be using what we had previously recommended.***"

So, you are good to use the meteorology data that you had been using prior to the work-from-home situation.

I hope your Monday is going well!

-Sarah

From: Rutherford, Cari <Cari.Rutherford@illinois.gov>
Sent: Monday, August 3, 2020 10:34 AM
To: Ray, Sarah <Sarah.Ray@illinois.gov>
Subject: Question about Granite City US Steel

Hey Sarah!

I forgot my phone in my car, so that is why I am emailing you instead of texting. This is a relatively simple question, but I always forget which is correct: should I use the five year period of 2015-2019 or 2014-2018 for the met data? The submitted modeling uses 2014-2018, but my gut is telling me to update and use the most recent available met data?

Also – Happy belated Birthday, Sarah!!! I can't remember the exact date, but I remember it's the last week of July! Hope you had an enjoyable day. ☺

-Cari

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Kras, Kim

From: Ray, Sarah
Sent: Monday, August 3, 2020 12:39 PM
To: Rutherford, Cari
Subject: RE: Question about Granite City US Steel

Hi Cari,

I don't think you need to use the full receptor grid from the SIL analysis. What I normally do is take the results from the SIL modeling and screen out insignificant receptors to build a more refined grid. In BEEST, I just load the results, select the "Radius of Impact" button on the left tool bar, defined my radius based on the SIL value, and include all receptors within that radius for use in NAAQS and PSD increment modeling.

-Sarah

From: Rutherford, Cari
Sent: Monday, August 3, 2020 11:35 AM
To: Ray, Sarah
Subject: RE: Question about Granite City US Steel

Hi Sarah,

Thank you!! I was definitely cc'd on that email response from Jeff, but I had just forgotten about it. Thanks for the clarification.

My Monday is going pretty smoothly so far – it's been way more productive than a typical Monday morning, so I am happy.

I do have a secondary question for you now - although I may go talk to Jeff about it soon too.

They have 14098 receptors in the significant impact analysis; but they have just 47 receptors in the NAAQS analysis. They address it in the modeling report as follows: "the receptors modeled in the NAAQS analyses were limited to those showing a significant CO impact."

My understanding of the NAAQS analysis was to do a more refined receptor grid to locate the area of maximum modeled impact, but not to exclude all insignificant receptors? How would you proceed in the modeling? I was thinking that I could apply the full receptor grid from the significant impact analysis, and refine it as necessary? Or am I just misunderstanding – maybe we don't need to use as many receptors for the NAAQS analysis?

-Cari

From: Ray, Sarah <Sarah.Ray@illinois.gov>
Sent: Monday, August 3, 2020 11:03 AM
To: Rutherford, Cari <Cari.Rutherford@Illinois.gov>
Subject: RE: Question about Granite City US Steel

Hi Cari,

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Sent: Monday, August 3, 2020 10:34 AM
To: Ray, Sarah <Sarah.Ray@illinois.gov>
Subject: Question about Granite City US Steel

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Pritchett, Jacob A.

Subject:	USS
Location:	DLC Conference Room
Start:	Tue 8/4/2015 10:30 AM
End:	Tue 8/4/2015 12:00 PM
Show Time As:	Tentative
Recurrence:	(none)
Meeting Status:	Not yet responded
Organizer:	Carter, Sally
Required Attendees:	Mattison, Kevin; Romaine, Chris; Pressnall, Chris; Benbenek, Jeff; Morgan, James

We will call Mattison and Benbenek.

Kras, Kim

From: David Keen <keen@rtpenv.com>
Sent: Wednesday, August 7, 2019 4:19 PM
To: Sprague, Jeff
Cc: Gurinder (Gary) Saini; David Keen
Subject: [External] Modeling for US Steel Granite City Works

Hi Jeff,

I will be modeling for NAAQS compliance at the US Steel Granite City Works facility in East St. Louis. I will need the surface characteristics data to process the meteorological data as well as off-site emission inventories for CO and SO2. I do not yet have a defined distance to significant impact for any pollutant yet, but was hoping we could conservatively use a 50km screening radius to define the impact area so that I could make preliminary runs. The UTM coordinates of the Granite City site are 748,156m E, 4,286,841m N (NAD83, Zone 15).

Thanks for your help,
Dave

David Keen
RTP Environmental
keen@rtpenv.com
(919) 845-1422 x41
(919) 845-1424 fax
(919) 906-6016 mobile

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Kras, Kim

From: Sprague, Jeff
Sent: Thursday, August 8, 2019 10:01 AM
To: Ray, Sarah
Cc: Rutherford, Cari; Sprague, Jeff
Subject: FW: Modeling for US Steel Granite City Works

Sarah,
Please respond to this request by David Keen. If you could simultaneously show Cari Rutherford how you go about fulfilling the request, I would be most appreciative.

Thanks,

Jeff

From: David Keen
Sent: Wednesday, August 7, 2019 4:19 PM
To: Sprague, Jeff
Cc: Gurinder (Gary) Saini ; David Keen
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Pritchett, Jacob A.

From: Patel, Minesh
Sent: Thursday, August 12, 2021 7:12 AM
To: Romaine, Chris
Subject: 06070088.doc
Attachments: 06070088.doc

As requested.

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217/782-2113

CONSTRUCTION PERMIT -- PSD APPROVAL

PERMITTEE

United States Steel Corporation
Attn: Larry Siebenberger
600 Grant Street
Pittsburgh, Pennsylvania 15219

Application No.: 06070088
Applicant's Designation:
I.D. No.: 119813AAI
Date Received: July 11, 2006
Subject: Coke Conveyance System
Date Issued: March 13, 2008
Location: 1951 State Street, Granite City

This Permit is hereby granted to the above-designated Permittee to CONSTRUCT emission source(s) and/or air pollution control equipment consisting of a coke conveyance system, as described in the above-referenced application. This Permit is subject to standard conditions attached hereto and the following special condition(s):

In conjunction with this permit, approval is given with respect to the federal regulations for Prevention of Significant Deterioration of Air Quality (PSD) for the above referenced project, as described in the application, in that the Illinois Environmental Protection Agency (Illinois EPA) finds that the application fulfills all applicable requirements of 40 CFR 52.21. This approval is issued pursuant to the federal Clean Air Act, as amended, 42 U.S.C. 7401 et. seq., the Federal regulations promulgated thereunder at 40 CFR 52.21 for Prevention of Significant Deterioration of Air Quality (PSD), and a Delegation of Authority agreement between the United States Environmental Protection Agency and the Illinois EPA for the administration of the PSD Program. This approval becomes effective in accordance with the provisions of 40 CFR 124.15 and may be appealed in accordance with the provisions of 40 CFR 124.19. This approval is also based upon and subject to the findings and conditions which follow:

If you have any questions on this permit, please contact Jason Schnepp at 217/782-2113.

Edwin C. Bakowski, P.E.
Acting Manager, Permit Section
Division of Air Pollution Control

Date Signed: _____

ECB:JMS:jws

cc: Region 3
Lotus Notes
CES

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1.0 LIST OF ABBREVIATIONS AND ACRONYMS COMMONLY USED

BACT	Best Available Control Technology
CAAPP	Clean Air Act Permit Program
CFR	Code of Federal Regulations
CO	Carbon Monoxide
dscf	Dry standard cubic feet
gr	Grains
H_2SO_4	Sulfuric Acid
hr	Hour
IAC	Illinois Administrative Code
I.D. No.	Identification Number of Source, assigned by Illinois EPA
Illinois EPA	Illinois Environmental Protection Agency
kg	Kilogram
LAER	Lowest Achievable Emission Rate
lb	Pound
mg	Milligram
mo	Month
MSSCAM	Major Stationary Sources Construction and Modification (35 Part IAC 203), also known as Nonattainment New Source Review (NA NSR)
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
PSD	Prevention of Significant Deterioration (40 CFR 52.21)
scf	Standard Cubic Feet
scm	Standard Cubic Meter
SO_2	Sulfur Dioxide
USEPA	United States Environmental Protection Agency
VOM	Volatile Organic Material
yr	Year

2.0 FINDINGS

2.1 a. United States Steel ("USS") has applied for a coke conveyance project. This project would involve a new coke conveyance system that would be used in conjunction with the proposed Coke plant that would be operated by Gateway Energy & Coke Company, LLC ("Gateway"). Gateway's coke plant project and the USS coke conveyance system are considered a single overall combined larger project for purposes of applicability of New Source Review regulations.

b. Sun Coke, which owns Gateway, has requested a permit for the proposed heat recovery coke plant under a separate application (application number 06070020). The proposed Gateway plant would have the capability of producing up to 740,000 tons of furnace coke per year. The coke would be used at the neighboring USS in the production of iron or sold and transported to other locations. The coke plant would also recover waste heat from the coking process to produce steam for USS.

2.2 USS is located in an area designated nonattainment for ozone and $PM_{2.5}$. For purposes of Nonattainment New Source Review (NA NSR) regulations, PM_{10} serves as a surrogate for $PM_{2.5}$, consistent with current USEPA guidance.

2.3 a. The project, i.e., the combination of the coke conveyance system and the heat recovery coke plant, is subject to 35 IAC 203: Major Stationary Sources Construction and Modification (MSSCAM) for PM. This is because the net emissions increase for the project exceeds 15 tons per year of PM_{10}, as summarized in Attachment 2.

b. i. This project is subject to PSD review as a major modification for PM and PM_{10} emissions. This is because the net emissions increases for the project exceeds 25 tons per year of PM and 15 tons per year of PM_{10}, as summarized in Attachment 2.

ii. This project would not result in a significant increase in emissions of other PSD pollutants or nonattainment pollutants as summarized in Attachment 2.

2.4 After reviewing all the materials submitted by USS, the Illinois EPA has determined that the application for the coke conveyance system, as proposed, shows compliance with all applicable state and federal emission standards and utilization of Best Available Control Technology (BACT) and the Lowest Achievable Emission Rate (LAER) for emissions of particulate matter.

2.5 The air quality analysis submitted for the overall project and reviewed by the Illinois EPA shows that the proposed project will not cause violations of the ambient air quality standards for PM and PM_{10}.

2.6 USS and Gateway must obtain PM_{10} offsets for this project from existing sources in the St. Louis/Metro-East nonattainment area. Based on the permitted PM_{10} emissions of the overall project, 234.09 tons per year, at least 235 tons of PM_{10} emissions offsets must be provided for this overall project; however, note that US Steel and Gateway have agreed to provide 267.77 tons of emission offsets as originally proposed.

2.7 The Illinois EPA has considered alternatives to this project, as required by 35 IAC 203.306.

2.8 Pursuant to 35 IAC 203.305, USS has demonstrated that all major stationary sources that it owns or operates in Illinois are in compliance or on a schedule for compliance with all applicable state and federal air pollution control requirements.

Note: SunCoke has stated that it does not own or operate any major sources in Illinois.

2.9 The Illinois EPA has determined that the application for the coke conveyance system, as proposed, would comply with all applicable Illinois Air Pollution Control Board Regulations and the federal Prevention of Significant Deterioration of Air Quality Regulations (PSD), 40 CFR 52.21.

2.10 A copy of the applications and the Illinois EPA's review of the applications and a draft of the permits were forwarded to a location in the vicinity of the plant, and the public was given notice and opportunity to examine this material, to submit comments, and to request and participate in a public hearing on this matter.

The Illinois EPA is issuing approval to construct the proposed coke conveyance system subject to the following conditions and consistent with the specifications and data included in the application. Any significant departure from terms expressed in the application would need to receive prior written authorization of the Illinois EPA.

3.0 GENERAL CONDITIONS

3.1 General Requirements of MSSCAM

3.1.1 Emissions Offsets

a. USS and Gateway shall maintain 267.77 tons of PM_{10} emission offsets generated by the following activities/projects:

Activity/Project	(Tons/Year)
Coke Oven Gas Desulfurization Project	31.74*
Road Cleaning Program	236.03
Total:	267.77

* The COG desulfurization project (excluding Boilers 1-10 shutdown and Slab Furnaces) results in a contemporaneous PM/PM_{10} emission decrease of 94.15 tons, as further addressed in Construction Permit 06070022. Only a portion of this decreased, 31.74 tons, is being relied upon for use as an offset. This portion of the decrease is no longer available for future netting transactions.

b. i. These emission reduction credits are provided by emission reductions occurring at the source (the Coke Oven Gas Desulfurization Project) and by emission reductions occurring in the vicinity of the source (the Road Cleaning Program, as addressed in Condition 3.6). These emission reductions have been relied upon by the Illinois EPA to issue the permits for this project and cannot be used as emission reduction credits for other purposes. The reductions have been made enforceable by this permit and by Construction Permit 06070022 which requires certain decreases in emissions in conjunction with the construction and operation of a coke oven gas desulfurization system for the existing by-product coke ovens and by-products plant at the source.

ii. 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 this permit 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.

c. The implementation of measures to provide emission offsets shall begin prior to startup of the new heat recovery coke plant.

Condition 3.1.3 represents the actions identified in conjunction with this project to ensure that the project is accompanied by emission offsets and does not interfere with reasonable further progress for $PM_{2.5}$.

3.2 General Non-Applicability of Regulations of Concern

3.2.1 PSD/NAA NSR

a. The Permittee has addressed the applicability of 40 CFR 52.21, PSD and 35 IAC Part 203, Major Stationary Sources Construction and Modification (MSSCAM). The limits established by this permit are intended to ensure that the coke conveyance system does not constitute a major modification of the source pursuant to these rules for NO_x, CO, VOM, SO_2, and H_2SO_4 emissions (See also Attachments 1 and 2).

b. This permit does not authorize changes in iron and steel making operations at the source that would increase emissions and is issued based upon no increase in emissions at existing units at the source as a result of this project.

3.3 General Work Practice Requirements

3.3.1 Operating Program

a. Pursuant to 35 IAC 212.309, emission units in the coke conveyance system that are subject to a requirement in 35 IAC 212.304 through 212.308 or 212.316 shall be operated under the provisions of an operating program, consistent with the requirements set forth in 35 IAC 212.310 and 212.312, and 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.

i. As a minimum the operating program shall include the information and elements specified by 35 IAC 212.310, including: (1) a detailed description of the best management practices utilized to control fugitive dust; (2) estimated frequency of application of dust suppressants by location; and (3) such other information as may be necessary to facilitate the Illinois EPA's review of the operating program.

ii. This program shall also identify the specific control measures as may be needed to ensure that certain emission units comply with the opacity limits of 35 IAC 212.316.

iii. Pursuant to 35 IAC 212.312, this operating program shall be amended by the Permittee to address the subject units in the coke conveyance system so that the operating program is current. This amendment shall be consistent with 35 IAC Part 212 Subpart K and shall be submitted to the Illinois EPA for its review.

3.4 General Recordkeeping Requirements

3.4.1 Retention and Availability of Records

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), shall be kept at a location at the source that is readily accessible to the Illinois EPA or USEPA, and shall be made available for inspection and copying by the Illinois EPA or USEPA 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.

3.5 General Reporting Requirements

3.5.1 Reporting and Notifications Associated with Emissions Tests

a. The Illinois EPA shall be notified prior to required emissions tests to enable the Illinois EPA to observe these tests. Notification of the expected date of testing shall be submitted a minimum of 30 days prior to the expected date. Notification of the actual date and expected time of testing shall be submitted a minimum of 5 working days prior to the actual date of the test. The Illinois EPA may at its discretion accept notifications with shorter advance notice provided that the Illinois EPA will not accept such notifications if it interferes with the Illinois EPA's ability to observe testing.

b. At least 60 days prior to the actual date of required emissions testing, a written test plan shall be submitted to the Illinois EPA for review. This plan shall describe the specific procedures for testing, including as a minimum:

i. The person(s) 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 the operating parameters for the emission unit and any control equipment 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 method(s) that will be used, with the specific analysis method, if the method can be used with different analysis methods.

v. Any minor changes in standard methodology proposed to accommodate the specific circumstances of testing, with justification.

c. Copies of the Final Reports(s) for required emissions tests shall be submitted to the Illinois EPA within 30 days after the test results are compiled and finalized. The Final Report shall include as a minimum:

i. A summary of results.

ii. General information.

iii. Description of test method(s), including description of sample points sampling train, analysis equipment, and test schedule.

iv. Detailed description of test conditions, including:

A. Process information.

B. Control equipment information, e.g., equipment condition and operating parameters during testing.

v. Data and calculations, including copies of all raw data sheets, opacity observation records and records of laboratory analyses, sample calculations, and data on equipment calibration.

3.5.2 Notification and Reporting of Deviations

a. Except as specified in a particular provision of this permit or in a subsequent CAAPP Permit for the plant, notifications and reports for deviation from applicable emission standards and control requirements shall include at least the following information: the date and time of

the event, a description of the event, information on the magnitude of the deviation, a description of the corrective measures taken, and a description of any preventative measures taken to prevent future occurrences.

3.6 Road Cleaning Program

3.6.1 The Permittee shall enhance the existing fugitive dust control plan for off-site roads near the source, beginning before commencement of operation of the proposed heat recovery coke plant or by May 2009 whichever comes first, by adding the following road segments (the affected road segments) to be controlled and improving control measures for segments included in the plan, as follows, to provide an additional reduction in emissions of particulate matter, determined as PM10, of at least 236.03 tons per year, total, from baseline emission levels on these road segments prior to the proposed heat recovery coke oven (See also Attachment 4):

Road Segment	Segment Boundaries
Rock Road	Rte 3 & W. 20th St. (Overpass Approach)
"West" 20th Street	Rte 3 & Rock Road
Rock Road	W. 20th & Benton St. (Railroad Overpass)
Niedringhaus	Benton St. & 16th St.
16th Street	Niedringhaus & Madison Ave.
Madison Ave*	16th & 20th Street
"Central" 20th Street*	Madison St. & USS Gate
"East" 20th Street*	USS Gate & Rte 203
21st Street	Rte 203 and Monroe St.
"South" Edwardsville Rd (Rte 203)	20th & McCambridge Ave (Rte 203)
McCambridge Ave (Rte 203)	Edwardsville Rd (Rte 203) & 2nd St.
"North" Edwardsville Rd (Rte 203)	20th & Nameoki Rd (Rte 203)
Route 162	Nameoki Rd (Rte 203) & Railroad Tracks
Benton Street	Rock Rd. and Niedringhaus

* All or a portion of this road segment is addressed by the existing program for "Off-site Dust Control," as addressed by Condition 30 of Construction Permit 95010001. Credit shall only be taken for the incremental reduction in emissions of the road segment from the enhanced cleaning of the segment required by this permit, beyond the weekly or monthly sweeping as required under the existing program.

3.6.2 Control Requirements

a. Good air pollution control practices shall be implemented to minimize and significantly reduce nuisance dust from affected road segments.

b. Cleaning of affected road segments shall be performed using vacuum cleaning equipment (such as Enviro-Whirl). Any

collection air vented to the atmosphere from cleaning equipment shall be filtered prior to venting. The handling of material collected by 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.

c. 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:

i. 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)

ii. 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

3.6.3 Silt Loading Measurements

a. The Permittee shall conduct measurements of the silt loading on affected 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 under representative conditions on the road segment and address the change in silt loadings as related to the amount and nature of vehicle traffic.

b. Measurements shall be performed by the following dates:

i. Measurements for "uncontrolled" silt loadings shall be completed prior to initiating the program required by Condition 3.6, i.e., the Road Cleaning Program,

unless other measurements are approved by the Illinois EPA.

ii. Measurements for "controlled" silt loadings shall be conducted between 30 and 90 days following the initiation of the program required by Condition 3.6, i.e., the Road Cleaning Program.

iii. Measurements for "controlled" silt loading shall thereafter be repeated at least every three years.

iv. 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.

c. The Permittee shall submit test plans, test notifications and test reports for these measurements as specified by General Condition 3.5, provided, however, that once a test plan has been accepted by the Illinois EPA, a new test plan need not be submitted if the accepted plan will be followed or a new test plan is requested by the Illinois EPA.

d. The Permittee shall keep records of the silt measurements conducted pursuant to this condition, including records for the sampling and analysis activities and results.

3.6.4 Recordkeeping Requirements

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 proper maintenance and repair of road cleaning equipment as

related to collection of silt and control of emissions from the cleaning process.

d. If the records for the Road Cleaning Program required by Condition 3.6.4(b) and (c) are maintained by a contractor on behalf of the Permittee, the Permittee shall periodically obtain copies of relevant records and document its review of the implementation of the Program.

e. The Permittee shall keep a record containing calculations and appropriate 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 Program is achieving the required reduction in emissions compared to baseline levels. This record shall be prepared in conjunction with the measurements of "controlled" silt loadings required by Condition 3.6.3(a), A copy of this record shall be submitted to the Illinois EPA each time it is prepared.

3.6.5 Reporting Requirements

a. The Permittee shall submit an annual report to the Illinois EPA with its Annual Emission Report describing the implementation of the Road Cleaning Program 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.

3.7 Authorization to Operate

The emission units addressed by this construction permit may be operated under this permit until they have been incorporated into the source's issued CAAPP permit provided that a timely and complete CAAPP permit application has been submitted.

4.0 UNIT SPECIFIC CONDITIONS FOR SPECIFIC EMISSION UNITS

4.1 Coke Conveyance System

4.1.1 Description

The coke conveyance system would transfer coke via conveyors from Gateway to US Steel to be used in the existing Blast Furnaces. Conveyors would be enclosed/covered to minimize particulate emissions. Water spraying or other comparable measures would also be used to minimize emissions during loading and unloading activities at sources such as the coke pile and during transfer of the coke from the conveyor to the coke pile. Other parts of the system may include vibratory feeders, transfer tower for truck loading, day bins, highline loading conveyor, feed hopper, and reclaim hopper using front end loaders or other equipment.

4.1.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
Coke Conveyor System	Conveyor system and ancillary equipment designed to move the coke from Gateway to Granite City Works	Enclosures for Conveyors; Fabric Filters for Day Bins; Water Spraying

4.1.3 Applicable Provisions and Regulations

a. An "affected unit" for the purpose of these unit-specific conditions, is an emission unit that is part of the coke conveyance system described in Conditions 4.1.1 and 4.1.2.

b. The affected units are subject to 35 IAC Part 212 Subpart K: Fugitive Particulate Matter, which establishes the following requirements for the affected units:

i. 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 [35 IAC 212.307].

ii. Conveyor transfer points and conveyors shall be sprayed with water or a surfactant solution, utilize choke-feeding or be treated by an equivalent method in accordance with the operating program (See Condition 3.3) [35 IAC 212.308].

iii. Emissions from particulate collection equipment shall not exceed 0.03 gr/dscf [35 IAC 212.313] (See also Condition 4.1.3(d)).

iv. No person shall cause or allow fugitive particulate matter emissions from any storage pile to exceed an opacity of 10 percent [35 IAC 212.316(d)].

v. No person shall cause or allow fugitive particulate matter emissions from any emission unit to exceed an opacity of 20 percent [35 IAC 212.316(f)].

vi. No person shall 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 overhead at a point beyond the property line of the source unless the wind speed is greater than 40.2 kilometers per hour (25 miles per hour), pursuant to 35 IAC 212.301 and 212.314.

c. i. The affected unit is subject to 35 IAC 212.324(b), which provides no person shall cause or allow the emission into the atmosphere, of PM10 from any process emission units to exceed 68.7 mg/scm (0.03 gr/scf) during any one hour period (See also Condition 4.1.3(d)).

ii. Pursuant to 35 IAC 212.324(d), the above mass emission limit shall not apply to an emission unit if it has no visible emissions other than fugitive particulate matter, provided, however, that this exception is not a defense to a finding of violation of the above mass limit determined by emission testing.

d. The affected units are subject to 35 IAC 212.458: Emission Units in Certain Areas, which provides that no person shall cause or allow emissions of PM_{10}, other than that of fugitive particulate matter, into the atmosphere to exceed, during any one hour period, 22.9 mg/scm (0.01 gr/scf) from any process emissions unit, except as otherwise provided in 35 IAC 212.458 or in 35 IAC 212.443 and 212.446 [35 IAC 212.458(b)(7)].

e. The affected units are 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 new process emission units, at a source or premises, exceeds the allowable emission

rates specified in 35 IAC 212.321 (c) or calculated in accordance with 35 IAC 212.321(b).

4.1.4 Non-Applicability of Regulations of Concern

a. The affected units are not subject to the NSPS for Nonmetallic Mineral Processing Plants, 40 CFR Part 60 Subpart OOO, because coke is not a nonmetallic mineral as defined in 40 CFR 60.671.

4.1.5 Control Requirements and Work Practices

a. BACT/LAER Technology

i. PM and PM_{10} emissions from the day bins shall be controlled by:

A. Enclosure of the daybin so as to prevent visible fugitive emissions, as defined by 40 CFR 60.671.

B. Aspiration of the daybins 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 conveyors shall be controlled by enclosure so as to prevent visible fugitive emissions, as defined by 40 CFR 60.671.

iii. Emissions of PM and PM_{10} from the control devices for the affected units shall not exceed 0.005 gr/dscf.

Condition 4.1.5(a) represents the application of the Best Available Control Technology and Lowest Achievable Emission Rate.

b. The Permittee shall implement and maintain control measures for the affected units that minimize visible emissions of PM and provide assurance of compliance with the applicable limits and standards in Conditions 4.1.3 and 4.1.5(a).

c. The affected unit shall be operated and maintained in accordance with good air pollution control practice to minimize emissions.

4.1.6 Production and Emission Limitations

a. The affected conveyor system shall not transfer more than 740,000 tons of coke per year.

b. The emissions from the affected conveyor system shall not exceed 0.95 tons/year of PM and 0.45 tons/year of PM_{10}.

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).

4.1.7 Testing Requirements

a. Within 180 days of initial startup of the affected unit, the stack emissions of PM_{10} from the control devices for the affected units shall be measured during conditions which are representative of maximum emissions.

b. 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
PM_{10}	USEPA Method 201A*

* The Permittee may also use Method 5, instead of Method 201A, provided that the measured results are considered PM_{10}.

4.1.8 Inspection Requirements

a. The Permittee shall conduct inspections of the affected units on at least a monthly basis with personnel who are not directly responsible for the day-to-day operation of these units (e.g., maintenance personnel, supervisory personnel, environmental staff, etc.), for the specific purpose of verifying that the measures identified in the operating program and other measures required to control emissions from affected units are being properly implemented.

b. These inspections shall include observation for the presence of visible emissions, performed in accordance with USEPA Method 22, from buildings in which the affected units are located and from units from which the Permittee has elected to demonstrate no visible emissions.

4.1.9 Recordkeeping Requirements

a. The Permittee shall maintain a file, which shall be kept current, that contains the maximum operating capacity of the affected conveyor system (tons/day).

b. i. The Permittee shall keep inspection and maintenance log(s) or other records for the control measures associated with the affected units, including enclosures and fabric filters.

ii. These records shall include the following information for the inspections required by Condition 4.1.8(a) and (b):

A. Date and time the inspection was performed and name(s) of inspection personnel.

B. The observed condition of the control measures for the affected unit, including the presence of any visible emissions.

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.

c. The Permittee shall maintain the following records for the emissions of the affected units:

i. A file containing the standard emission factors used by the Permittee to determine PM/PM_{10} emissions from the affected units, with supporting documentation.

ii. Records of PM/PM_{10} emissions based on operating data for the affected units and appropriate emission factors, with supporting documentation and calculations.

d. The Permittee shall keep records for all opacity measurements made in accordance with USEPA Method 9 for the affected units that it 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 identity of the observer, a description of the measurements that were made, the operating condition of the affected unit, the observed

opacity, and copies of the raw data sheets for the measurements.

4.1.10 Reporting Requirements

a. Notifications

i. The Permittee shall notify the Illinois EPA within 30 days of deviations from applicable emission standards or operating requirements for the affected units that continue* for more than 24 hours. These notifications shall include the information specified by Condition 3.5.2.

* 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. Reports

i. The Permittee shall submit quarterly reports to the Illinois EPA for all deviations from requirements set by this permit. These notifications shall include the information specified by Condition 3.5.2.

5.0 ATTACHMENTS

Attachment 1: Project Emission Summary (Tons/Year)

Operation	NO_x	CO	SO_2	VOM	PM	PM_{10}	Lead	H_2SO_4
Gateway Increase	577.40	154.76	1,406.36	37.49	291.80	233.64	0.20	31.02
USS Conveyor Increase	---	---	---	---	0.95	0.45	---	---
PROJECT EMISSIONS:	577.40	154.76	1,406.36	37.49	292.75	234.09	0.20	31.02
Significance Threshold:	40	100	40	40	25	15	0.6	7
Greater Than Significant?	Yes	Yes	Yes	No	Yes	Yes	No	Yes

R004151

Attachment 2: Netting Analysis (Tons/Year)

	NO_x (NA NSR)	NO_x (PSD)	CO	SO_2	VOM	PM	$PM_{10}/PM_{2.5}$	Lead	H_2SO_4
Project Emissions	577.40	577.40	154.76	1,406.36	37.49	292.75	234.09	0.20	31.02
Contemporaneous[a] Increases									
BFG Boiler/Flare (06070023)	124.74	124.74	338.36	451.14	0.92	232.25	232.25	---	---
NG Enrichment (04110018)	17.22	17.22	5.17	0.04	0.34	0.73	0.62	---	---
Slab Furnaces (06070022)	---	---	26.77	---	1.75	43.43	43.43	---	---
Contemporaneous[a] Decreases									
Boilers 1-10 (06070022)	-278.89	-278.89	-313.61	-789.43	-1.22	-228.06	-228.06	---	---
COG Desulf (06070022)	---	---	---	-2,107.95	---	-94.15	-94.15[b]	---	-63.11
Slab Furnaces (06070022)	-427.94	-427.94	---	-174.15	---	---	---	---	---
No. 6 Galv. Line (06070023)	-38.48	-38.48	-10.36	-0.07	-0.68	-0.94	-0.94	---	---
No. 4 COG Pump (06070023)	-77.30	-77.30	-117.97	-0.02	-0.99	-0.64	-0.64	---	---
NET EMISSIONS CHANGE	-103.25	-103.25	83.12	-1,214.08	37.61	245.37	186.60	0.20	-32.09
Significance Threshold:	40	40	100	40	40	25	15	0.6	7
Greater Than Significant?	No	No	No	No	No	Yes	Yes	No	No

Notes:

[a] The contemporaneous time period for PSD pollutants is April 2002 through July 2008. The contemporaneous time period for NA NSR pollutants is July 2001 through July 2008.

[b] The COG desulfurization project (excludes Boilers 1-10 shutdown and Slab Furnaces) results in a contemporaneous PM/PM_{10} emission decrease of 94.15 tons. 31.74 tons of this decrease is being relied upon for use as an offset. This portion of the decrease is no longer available, e.g., future netting transactions.

R004152

Attachment 3: Standard Permit Conditions

STANDARD CONDITIONS FOR CONSTRUCTION/DEVELOPMENT PERMITS
ISSUED BY THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

The Illinois Environmental Protection Act (Illinois Revised Statutes, Chapter 111-1/2, Section 1039) authorizes the Environmental Protection Agency to impose conditions on permits, which it issues.

The following conditions are applicable unless superseded by special condition(s).

1. Unless this permit has been extended or it has been voided by a newly issued permit, this permit will expire one year from the date of issuance, unless a continuous program of construction or development on this project has started by such time.

2. The construction or development covered by this permit shall be done in compliance with applicable provisions of the Illinois Environmental Protection Act and Regulations adopted by the Illinois Pollution Control Board.

3. There shall be no deviations from the approved plans and specifications unless a written request for modification, along with plans and specifications as required, shall have been submitted to the Illinois EPA and a supplemental written permit issued.

4. The Permittee shall allow any duly authorized agent of the Illinois EPA 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 emissions 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 to be 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 proposed facilities.

   c. Does not release the Permittee from compliance with other applicable statutes and regulations of the United States, of the State of Illinois, or with applicable local laws, ordinances and regulations.

   d. Does not take into consideration or attest to the structural stability of any units or parts of the project, and

   e. 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 proposed equipment or facility.

6a. Unless a joint construction/operation permit has been issued, a permit for operation shall be obtained from the Illinois EPA before the equipment covered by this permit is placed into operation.

b. For purposes of shakedown and testing, unless otherwise specified by a special permit condition, the equipment covered under this permit may be operated for a period not to exceed thirty (30) days.

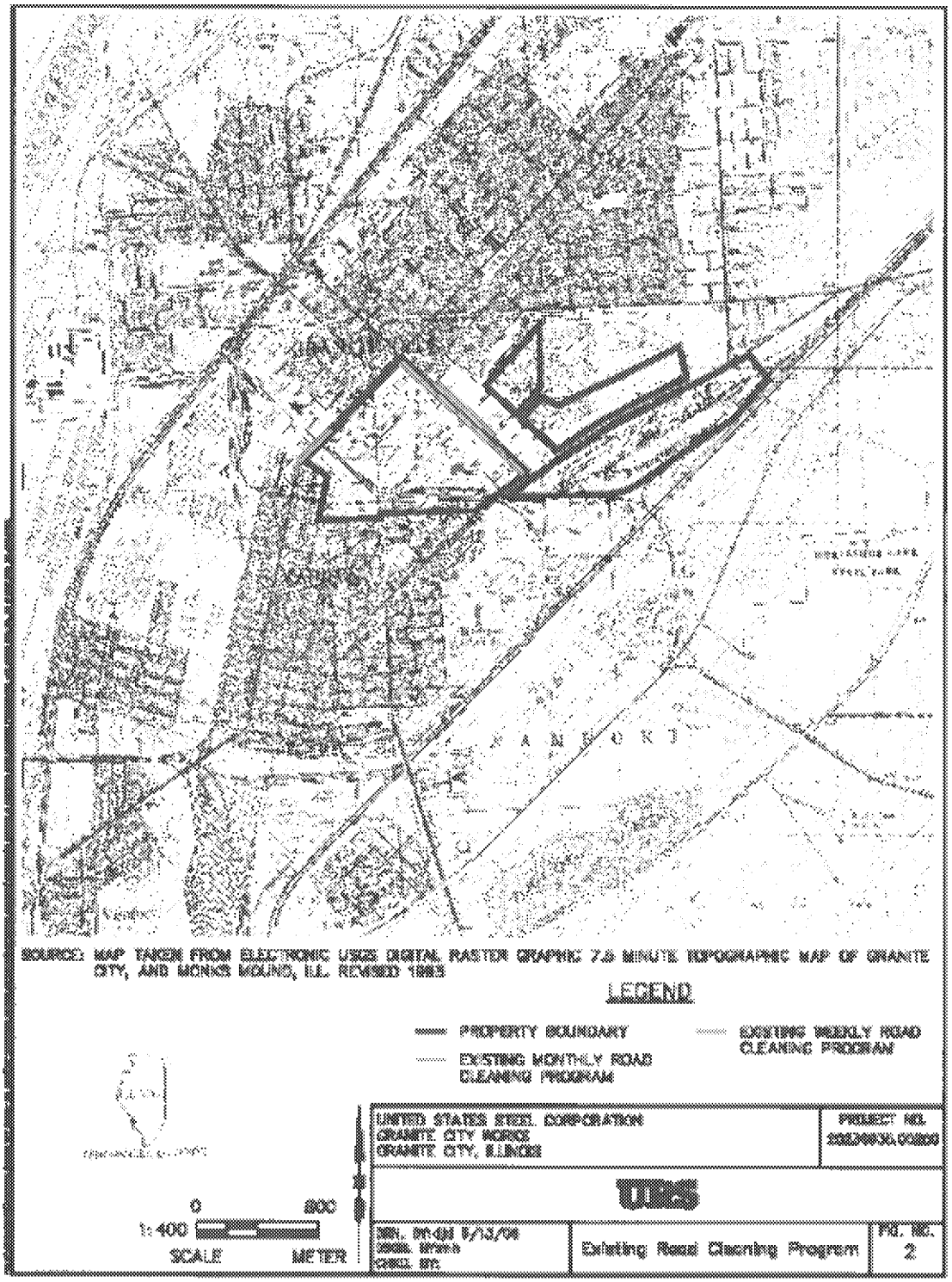
7. The Illinois EPA may file a complaint with the Board for modification, suspension or revocation of a permit.

   a. Upon discovery that the permit application contained misrepresentations, misinformation or false statement or that all relevant facts were not disclosed, or

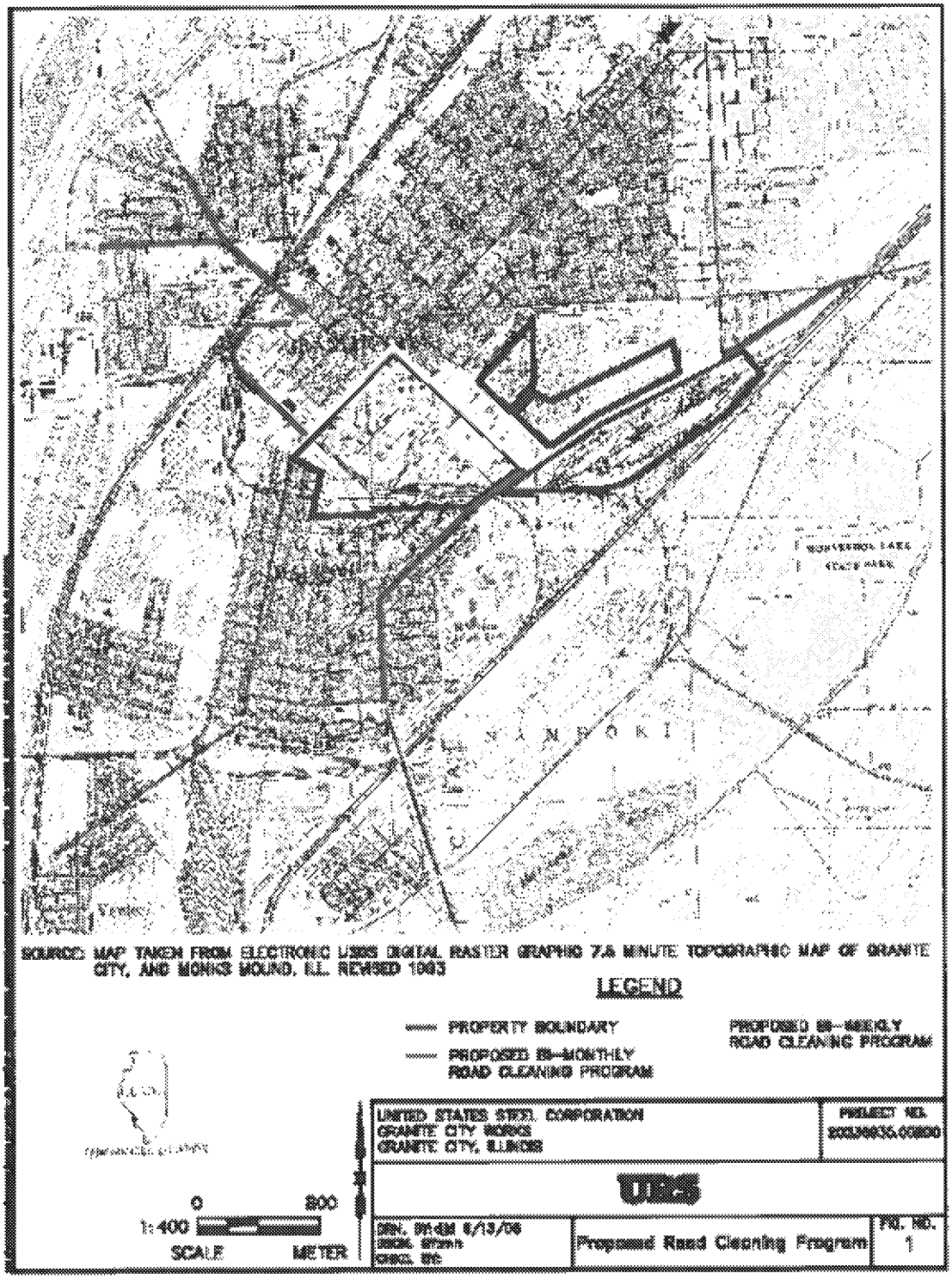
   b. Upon finding that any standard or special conditions have been violated, or

   c. Upon any violations of the Environmental Protection Act or any regulation effective thereunder as a result of the construction or development authorized by this permit.

Attachment 4a: Existing Road Cleaning Program



Attachment 4b: Enhanced Road Cleaning Program



Kras, Kim

From: Romaine, Chris
Sent: Tuesday, August 17, 2021 1:08 PM
To: Patel, Minesh
Subject: RE: 06070088.doc

Thanks

From: Patel, Minesh <Minesh.Patel@Illinois.gov>
Sent: Thursday, August 12, 2021 7:12 AM
To: Romaine, Chris <Chris.Romaine@Illinois.gov>
Subject: 06070088.doc

As requested.

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Kras, Kim

From: Carter, Sally
Sent: Wednesday, September 13, 2023 10:44 AM
To: Kras, Kim
Subject: FW: U. S. Steel Granite City Works - Notice of Intent to Deny PSD Permit Application - Request to Extend Comment Period
Attachments: US Steel Granite City Works - Request to Extend PSD Comment Period.pdf

From: Frost, Brad <Brad.Frost@Illinois.gov>
Sent: Thursday, August 17, 2023 2:43 PM
To: Marr, Bill <Bill.Marr@illinois.gov>; Carter, Sally <Sally.Carter@Illinois.gov>
Cc: Armitage, Julie <Julie.Armitage@Illinois.gov>
Subject: FW: U. S. Steel Granite City Works - Notice of Intent to Deny PSD Permit Application - Request to Extend Comment Period

From: Hacker, David W <DWHacker@uss.com>
Sent: Thursday, August 17, 2023 2:40 PM
To: Frost, Brad <Brad.Frost@Illinois.gov>
Cc: Jones, Kendra <kjones@uss.com>; LaDonna Driver <LaDonna.Driver@heplerbroom.com>; Piscitelli, Alexis S <APiscitelli@uss.com>; Armentrout, Krista D <KDArmentrout@uss.com>; Hardin, Christopher W <CWHardin@uss.com>
Subject: [External] U. S. Steel Granite City Works - Notice of Intent to Deny PSD Permit Application - Request to Extend Comment Period

Mr. Frost:

Attached please find U. S. Steel's request to extend the comment period regarding IEPA's notice of intent to deny the PSD Permit Application submitted by U. S. Steel Granite City Works. We appreciate the Illinois EPA's careful consideration of this request.

Best,
Dave

United States Steel Corporation

David W. Hacker
Senior Counsel - Environmental
United States Steel Corporation
Law Department
600 Grant Street - Room 1500
Pittsburgh, PA 15219
Phone: 412.433.2919
Fax: 412.433.2964



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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)

Carter, Sally

From: Hacker, David W <DWHacker@uss.com>
Sent: Thursday, August 17, 2023 3:07 PM
To: Carter, Sally
Subject: [External] FW: U. S. Steel Granite City Works - Notice of Intent to Deny PSD Permit Application - Request to Extend Comment Period
Attachments: US Steel Granite City Works - Request to Extend PSD Comment Period.pdf

FYI.

Thanks.

Dave Hacker
U. S. Steel – Senior Counsel
412-433-2919

From: Hacker, David W
Sent: Thursday, August 17, 2023 3:40 PM
To: brad.frost@illinois.gov
Cc: Jones, Kendra <kjones@uss.com>; LaDonna Driver <LaDonna.Driver@heplerbroom.com>; Piscitelli, Alexis S <APiscitelli@uss.com>; Armentrout, Krista D <KDArmentrout@uss.com>; Hardin, Christopher W <CWHardin@uss.com>
Subject: U. S. Steel Granite City Works - Notice of Intent to Deny PSD Permit Application - Request to Extend Comment Period

Mr. Frost:

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Best,
Dave

United States Steel Corporation

David W. Hacker
Senior Counsel - Environmental
United States Steel Corporation
Law Department
600 Grant Street - Room 1500
Pittsburgh, PA 15219
Phone: 412.433.2919
Fax: 412.433.2964



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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

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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)

Pritchett, Jacob A.

From: Romaine, Chris
Sent: Wednesday, August 18, 2021 4:36 PM
To: Carter, Sally
Subject: Accepted: USS

Carter, Sally

From: Frost, Brad
Sent: Friday, August 18, 2023 8:01 AM
To: Hacker, David W
Cc: Jones, Kendra; LaDonna Driver; Piscitelli, Alexis S; Armentrout, Krista D; Hardin, Christopher W; Marr, Bill; Carter, Sally
Subject: RE: U. S. Steel Granite City Works - Notice of Intent to Deny PSD Permit Application - Request to Extend Comment Period
Attachments: USSteel Denial Comment Period Extension.pdf

Mr. Hacker,

See attached notice extending the comment period in this matter.

Brad

Brad Frost
Manager, Office of Community Relations
217/782-7027

From: Hacker, David W <DWHacker@uss.com>
Sent: Thursday, August 17, 2023 2:40 PM
To: Frost, Brad <Brad.Frost@Illinois.gov>
Cc: Jones, Kendra <kjones@uss.com>; LaDonna Driver <LaDonna.Driver@heplerbroom.com>; Piscitelli, Alexis S <APiscitelli@uss.com>; Armentrout, Krista D <KDArmentrout@uss.com>; Hardin, Christopher W <CWHardin@uss.com>
Subject: [External] U. S. Steel Granite City Works - Notice of Intent to Deny PSD Permit Application - Request to Extend Comment Period

Mr. Frost:

Attached please find U. S. Steel's request to extend the comment period regarding IEPA's notice of intent to deny the PSD Permit Application submitted by U. S. Steel Granite City Works. We appreciate the Illinois EPA's careful consideration of this request.

Best,
Dave

United States Steel Corporation

David W. Hacker
Senior Counsel - Environmental
United States Steel Corporation
Law Department
600 Grant Street - Room 1500
Pittsburgh, PA 15219

Phone: 412.433.2919
Fax: 412.433.2964

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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

Carter, Sally

From: Hacker, David W <DWHacker@uss.com>
Sent: Friday, August 18, 2023 8:17 AM
To: Frost, Brad
Cc: Jones, Kendra; LaDonna Driver; Piscitelli, Alexis S; Armentrout, Krista D; Hardin, Christopher W; Marr, Bill; Carter, Sally
Subject: RE: [External]-RE: U. S. Steel Granite City Works - Notice of Intent to Deny PSD Permit Application - Request to Extend Comment Period

Mr. Frost:

Thank you for the prompt response and for granting the extension request.

Best,

Dave

Dave Hacker
U. S. Steel – Senior Counsel
412-433-2919

From: Frost, Brad <Brad.Frost@Illinois.gov>
Sent: Friday, August 18, 2023 9:01 AM
To: Hacker, David W <DWHacker@uss.com>
Cc: Jones, Kendra <kjones@uss.com>; LaDonna Driver <LaDonna.Driver@heplerbroom.com>; Piscitelli, Alexis S <APiscitelli@uss.com>; Armentrout, Krista D <KDArmentrout@uss.com>; Hardin, Christopher W <CWHardin@uss.com>; Marr, Bill <Bill.Marr@illinois.gov>; Carter, Sally <Sally.Carter@Illinois.gov>
Subject: [External]-RE: U. S. Steel Granite City Works - Notice of Intent to Deny PSD Permit Application - Request to Extend Comment Period

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Mr. Hacker,

See attached notice extending the comment period in this matter.

Brad

Brad Frost
Manager, Office of Community Relations
217/782-7027

From: Hacker, David W <DWHacker@uss.com>
Sent: Thursday, August 17, 2023 2:40 PM
To: Frost, Brad <Brad.Frost@Illinois.gov>
Cc: Jones, Kendra <kjones@uss.com>; LaDonna Driver <LaDonna.Driver@heplerbroom.com>; Piscitelli, Alexis S <APiscitelli@uss.com>; Armentrout, Krista D <KDArmentrout@uss.com>; Hardin, Christopher W <CWHardin@uss.com>
Subject: [External] U. S. Steel Granite City Works - Notice of Intent to Deny PSD Permit Application - Request to Extend Comment Period

Mr. Frost:

Attached please find U. S. Steel's request to extend the comment period regarding IEPA's notice of intent to deny the PSD Permit Application submitted by U. S. Steel Granite City Works. We appreciate the Illinois EPA's careful consideration of this request.

Best,
Dave

United States Steel Corporation

David W. Hacker
Senior Counsel - Environmental
United States Steel Corporation
Law Department
600 Grant Street - Room 1500
Pittsburgh, PA 15219
Phone: 412.433.2919
Fax: 412.433.2964

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Pritchett, Jacob A.

Subject:	USS- Call if Questions
Location:	Douglas
Start:	Mon 10/19/2015 11:00 AM
End:	Mon 10/19/2015 12:00 PM
Show Time As:	Tentative
Recurrence:	(none)
Meeting Status:	Not yet responded
Organizer:	Carter, Sally
Required Attendees:	Schnepp, Jason; Romaine, Chris

Kras, Kim

From: Ray, Sarah
Sent: Monday, August 19, 2019 3:35 PM
To: David Keen
Cc: Sprague, Jeff
Subject: Modeling for US Steel Granite City Works
Attachments: stl2018.txt; stl2017.txt; stl2016.txt; stl2015.txt; stl2014.txt; Emissions_Inventory_Granite_City.xlsx

Dear Dave,

Attached, please find an Excel spreadsheet containing your requested emission inventories for CO and SO2. I've also attached surface characteristics from the Lambert-St. Louis International Airport (STL) for the years 2014 through 2018.

Please let me know if you have any questions or if you would like any additional materials!

Kind regards,
Sarah Ray

Sarah Ray
Environmental Protection Engineer II
Modeling Unit / Air Quality Planning Section
Bureau of Air
Illinois EPA
ph. (217)558-6363

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R004173

SO2 Annual Emissions Inventory

Radius: 50 km

Centering UTM: Zone 16 226832 m E 4287677 m N

Converted From: Zone 15 768196 m E 4286841 m N

Strip ID	Pollutant	Facility ID	Facility Name	PSD Increment	Stack ID	Stack Description	Distance from Centering UTM	Actual UTM Zone	Zone 16		Zone 15		Height	Temperature	Exit Velocity	Diameter	Emissions	Emissions
							(km)		X UTM (m)	Y UTM (m)	X UTM (m)	Y UTM (m)	(m)	(K)	(m/s)	(m)	(g/s)	(t/y)
13	SO2	1691100AAV	Asphalt Sales & Products Inc		136187	Drum mix asphalt plant	27.19	16	250353	4274028	772959	4275690	10.06	435.9	14.37	1.37	0.74	23.31277
14	SO2	1691100AAV	Asphalt Sales & Products Inc		155441	Asphalt heaters and boilers	27.19	16	250353	4274028	772959	4275690	10.06	444.8	5.6	0.98	0.35	12.2304
15	SO2	1698024AAA	Christ Bros Products, LLC		136147	Drum mix asphalt plant	17.07	15	224216	4270740	747102	4268905	10.97	430.4	26.4	1.07	0.74	25.81486
21	SO2	1190100AAA	Alton Steel Inc		131841	Electric arc furnaces		15	227306	4308653	747753	4307832	30.48	394.3	9.46	7.38	6.81	236.66
23	SO2	1190100AAE	Alton Steel Inc.	X	155302	Ladle furnace		15	227306	4308653	747753	4307832	22.56	408.2	26.99	0.91	1.08	37.52
27	SO2	1196D1AAE	National Maintenance and Repair	X	182739	Cleaver Brooks boiler (Stack 1 of 2)	14.33	15	230007	4301533	750915	4300904	10.36	505.4	7.11	0.61	0.63	21.84
28	SO2	1196D1AAE	National Maintenance and Repair	X	296930	Cleaver Brooks boiler (Stack 2 of 2)	14.33	15	230011	4301530	750920	4300904	10.36	505.4	7.11	0.61	0.63	21.84
42	SO2	1196813AAI	Granite City Works of United States Steel Corp		132833	Blast furnaces: Blast furnace A - stoves	1.66	15	227986	4287537	749816	4286810	68.58	533.2	15.14	2.13	51.91	1804.50616
43	SO2	1196813AAI	Granite City Works of United States Steel Corp		132834	Blast furnaces: Blast furnace A - fugitives	1.56	15	227880	4287687	749714	4286753	18.29	409.8	9.26	2.32	0.32	10.95368
44	SO2	1196813AAI	Granite City Works of United States Steel Corp		132835	Blast furnaces: Blast furnace casthouse baghouse	1.46	15	227782	4287673	749617	4286733	39.2	338.7	19.47	3.35	12.16	421.8488
45	SO2	1196813AAI	Granite City Works of United States Steel Corp.	X	132837	Blast furnaces: Flare 1	1.62	15	227950	4287571	749778	4286641	45.42	518.7	13.94	1.83	5.64	195.04632
46	SO2	1196813AAI	Granite City Works of United States Steel Corp		132838	Blast furnaces: Blast furnace B - stoves	1.51	15	227836	4287458	749666	4286726	68.58	533.2	15.96	3	53.01	1804.50616
47	SO2	1196813AAI	Granite City Works of United States Steel Corp	X	132839	Blast furnaces: Blast furnace B - fugitives	1.61	15	227938	4287516	749768	4286765	18.29	409.8	9.26	2.32	0.32	10.96368
48	SO2	1196813AAI	Granite City Works of United States Steel Corp		132842	Hot strip mill: Slab reheat furnaces #1	0.43	15	225401	4287627	747730	4286763	17.22	616.5	6.64	4.19	9.48	329.52696
49	SO2	1196813AAI	Granite City Works of United States Steel Corp	X	132849	Finishing operations: Galvanizing line #8 - fume scrubber	0.81	15	227080	4287983	748089	4287195	24.38	299.8	12.7	0.61	0.04	1.3104
50	SO2	1196813AAI	Granite City Works of United States Steel Corp		132857	Basic oxygen furnaces: Desulfurization and Reladling	0.35	15	226514	4287377	748358	4286554	17.43	449.8	4.73	2.18	4.49	155.9376
51	SO2	1196813AAI	Granite City Works of United States Steel Corp		132861	Boilers: Boiles 1-2	1.59	15	227913	4287563	749741	4286831	68.58	460.9	4.51	4.27	74.55	2591.617302
52	SO2	1196813AAI	Granite City Works of United States Steel Corp		132862	Boilers: Boilers 8-10	1.53	15	227859	4287527	749690	4286791	60.96	460.9	3.13	3.35	95.65	3321.915136
53	SO2	1196813AAI	Granite City Works of United States Steel Corp		132867	Boilers: Boiler 11	1.71	15	228041	4287500	749866	4286885	45.72	443.5	0.91	2.44	54.03	1878.26184
54	SO2	1196813AAI	Granite City Works of United States Steel Corp		132872	Boilers: Boiler 12	1.73	15	228057	4287512	749882	4286869	45.72	443.5	8.14	2.44	54.03	1878.17448
55	SO2	1196813AAI	Granite City Works of United States Steel Corp		132876	Coke production: Battery A - pushing	1.9	15	228218	4287668	750048	4286977	5.49	314.8	25.97	1.22	0.39	13.710934
56	SO2	1196813AAI	Granite City Works of United States Steel Corp		132877	Coke production: Battery A - soaking	1.93	15	228264	4287609	750092	4286989	76.2	529.3	5.01	2.74	6.26	217.605024
57	SO2	1196813AAI	Granite City Works of United States Steel Corp		132889	Coke production: Battery B - pushing	1.97	15	228297	4287724	750116	4287016	5.49	326.5	25.97	1.22	0.41	14.365784
58	SO2	1196813AAI	Granite City Works of United States Steel Corp		132890	Coke production: Battery B - soaking	1.94	15	228274	4287704	750092	4286995	76.2	479.4	4.97	2.74	9.25	321.535376
59	SO2	1196813AAI	Granite City Works of United States Steel Corp		132895	By-products plant: Flare	1.81	15	228146	4287706	749965	4286988	30.48	408.7	26.68	0.91	0.16	5.642952
60	SO2	1196813AAI	Granite City Works of United States Steel Corp	X	132905	Blast furnaces slag pits	1.57	15	227893	4287516	749725	4286783	3.66	428.2	9.32	1.95	0.46	15.629632
61	SO2	1196813AAI	Granite City Works of United States Steel Corp	X	132926	Basic oxygen furnaces: Ladle drying/preheating	0.39	15	226645	4287439	748484	4286625	60.96	455.4	10.53	1.34	23.26	808.56048
62	SO2	1196813AAI	Granite City Works of United States Steel Corp	X	132927	Blast furnaces: Iron spout baghouse	1.66	15	228002	4287545	749832	4286919	13.11	323.7	10.49	2.59	0.89	30.92544
63	SO2	1196813AAI	Granite City Works of United States Steel Corp	X	172512	Hot strip mill: Slab reheat furnace #3	0.47	15	225870	4287597	747701	4286731	17.37	616.5	6.64	4.19	9.48	329.51436
64	SO2	1196813AAI	Granite City Works of United States Steel Corp		172514	Hot strip mill: Slab reheat furnace #4	0.47	15	225899	4287581	747701	4286715	44.5	644.3	9.81	3.83	34.65	1204.51968
65	SO2	1196813AAI	Granite City Works of United States Steel Corp		172516	Coke production: Battery A - pushing	1.91	15	228246	4287697	750065	4286986	53.04	376.5	6.76	2.1	0.03	0.921896
66	SO2	1196813AAI	Granite City Works of United States Steel Corp		172518	Coke production: Battery B - pushing	1.94	15	228275	4287707	750093	4286998	53.04	376.5	6.76	2.1	0.03	0.969856
67	SO2	1196813AAI	Granite City Works of United States Steel Corp	X	172532	Hot strip mill: Slab reheat furnace #2	0.45	15	225888	4287613	747718	4286748	17.37	616.5	6.64	4.19	9.48	329.52696
68	SO2	1196813AAI	Granite City Works of United States Steel Corp.		225851	Malfunctions	0.39	15	226477	4286804	748278	4287207	48.07	449.8	15.97	5.49	5.7	198.21984
69	SO2	1196813AAI	Granite City Works of United States Steel Corp.	X	229601	Internal combustion: Emergency Generator (3500 HP)	1.98	15	227814	4287601	749541	4286863	11.28	500.9	10	0.58	0.08	2.135
70	SO2	1196813AAI	Granite City Works of United States Steel Corp.	X	235929	Emergency portable Boiler #1	0.15	15	226235	4287568	749067	4286726	17.68	497.6	8.43	1.04	0.01	0.3276
71	SO2	1196813AAI	Granite City Works of United States Steel Corp.	X	235939	Emergency portable Boiler #2	0.15	15	226235	4287568	749067	4286726	17.68	497.6	8.43	1.04	0.01	0.3276
72	SO2	1196813AAI	Granite City Works of United States Steel Corp.	X	235940	Emergency portable Boiler #3	0.15	15	226235	4287568	749067	4286726	17.68	497.6	8.43	1.04	0.01	0.3276
73	SO2	1196813AAI	Granite City Works of United States Steel Corp.	X	235941	Emergency portable Boiler #4	0.15	15	226235	4287568	749067	4286726	17.68	497.6	8.43	1.04	0.01	0.3276
74	SO2	1196813AAI	Granite City Works of United States Steel Corp.	X	238459	New Cogeneration Boiler	1.64	15	227964	4287864	749777	4287075	41.76	508.9	18.97	1.83	12.98	451.140144
75	SO2	1196813AAI	Granite City Works of United States Steel Corp.	X	240479	Blast furnaces: Flare 2	1.71	15	228043	4287645	749860	4286921	45.72	533.2	26.77	1.83	5.84	203.06832
76	SO2	1196813AAI	Granite City Works of United States Steel Corp.		241099	Desulfurization unit	2.17	15	228493	4287892	750299	4287197	44.2	810.9	26.65	1.52	8.46	293.9664
77	SO2	1196813AAI	Granite City Works of United States Steel Corp.		242882	Coke production: Battery A - soaking	0.15	15	226235	4287568	749067	4286726	26.52	599.9	14.23	1.03	0.42	14.76384
78	SO2	1196813AAI	Granite City Works of United States Steel Corp.		242883	Coke production: Battery B - soaking	0.15	15	226235	4287568	749067	4286726	26.52	599.9	14.23	1.03	0.45	15.5064
79	SO2	1631004AAD	Darling Ingredients, Inc.		136169	Continuous rendering process	5.45	15	225295	4282330	747472	4281438	13.41	367	25.87	1.22	0.09	3.003
80	SO2	1631004AAD	Darling Ingredients, Inc.		160742	Kewanee boiler	5.45	15	225295	4282330	747472	4281438	10.67	505.4	16.6	0.79	0.79	27.797754
81	SO2	1631004AAD	Darling Ingredients, Inc.		213624	Johnston boiler	5.45	15	225295	4282330	747472	4281438	10.66	505.4	14.31	0.85	0.79	27.797754
84	SO2	1190900AAF	Roxana Landfill, Inc.	X	232785	Enclosed flare	18.22	15	236258	4301453	759153	4301368	10.67	1144.3	8.07	3.66	0.22	7.68768
85	SO2	1190900AAF	Roxana Landfill, Inc.	X	269489	Zink ultra-low emissions (Zule) flare	18.22	15	236258	4301453	759153	4301368	18.29	1144.3	0.15	3.96	1.95	67.87872
86	SO2	1190900AAF	Roxana Landfill, Inc.	Y	269341	New open flare	18.22	15	236258	4301453	759157	4301368	13.72	1144.3	10.49	0.41	1.03	35.88656
88	SO2	1192013AAK	Chain of Rocks Recycling & Disposal	X	212692	Open flare	6.55	15	225544	4294176	746545	4293274	6.1	1033.2	14.41	0.2	0.13	4.616976
96	SO2	1198213AAE	Charles E. Mahoney	X	149908	Drum mix asphalt plant	23.09	15	229202	4310592	749517	4309892	7.62	419.3	28.21	1.22	0.74	25.81486
97	SO2	1198213AAE	Charles E. Mahoney	X	232362	Asphalt heaters and boilers	23.09	15	229202	4310592	749517	4309892	3.05	449.8	21.34	0.3	0.35	12.2304
99	SO2	1631214AAY	Contract Services, LLC	X	190090	3 Boilers	11.17	15	224220	4276704	746767	4275755	12.19	327.6	7.89	1.27	0.63	22.464624
100	SO2	1631214AAY	Contract Services, LLC	X	218569	Boiler #4	11.17	15	224220	4276704	746767	4275755	12.19	408.2	8.37	1.14	0.21	7.16352
102	SO2	1630504AAD	Milam Recycling and Disposal Facility	X	136125	Open flare	4.83	15	228341	4283507	750434	4282812	12.8	1255.4	3.07	0.3	0.75	26.208
103	SO2	1630504AAD	Milam Recycling and Disposal Facility	Y	154190	Engine #1	4.65	15	228454	4283541	750548	4282853	7.92	586.5	26.29	0.25	0.22	7.783776
104	SO2	1630504AAD	Milam Recycling and Disposal Facility	X	154191	Engine #2	4.65	15	228447	4283540	750548	4282852	7.92	609.8	26.29	0.25	0.22	7.783776
105	SO2	1630504AAD	Milam Recycling and Disposal Facility	X	154192	Engine #3	4.65	15	228458	4283543	750548	4282855	7.92	609.8	26.29	0.25	0.23	8.019686
106	SO2	1630504AAD	Milam Recycling and Disposal Facility	X	204833	5 Passive solar flares	4.92	15	228439	4283225	750559	4282537	6.1	1255.4	7.26	0.21	0.55	19.13184
107	SO2	1630504AAD	Milam Recycling and Disposal Facility	X	226013	325 HP Tub grinder	4.93	15	228439	4283225	750559	4282537	2.13	603.7	22.67	0.1	0.01	0.6
108	SO2	1630504AAD	Milam Recycling and Disposal Facility	X	226014	Enclosed flare	4.64	15	228784	4283517	750876	4282826	16.76	1033.2	0.2	3.66	0.76	26.55744
109	SO2	1630504AAD	Milam Recycling and Disposal Facility	X	226015	760 HP Tub grinder	4.93	15	228439	4283225	750559	4282537	2.44	603.7	23.61	0.2	0.04	1.52
110	SO2	1630504AAD	Milam Recycling and Disposal Facility	X	245839	Landfill gas conversion plant	4.68	15	228578	4283575	750666	4282892	16.76	394.3	0	1.37	0.11	3.9312
111	SO2	1630504AAD	Milam Recycling and Disposal Facility	X	259736	2000 scfm Utility flare	4.93	15	228439	4283225	750559	4282537	10.97	728.7	5.66	1.39	0.92	31.97376
112	SO2	1698024AAI	Christ Bros Products, LLC		168552	Drum mix asphalt plant	32.3	16	266126	4275206	778702	4276345	10.67	420.4	18.98	1.16	0.74	25.8132
115	SO2	1631214AAB	Alton Chemical Corp.	X	159962	Unit 26B: Flare 36-0011/36-0610	10.58	15	224145	4277311	746653	4276356	30.48	644.3	18.1	0.2	6.15	213.822336
117	SO2	1631214AAB	Alton Chemical Corp.	X	159940	25B Sulfonation Stack	10.67	15	224003	4277269	746513	4276305	48.16	294.3	12.75	0.3	0.7	24.41712
118	SO2	1631214AAB	Alton Chemical Corp.		159965	Flare 36-0215	10.67	15	224003	4277269	746513	4276305	44.5	810.9	13.12	0.12	3.45	119.917298
121	SO2	1190900AAA	ConocoPhillips Co.		132496	Catalytic reformer #1 (STK12-4)	17.15	15	234066	4302052	754869	4302525	108.58	588.7	17.32	4.57	11.97	416.121888
123	SO2	1190900AAA	ConocoPhillips Co.		132511	Distilling unit: HTR-DU1-F302 (STK5-1)	17.39	15	235555	4303498	754326	4303100	45.72	338.7	3.56	2.59	0.66	23.10672
124	SO2	1190900AAA	ConocoPhillips Co.	X	132512	Steam methane reformer: SMR Heater (HTR-SMR - STK12-8)	17.27	15	234078	4303113	754873	4302750	60.96	672	11.17	3.66	8.56	297.6792
126	SO2	1190900AAA	ConocoPhillips Co.		132517	Rectified absorption system to RFG	17.4	15	233472	4303548	754240	4303134	45.72	649.8	8.03	1.83	15.08	524.180966
128	SO2	1190900AAA	ConocoPhillips Co.		132526	CCU-1 Startup heater 6-1	17.4	15	233472	4303548	754240	4303134	64.62	533.2	26.51	1.37	4.46	154.97664
129	SO2	1190900AAA	ConocoPhillips Co.		132535	Catalytic cracking unit #2 (STK5-3)	17.4	15	234063	4303260	754848	4302895	60.96	352.6	15.23	3.35	272.54	9474.282505
133	SO2	1190900AAA	ConocoPhillips Co.		132566	Utility boiler #15 (STK12-15)	17.25	15	234066	4303140	754859	4302776	40.23	491.5	12.36	2.33	2.03	70.71792

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134	SO2	119090AAA	ConocoPhillips Co.		132557	Utility boiler #16 (STK12-16)	17.3	15	234081	4303141	754875	4302778	40.23	491.5	13.16	2.13	1.78	61.746048
135	SO2	119090AAA	ConocoPhillips Co.		132558	Utility boiler 17 (STK12-17)	17.33	15	234109	4303145	754902	4302784	45.72	491.5	15.92	3.05	2.29	79.45392
136	SO2	119090AAA	ConocoPhillips Co.		132559	Utility boiler 18 (STK6-9)	17.34	15	234118	4303169	754919	4302809	30.48	435.9	4.41	1.89	0.83	28.87248
141	SO2	119090AAA	ConocoPhillips Co	X	132567	Catalytic reformer unit #3: Charge heater (H1R-CR3 -H4)	17.16	15	234211	4302925	755019	4302571	45.72	699.8	8.77	2.38	1.03	35.140125
142	SO2	119090AAA	ConocoPhillips Co	X	132568	Catalytic reformer unit #3: First interreactor heater (H1R-CR3-H5)	17.14	15	234210	4302902	755019	4302548	45.72	672	8.21	2.38	0.87	30.266571
145	SO2	119090AAA	ConocoPhillips Co	X	132594	Sulfuric acid tank	17.44	15	234324	4303176	755114	4302829	12.19	358.7	8.01	0.61	0.3	10.2648
146	SO2	119090AAA	ConocoPhillips Co.		145809	Crude heaters (STK5-3)	17.35	15	233639	4303409	754435	4303016	95.1	549.8	26.82	4.27	2.49	86.589485
147	SO2	119090AAA	ConocoPhillips Co.		145820	Sulfur recovery unit #1 (STK3-1)	16.92	15	232159	4303567	752928	4303077	38.1	292	5.4	2.19	5.09	176.904
148	SO2	119090AAA	ConocoPhillips Co.		145826	Supplemental air compressor engine CCU-1	17.4	15	233472	4303548	754240	4303144	4.57	320.4	6.21	0.46	0.22	7.60032
149	SO2	119090AAA	ConocoPhillips Co.	X	145838	Sulfur recovery unit #2 (STK3-2)	16.92	15	232158	4303561	752929	4303071	38.1	292	5.4	2.19	5.09	176.904
151	SO2	119090AAA	ConocoPhillips Co		160799	Supplemental air compressor engine CCU-2	17.4	15	233472	4303548	754240	4303144	14.63	320.4	6.21	0.46	0.22	7.60032
152	SO2	119090AAA	ConocoPhillips Co.	X	163856	Scot unit	17.4	15	233472	4303548	754240	4303144	4.88	319.8	4.75	2.74	21.66	752.903424
160	SO2	119090AAA	ConocoPhillips Co.		148354	Catalytic cracking unit #1 (STK6-2)	17.4	15	234079	4302559	754864	4302895	60.96	352.6	15.23	3.35	4.82	167.639472
162	SO2	119090AAA	ConocoPhillips Co.		225832	Startup/malfunction/breakdown	17.4	15	233472	4303548	754240	4303144	31.39	602	6.61	1.41	24	834.288
167	SO2	119090AAA	ConocoPhillips Co.	X	227034	Sulfur operation	17.4	15	233472	4303548	754240	4303144	48.16	583.2	11.51	1.05	3.77	130.95264
172	SO2	119090AAA	ConocoPhillips Co.	X	228295	SZU Regenerator vent	17.38	15	234411	4303061	755209	4302720	13.41	330.4	9.86	0.61	0.3	10.2648
175	SO2	119090AAA	ConocoPhillips Co.		241302	Coker north flare (FLR1-3)	18.16	15	234213	4304041	754947	4303684	42.37	761.5	8.09	1.64	3.87	134.630496
176	SO2	119090AAA	ConocoPhillips Co.		241303	VF-5 Heater (H35OH4 - STK1-1)	17.85	15	234188	4303817	754937	4303459	45.72	616.5	8.16	3.66	1.69	58.83606
177	SO2	119090AAA	ConocoPhillips Co.		241304	Coker north heater (H35IH2 - STK1-2)	17.81	15	234194	4303661	754953	4303305	45.72	533.2	6.8	3.05	0.93	32.19216
178	SO2	119090AAA	ConocoPhillips Co.		241305	Coker north heater (H35IH1 - STK1-3)	17.83	15	234227	4303660	754966	4303306	45.72	533.2	6.8	3.05	0.93	32.23584
179	SO2	119090AAA	ConocoPhillips Co.		241312	Heater HP-2 (STK7-1)	17.58	15	234478	4303257	755263	4302920	35.97	477.6	13.72	3.29	3.6	125.27424
184	SO2	119090AAA	ConocoPhillips Co.		241312	Heater HP-2 (STK7-1)	17.58	15	233472	4303548	754240	4303144	7.92	527.6	18.54	0.43	0.27	9.249502
189	SO2	119090AAA	ConocoPhillips Co.	X	250894	Non-emergency air compressor #1	17.4	15	233472	4303548	754240	4303144	7.92	527.6	18.54	0.43	0.27	9.249502
190	SO2	119090AAA	ConocoPhillips Co.	X	250895	Non-emergency air compressor #2	17.4	15	233472	4303548	754240	4303144	7.92	527.6	18.54	0.43	0.26	9.194116
191	SO2	119090AAA	ConocoPhillips Co.	X	250896	Non-emergency air compressor #3	17.4	15	233472	4303548	754240	4303144	7.92	527.6	18.54	0.43	0.27	9.249502
192	SO2	119090AAA	ConocoPhillips Co.	X	250897	Non-emergency air compressor #4	17.4	15	233472	4303548	754240	4303144	7.92	527.6	18.54	0.43	0.27	9.249502
193	SO2	119090AAA	ConocoPhillips Co.	X	250898	Non-emergency air compressor #5	17.4	15	233472	4303548	754240	4303144	7.92	527.6	18.54	0.43	0.27	9.249502
194	SO2	119090AAA	ConocoPhillips Co.	X	250899	Non-emergency air compressor #6	17.4	15	233472	4303548	754240	4303144	7.92	527.6	18.54	0.43	0.26	9.194116
201	SO2	119105AAA	Union Electric Co.	X	166479	Turbine CT02A	4.13	15	223543	4284632	745573	4283820	9.14	727.6	5.75	3.49	0.2	6.8175
202	SO2	119105AAA	Union Electric Co.	X	223796	Turbine CT03	4.6	15	223659	4283932	745735	4282930	11.58	590.4	22.85	1.04	0.02	0.6825
203	SO2	119105AAA	Union Electric Co.	X	223797	Turbine CT04	4.57	15	223701	4283946	745776	4282947	11.58	590.4	22.85	1.04	0.02	0.6825
204	SO2	119105AAA	Union Electric Co.	X	223798	Turbine CT05	4.35	15	223507	4284634	745538	4283620	11.56	590.4	22.85	1.04	0.01	0.4725
205	SO2	119105AAA	Union Electric Co.	X	227679	Diesel generator	4.4	15	223466	4284342	745516	4283326	7.92	527.6	18.54	0.43	0	0.62
206	SO2	119105AAA	Union Electric Co.	X	237099	Turbine CT02B	4.14	15	223542	4284629	745573	4283613	9.14	727.6	5.75	3.49	0.2	6.8175
208	SO2	119040AAG	Gateway Regional Medical Center	X	132225	Boiler #3	0.74	15	226801	4288254	748587	4287448	14.63	588.7	12.54	1.37	0.02	0.605358
209	SO2	119040AAG	Gateway Regional Medical Center	X	137226	Boilers #1 and 2	0.75	15	226807	4288258	748592	4287452	14.63	588.7	11.88	1.37	0.03	1.214537
210	SO2	119105AAH	Magnesium Elektron North America	X	142809	Combustion units	2.04	15	224558	4286673	746452	4285724	18.29	505.4	9.31	0.61	0.56	19.35392
211	SO2	119021AAI	Koch Fertilizer, LLC	X	212881	Ammonia heater	18.57	15	229393	4305994	750008	4305316	7.62	394.3	12.94	0.3	0.07	2.31504
212	SO2	119040ATI	Center Point Terminal Co.	X	211772	Incinerator/waste heat boiler	3	15	224697	4290189	746361	4289240	5.49	616.5	2.43	0.61	0.13	4.5864
213	SO2	119010ADU	Alton Water Treatment Facility	X	209433	Stack	23.3	15	222254	4310618	742583	4309460	6.71	477.6	25.94	0.2	0.07	2.400216
215	SO2	119040ABI	Prairie Farms Dairy, Inc.		132248	Boiler #2	0.96	15	225728	4288427	747505	4287550	7.62	435.9	19.82	0.76	0.15	5.20884
219	SO2	163121AAP	Veolia ES Technical Solutions, LLC		183733	Hazardous waste incinerator #4 (rotary kiln)	11.23	15	223000	4276971	745532	4275942	37.37	617	9.03	0.85	1.46	50.75616
224	SO2	119105AAK	Custom Steel Processing	X	218537	Scrubber	1.99	15	224461	4286999	746335	4286043	36.75	294.3	14.85	1.27	0.01	0.438
225	SO2	119105AAK	Custom Steel Processing	X	218538	Sulfuric acid storage tank	1.99	15	224461	4286999	746335	4286043	10.67	325.9	0	0.73	0.01	0.438
234	SO2	119813AAA	Christ Bros Products, LLC	X	132781	Baghouse	7	15	232088	4283693	754160	4283243	9.75	368.7	25.52	1.19	0.74	25.8128
235	SO2	119813AAA	Christ Bros Products, LLC		229921	8 Heaters and boilers	7	15	232088	4283693	754160	4283243	11.28	477.6	6.3	0.56	0.35	12.264
236	SO2	119040ATN	Gateway Energy & Coke Co., LLC	X	233397	Waste heat stack 1	1.04	15	227370	4287577	749199	4286809	25.91	1366.5	22.76	2.74	1.7	59.059688
237	SO2	119040ATN	Gateway Energy & Coke Co., LLC	X	233398	Pushing - Stack 1 of 6	1.49	15	227810	4287853	749620	4287113	6.1	477.6	21.22	1.52	0.26	8.919582
238	SO2	119040ATN	Gateway Energy & Coke Co., LLC	X	233402	Waste heat stack 2	1.12	15	227448	4287625	749274	4286862	25.91	1366.5	22.76	2.74	1.71	59.415469
239	SO2	119040ATN	Gateway Energy & Coke Co., LLC	X	233403	Waste heat stack 3	1.2	15	227531	4287677	749353	4286919	25.91	1366.5	22.76	2.74	1.7	59.059688
240	SO2	119040ATN	Gateway Energy & Coke Co., LLC	X	233404	Waste heat stack 4	1.28	15	227610	4287725	749429	4286973	25.91	1366.5	22.76	2.74	1.71	59.415469
241	SO2	119040ATN	Gateway Energy & Coke Co., LLC	X	233405	Waste heat stack 5	1.41	15	227732	4287800	749545	4287055	25.91	1366.5	22.76	2.74	1.71	59.415469
242	SO2	119040ATN	Gateway Energy & Coke Co., LLC	X	233406	Waste heat stack 6	1.49	15	227810	4287848	749620	4287109	25.91	1366.5	22.76	2.74	1.71	59.415469
243	SO2	119040ATN	Gateway Energy & Coke Co., LLC	X	240022	Pushing - Stack 2 of 6	1.41	15	227732	4287804	749545	4287060	6.1	477.6	21.22	1.52	0.26	8.972309
244	SO2	119040ATN	Gateway Energy & Coke Co., LLC	X	240023	Pushing - Stack 3 of 6	1.28	15	227610	4287729	749429	4286977	6.1	477.6	21.22	1.52	0.26	8.972309
245	SO2	119040ATN	Gateway Energy & Coke Co., LLC	X	240024	Pushing - Stack 4 of 6	1.2	15	227531	4287680	749352	4286923	6.1	477.6	21.22	1.52	0.26	8.919582
246	SO2	119040ATN	Gateway Energy & Coke Co., LLC	X	240025	Pushing - Stack 5 of 6	1.12	15	227449	4287629	749274	4286866	6.1	477.6	21.22	1.52	0.26	8.972309
247	SO2	119040ATN	Gateway Energy & Coke Co., LLC	X	240026	Pushing - Stack 6 of 6	1.04	15	227369	4287580	749198	4286813	6.1	477.6	21.22	1.52	0.26	8.972309
248	SO2	119040ATN	Gateway Energy & Coke Co., LLC	X	240528	Coking (New Main Stack)	1.13	15	227461	4287746	749279	4286984	60.96	406.5	11.84	3.96	28.61	994.5936
249	SO2	119040ATN	Gateway Energy & Coke Co., LLC	X	242560	Malfunctions	1.05	15	227373	4287575	749202	4286809	34.44	347.6	2.96	1.33	33.67	1170.36192
250	SO2	119025ABA	Asphalt Sales & Products Inc.	X	220618	Drum mix asphalt plant	16.09	15	236572	4300093	757560	4299901	9.75	410.9	20.83	1.3	0.74	25.8096
251	SO2	119025ABA	Asphalt Sales & Products Inc.	X	222135	Asphalt heaters and boilers	16.09	15	236572	4300093	757560	4299901	10.67	455.9	8.2	1.13	0.35	12.2304
253	SO2	119465AAG	Green Plains Madison, LLC	X	237659	Boiler #1	3.2	15	223349	4286506	745256	4285477	21.64	413.2	7	1.01	0.06	2.184
254	SO2	119465AAG	Green Plains Madison, LLC	X	237660	Fire Pump back-up Engine (460 HP)	3.29	15	223279	4286442	745191	4285409	3.96	603.7	26.29	0.25	0.01	0.735
255	SO2	119465AAG	Green Plains Madison, LLC	X	237661	Electrical system backup Engine (1495 HP)	3.28	15	223241	4286572	745144	4285537	8.53	603.7	22.49	0.38	0.05	1.8135
256	SO2	119465AAG	Green Plains Madison, LLC	X	237679	Indirect dryer #1	3.27	15	223283	4286500	745191	4285468	21.64	478.4	3.7	1.4	0.05	1.79088
257	SO2	119465AAG	Green Plains Madison, LLC	X	253367	Boiler #2	3.2	15	223352	4286514	745258	4285486	21.64	413.2	7	1.01	0.06	2.184
258	SO2	119465AAG	Green Plains Madison, LLC	X	253368	Boiler #3	3.2	15	223353	4286520	745260	4285491	21.64	413.2	7	1.01	0.06	2.184
259	SO2	119465AAG	Green Plains Madison, LLC	X	253369	Boiler #4	3.19	15	223356	4286528	745262	4285500	21.64	413.2	7	1.01	0.06	2.184
260	SO2	119465AAG	Green Plains Madison, LLC	X	253370	Indirect dryer #2	3.31	15	223254	4286465	745164	4285430	24.69	470.4	2.57	1.68	0.05	1.79088
262	SO2	119097AAB	Christ Bros Products, LLC	X	224592	Drum mix asphalt plant	15.01	15	234696	4300139	755685	4299823	9.75	394.8	16.35	1.25	0.74	25.81488
263	SO2	119097AAB	Christ Bros Products, LLC	X	224594	Asphalt tank heaters and boilers	15.03	15	234713	4300156	755701	4299841	3.05	486.5	12.94	0.3	0.35	12.264
280	SO2	163045AFJ	Safety Kleen Systems, Inc.		136098	Pipe still (heat exchanger)	10.54	15	227277	4277175	749786	4276425	4.57	348.8	0.09	0.3	0.09	3.024272
281	SO2	119040AAC	Amsted Rail Co., Inc	X	192148	Electric Arc Furnace #1 (EF-1)	1.3	15	225352	4288526	747122	4287625	16.76	394.3	16.49	1.89	0.37	12.6984
282	SO2	119040AAC	Amsted Rail Co., Inc.	X	192149	Electric Arc Furnace #2 (EF-2)	1.28	15	225377	4288526	747147	4287625	13.41	394.3	12.94	2.13	0.37	12.6984
283	SO2	119040AAC	Amsted Rail Co., Inc.		167781	Pouring and casting (PR/ESR-1)	1.37	15	225253	4288519	747025	4287611	30.78	394.8	10.6	2.96	0.06	2.01
284	SO2	119040AAC	Amsted Rail Co., Inc.	X	167787	Ladle Preheater (LDP-1)	1.36	15	225267	4288519	747039	4287611	24.99	535.9	9.6	1.86	0.02	0.77376
285	SO2	119040AAC	Amsted Rail Co., Inc.	X	251099	Annealing Furnace 18	1.37	15	225303	4288575	747071	4287670	11.89	413.2	7.06	0.62	0.01	0.4368
290	SO2	119040ATQ	Illinois Electric Works	X	227590	3 Burn off ovens	1.31	15	226132	4288976	747872	4288124	14.02	394.3	12.53	0.72	0.01	0.303392
291	SO2	119040ATS	Amsted Rail Co., Inc.	X	253361	Sand regeneration process (combustion)	1.37	15	225198	4288449	746975	4287537	11.89	413.2	7.06	0.62	0.03	1.001
293	SO2	163045AGR	Bunge-SF Grain, LLC	X	236260	Grain Dryer	6.13	15	223958	4292023	746158	4291045	29.26	302.6	26.8	2.51	2.19	74.64912
295	SO2	119090AAD	Shell Oil Products US	X	239899	RTO	17.72	15	233024	4304084	753758	4303650	5.79	366.5	10.39	0.76	0.11	3.699596

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SO2 Hourly Emissions Inventory

Radius: 50 km

Centering UTM: Zone 16 276332 m E 4287677 m N

Converted from: Zone 15 748156 m E 4286841 m N

Strip ID	Pollutant	Facility ID	Facility Name	PSD Increment	Stack ID	Stack Description	Distance from Centering UTM (km)	Actual UTM Zone	Zone 16 X UTM (m)	Zone 16 Y UTM (m)	Zone 15 X UTM (m)	Zone 15 Y UTM (m)	Height (m)	Temperature (K)	Exit Velocity (m/s)	Diameter (m)	Emissions (lb/hr)	Emissions (g/s)	Emissions (t/y)
6	SO2	163090AAF	Village of Freeburg	X	136131	Engine #7	36.33	16	245574	4257092	748352	4257578	6.71	755.4	5.27	0.82	2.83	0.36	19.4024
6	SO2	163060AAF	Village of Freeburg	X	179671	Engine #1	36.33	16	245574	4257092	748352	4257578	9.14	533.2	12.29	0.3	0.825	0.1	2.6135
7	SO2	163060AAF	Village of Freeburg	X	179672	Engine #7	36.33	16	245574	4257092	748352	4257578	9.14	533.2	12.29	0.3	0.825	0.1	2.6135
9	SO2	163090AAF	Village of Freeburg	X	230350	Engine #10	36.33	16	245574	4257092	748352	4257578	8.53	722	16.73	0.46	3.2	0.4	14.016
10	SO2	163060AAF	Village of Freeburg	X	231259	Engine #11	36.33	16	245574	4257092	748352	4257578	8.53	722	16.73	0.46	3.2	0.4	14.016
11	SO2	163090AAF	Village of Freeburg	X	231260	Engine #12	36.33	16	245574	4257092	748352	4257578	8.53	722	16.73	0.46	3.2	0.4	14.016
13	SO2	163110AAV	Asphalt Sales & Products Inc		136182	Drum mix asphalt plant	27.19	16	250353	4274928	772959	4275690	10.06	455.9	14.17	1.37	28.97	3.65	126.8886
14	SO2	163110AAV	Asphalt Sales & Products Inc		165441	Asphalt heaters and boilers	27.19	16	250353	4274928	772959	4275690	10.06	422.8	5.6	0.98	2.8	0.35	12.264
15	SO2	163802AAA	Christ Bros Products, LLC		136547	Drum mix asphalt plant	17.87	15	224225	4270760	747162	4269805	10.97	450.4	26.4	1.97	5.91	0.74	25.8858
21	SO2	119010AAE	Alton Steel Inc.		131841	Electric arc furnaces	21	15	227306	4308653	747253	4307832	30.48	394.3	9.46	7.38	70.7	8.91	309.666
23	SO2	119010AAE	Alton Steel Inc	X	155302	Ladle furnace	21	15	227306	4308653	747253	4307832	27.66	494.2	26.59	0.91	11.2	1.41	49.056
27	SO2	119801AAE	National Maintenance and Repair	X	132739	Cleaver Brooks boiler (Stack 1 of 2)	14.33	15	230007	4301531	750915	4300904	10.36	505.4	7.11	0.61	5	0.63	21.9
28	SO2	119801AAE	National Maintenance and Repair	X	230730	Cleaver Brooks boiler (Stack 2 of 2)	14.33	15	230011	4301530	750920	4300904	10.36	505.4	7.11	0.61	5	0.63	21.9
29	SO2	163045AAC	Lochuch Ready Mix Concrete Company		136016	Boiler	10.37	15	227362	4277361	749859	4276616	9.14	454.3	9.05	1.13	0.3	0.04	1.314
35	SO2	119020AAG	Olin Winchester, LLC	X	132052	Package Boiler (B-6)	21.95	15	230485	4309227	750887	4308414	10.67	422.6	25.87	0.61	4.569151	0.58	20.012881
36	SO2	119020AAG	Olin Winchester, LLC	X	132062	Package Boiler (B-3)	21.95	15	230490	4309232	750891	4308419	10.67	422.6	25.87	0.61	4.569875	0.58	20.133441
37	SO2	119020AAG	Olin Winchester, LLC	X	132063	Package Boiler (B-2)	21.95	15	230490	4309225	750892	4308413	10.67	422.6	25.87	0.61	4.569151	0.58	20.012881
38	SO2	119020AAG	Olin Winchester, LLC	X	132064	Package Boiler (B-1)	21.94	15	230486	4309222	750888	4308409	10.67	422.6	25.87	0.61	4.569875	0.58	20.133441
39	SO2	119020AAG	Olin Winchester, LLC	X	132065	Package Boiler (B-5)	21.94	15	230483	4309223	750885	4308410	10.67	422.6	25.87	0.61	4.596676	0.58	20.133441
40	SO2	119020AAG	Olin Winchester, LLC	X	150970	Package Boiler (B-6)	21.96	15	230505	4309237	750906	4308427	10.67	422.6	25.87	0.61	4.596676	0.58	20.133441
42	SO2	119813AAI	Granite City Works of Unites States Steel Corp.		132833	Blast furnaces: Blast furnace A - stoves	1.66	15	227986	4287597	749816	4286810	66.14	533.2	26.8	2.13	418.12	52.66	1809.4658
43	SO2	119813AAI	Granite City Works of Unites States Steel Corp.		132834	Blast furnaces: Blast furnace A - fugitives	1.56	15	227880	4287487	749714	4286753	18.29	408.8	9.26	2.32	2.51	0.32	10.9938
44	SO2	119813AAI	Granite City Works of Unites States Steel Corp.		152836	Blast furnaces: Blast furnace cast house baghouse	1.45	15	227782	4287473	749617	4286733	19.2	338.7	19.47	3.35	96.6	12.17	423.109
45	SO2	119813AAI	Granite City Works of Unites States Steel Corp.	X	132837	Blast furnaces: Flare 1	1.62	15	227950	4287571	749778	4286841	45.42	519.7	13.94	1.83	46.49	5.86	203.6262
46	SO2	119813AAI	Granite City Works of Unites States Steel Corp.		132838	Blast furnaces: Blast furnace B - stoves	1.51	15	227830	4287458	749666	4286721	68.58	533.2	15.56	3	413.12	52.05	1809.4658
47	SO2	119813AAI	Granite City Works of Unites States Steel Corp.	X	132839	Blast furnaces: Blast furnace B - fugitives	1.61	15	227936	4287536	749768	4286788	18.29	408.8	9.26	2.32	2.51	0.32	10.9938
48	SO2	119813AAI	Granite City Works of Unites States Steel Corp.		132842	Hot strip mill: Slab reheat furnaces #1	0.43	15	226903	4287827	747730	4286761	17.37	616.5	4.64	4.19	75.42	9.51	330.5586
49	SO2	119813AAI	Granite City Works of Unites States Steel Corp.	X	132849	Finishing operations: Galvanizing line #8 - fume scrubber	0.81	15	227080	4287983	746893	4287195	24.38	299.8	12.7	0.91	0.3	0.04	1.314
50	SO2	119813AAI	Granite City Works of Unites States Steel Corp.		132857	Basic oxygen furnaces: Desulfurization and Relading	0.35	15	226514	4287377	748358	4286554	27.43	449.8	3.73	2.13	35.7	4.5	156.366
51	SO2	119813AAI	Granite City Works of Unites States Steel Corp.		132863	Boilers: Boilers 1-7	1.59	15	227913	4287563	749741	4286831	68.58	460.9	4.51	4.27	593.319	74.76	2598.73722
52	SO2	119813AAI	Granite City Works of Unites States Steel Corp.		132865	Boilers: Boilers 8-10	1.53	15	227859	4287527	749690	4286791	60.96	460.9	3.13	3.35	762.002	96.11	3341.07776
53	SO2	119813AAI	Granite City Works of Unites States Steel Corp.		132867	Boilers: Boiler 11	1.73	15	228043	4287609	749866	4286885	45.72	441.5	9.3	2.44	430.005	54.18	1883.4216
54	SO2	119813AAI	Granite City Works of Unites States Steel Corp.		132872	Boilers: Boiler 12	1.73	15	228057	4287612	749882	4286889	45.72	441.5	8.14	2.44	428.985	54.16	1883.3343
55	SO2	119813AAI	Granite City Works of Unites States Steel Corp.		132876	Coke production: Battery A - pushing	1.9	15	228236	4287688	750048	4286927	5.48	326.5	25.97	1.22	3.13005	0.4	13.708601
56	SO2	119813AAI	Granite City Works of Unites States Steel Corp.		132877	Coke production: Battery A - soaking	1.93	15	228264	4287699	750082	4286989	76.2	526.8	6.91	2.74	49.818	6.28	218.20782
57	SO2	119813AAI	Granite City Works of Unites States Steel Corp.		132889	Coke production: Battery B - pushing	1.97	15	228297	4287724	750114	4287018	5.48	326.5	25.97	1.22	3.26887	0.41	14.405251
58	SO2	119813AAI	Granite City Works of Unites States Steel Corp.		132890	Coke production: Battery B - soaking	1.98	15	228274	4287704	750092	4286995	76.2	529.3	6.97	2.74	73.697	9.27	322.79866
59	SO2	119813AAI	Granite City Works of Unites States Steel Corp.		132895	By products plant, Flare	1.81	15	228144	4287706	749965	4286988	30.48	408.7	26.68	0.61	13.422	1.69	58.73836
60	SO2	119813AAI	Granite City Works of Unites States Steel Corp.	X	132905	Blast furnace slag pits	1.57	15	227851	4287516	749725	4286783	3.66	429.2	9.32	5.05	3.624	0.46	15.87312
61	SO2	119813AAI	Granite City Works of Unites States Steel Corp.	X	132926	Basic oxygen furnaces: Ladle drying/preheating	0.39	15	226645	4287439	748484	4286625	60.96	455.4	18.51	1.34	185.11	23.32	810.7218
62	SO2	119813AAI	Granite City Works of Unites States Steel Corp.	X	132927	Blast furnaces: Iron spout baghouse	1.68	15	228003	4287545	749832	4286819	33.11	327	10.82	2.29	7.05	0.89	31.0104
63	SO2	119813AAI	Granite City Works of Unites States Steel Corp.	X	132512	Hot strip mill: Slab reheat furnace #3	0.47	15	226870	4287597	747701	4286731	17.37	616.5	4.64	4.19	75.42	9.51	330.5586
64	SO2	119813AAI	Granite City Works of Unites States Steel Corp.		177514	Hot strip mill: Slab reheat furnace #4	0.47	15	225869	4287581	747701	4286715	44.5	644.3	9.84	3.83	398.12	50.19	1744.8416
65	SO2	119813AAI	Granite City Works of Unites States Steel Corp.		132516	Coke production: Battery A - pushing	1.93	15	228240	4287697	750065	4286686	53.04	376.5	8.76	2.1	0.31305	0.03	0.9743809
66	SO2	119813AAI	Granite City Works of Unites States Steel Corp.		132535	Coke production: Battery B - pushing	1.94	15	228225	4287707	750099	4286698	53.04	376.5	8.76	2.1	0.22113	0.03	0.9885549
67	SO2	119813AAI	Granite City Works of Unites States Steel Corp.	X	177532	Hot strip mill: Slab reheat furnace #2	0.45	15	225898	4287633	747716	4286748	17.37	616.5	4.64	4.19	75.42	9.51	330.5586
68	SO2	119813AAI	Granite City Works of Unites States Steel Corp.		225851	Multiconclones	0.39	15	226477	4288034	748278	4287207	49.07	449.8	15.97	5.49	45.38	5.72	198.7644
69	SO2	119813AAI	Granite City Works of Unites States Steel Corp.	X	229601	Internal combustion, Emergency Generator (3500 HP)	1.48	15	227814	4287601	749641	4286563	11.28	500.6	10	0.58	12.54	1.58	54.9252
70	SO2	119813AAI	Granite City Works of Unites States Steel Corp.	X	235979	Emergency portable Boiler #1	0.15	15	226235	4287568	748067	4286726	17.68	497.6	8.43	1.64	0.075	0.01	0.3285
71	SO2	119813AAI	Granite City Works of Unites States Steel Corp.	X	236009	Emergency portable Boiler #2	0.15	15	226235	4287568	748067	4286726	17.68	497.6	8.43	1.64	0.075	0.01	0.3285
72	SO2	119813AAI	Granite City Works of Unites States Steel Corp.	X	236080	Emergency portable Boiler #3	0.15	15	226235	4287568	748067	4286726	17.68	497.6	8.43	1.64	0.075	0.01	0.3285
73	SO2	119813AAI	Granite City Works of Unites States Steel Corp.	X	236041	Emergency portable Boiler #4	0.15	15	226235	4287568	748067	4286726	17.68	497.6	8.43	1.64	0.075	0.01	0.3285
74	SO2	119813AAI	Granite City Works of Unites States Steel Corp.	X	229359	New Cogeneration Boiler	1.64	15	227964	4287804	749777	4287075	41.76	500.9	18.96	1.83	103.283	13.01	452.37954
75	SO2	119813AAI	Granite City Works of Unites States Steel Corp.	X	240479	Blast furnaces, Flare 2	1.73	15	228043	4287645	749886	4286923	45.72	533.2	26.37	1.83	46.49	5.86	203.6262
76	SO2	119813AAI	Granite City Works of Unites States Steel Corp.		231099	Desulfurization unit	2.17	15	228483	4287852	750296	4287197	44.2	922	26.65	1.52	67.3	8.48	294.774
77	SO2	119813AAI	Granite City Works of Unites States Steel Corp.		242382	Coke production: Battery A - pushing	0.15	15	226235	4287568	748067	4286726	26.52	590.9	14.23	1.83	3.38	0.43	14.8044
78	SO2	119813AAI	Granite City Works of Unites States Steel Corp.		242383	Coke production: Battery B - soaking	0.15	15	226235	4287568	748067	4286726	26.52	590.9	14.23	1.83	3.55	0.45	15.549
79	SO2	163100AAD	Darling Ingredients, Inc.		136569	Continuous rendering process	5.45	15	225295	4282330	747472	4281438	13.41	297	25.87	1.22	1.41	0.18	6.2634
80	SO2	163100AAD	Darling Ingredients, Inc.		160747	Kewanee boiler	5.35	15	225295	4282330	747472	4281438	10.67	505.4	16.6	0.79	15.1087	1.9	66.176106
81	SO2	163100AAD	Darling Ingredients, Inc.		213814	Johnson boiler	5.45	15	225295	4282330	747472	4281438	10.06	505.4	14.31	0.85	15.1087	1.9	66.176106
84	SO2	119090AAF	Roxana Landfill, Inc.	X	232785	Enclosed flare	18.22	15	228258	4301453	759153	4301368	10.67	1144.3	6.1	3.66	1.76	0.22	7.7088
85	SO2	119090AAF	Roxana Landfill, Inc.	X	249499	Zink ultra-low emissions (Zule) flare	18.22	15	228258	4301453	759153	4301368	18.29	1255.4	14.28	3.96	15.54	1.96	68.0652
86	SO2	119090AAF	Roxana Landfill, Inc.	X	250241	New open flare	18.22	15	228258	4301453	759153	4301368	18.29	1255.4	18.23	0.61	8.17	1.03	35.7846
88	SO2	119801AAK	Chain of Rocks Recycling & Disposal	X	212697	Open flare	6.55	15	225566	4296176	746945	4293174	6.1	1033.2	14.41	0.2	1.067	0.13	4.67466
95	SO2	119428AAB	Collinsville Wastewater Treatment Plant		217403	Emergency diesel generator (2922 HP/2180 kW)	10.53	15	236756	4284369	758289	4283980	10.97	659.8	20.54	0.42	1.2	0.15	5.256
96	SO2	119821AAE	Charles E. Mahoney	X	149908	Drum mix asphalt plant	23.09	15	229202	4310597	759617	4309852	7.62	419.3	20.21	1.22	25.61	3.23	112.1718
97	SO2	119821AAE	Charles E. Mahoney	X	237302	Asphalt heaters and boilers	23.09	15	229202	4310597	759617	4309852	3.05	449.8	21.34	0.3	7.8	0.98	34.164
99	SO2	163121AAV	Contract Services, LLC	X	190099	3 Boilers	11.17	15	224220	4276394	746767	4275755	12.19	422.6	15.36	1.37	5.143	0.65	22.52634
100	SO2	163121AAV	Contract Services, LLC	X	238589	Boiler #4	11.17	15	224220	4276793	746767	4275755	12.19	422.6	13.95	1.14	1.64	0.21	7.1832
102	SO2	163050AAD	Milam Recycling and Disposal Facility	X	136125	Open flare	4.83	15	228841	4285507	750634	4284317	12.8	1255.4	3.07	0.3	6	0.76	26.28
103	SO2	163050AAD	Milam Recycling and Disposal Facility	X	154190	Engine #1	4.65	15	228454	4285341	750644	4284151	7.92	710.9	26.29	0.25	1.782	0.22	7.80516
104	SO2	163050AAD	Milam Recycling and Disposal Facility	X	154191	Engine #2	4.65	15	228447	4285340	750638	4284152	7.92	710.9	26.29	0.25	1.782	0.22	7.80516
105	SO2	163050AAD	Milam Recycling and Disposal Facility	X	154192	Engine #3	4.65	15	228458	4285343	750642	4284155	7.92	710.9	26.29	0.25	1.836	0.23	8.04168
106	SO2	163050AAD	Milam Recycling and Disposal Facility	X	206833	3 Passive ydar flares	4.93	15	228435	4285225	750550	4284037	6.1	1255.4	17.42	0.21	4.38	0.55	19.1844
107	SO2	163050AAD	Milam Recycling and Disposal Facility	X	176013	325 HP Tub grinder	4.93	15	228435	4285225	750550	4284037	2.13	603.7	22.57	0.1	0.8	0.1	3.504
108	SO2	163050AAD	Milam Recycling and Disposal Facility	X	226012	Enclosed flare	5.64	15	228384	4285517	750478	4284325	16.76	1033.2	0.1	3.66	6.08	0.77	26.6304
109	SO2	163050AAD	Milam Recycling and Disposal Facility	X	220017	700 HP Tub grinder	4.93	15	228435	4285225	750550	4284037	2.44	603.7	21.81	0.2	1.9	0.24	8.322
110	SO2	163050AAD	Milam Recycling and Disposal Facility	X	240830	Landfill gas conversion plant	4.68	15	228578	4285375	750668	4284295	16.76	794.3	0	1.37	8.9	0.11	3.942
111	SO2	163050AAD	Milam Recycling and Disposal Facility	X	251738	2000 scfm Utility Flare	4.93	15	228435	4285225	750550	4284037	10.97	728.7	5.66	1.39	7.32	0.92	32.0616

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112	SO2	163065AAI	Christ Bros Products, LLC		198552	Drum mix asphalt plant	32.3	16	256126	4275206	728702	4276445	30.67	420.6	38.98	3.16	33.17	1.66	57.6849
115	SO2	163121AAB	Alton Chemical Corp.	X	159942	Unit 266: Flare 36-0011/3E 0610	10.59	15	224045	4277311	746053	4276356	30.46	644.3	18.1	6.2	48.952	8.17	214.49976
117	SO2	163121AAB	Alton Chemical Corp.	X	159940	258 Sulfonation Stack	10.67	15	224003	4277259	746513	4276305	44.16	294.3	12.75	0.3	5.58	0.7	26.4842
118	SO2	163121AAB	Alton Chemical Corp.		159965	Flare 36-0219	10.67	15	224003	4277269	746513	4276305	44.5	810.9	13.08	0.12	27.4307	3.46	120.166466
120	SO2	119010ADP	St. Anthony's Hospital	X	172797	Boiler #4	23.73	15	224821	4311554	745097	4310364	19.51	477.6	17.87	0.21	6.02	0.76	26.3678
121	SO2	119090AAA	ConocoPhillips Co.		132496	Catalytic reformer #1 (STK12-4)	17.15	15	234066	4307966	754860	4303625	106.68	588.7	17.52	4.57	95.256	12	417.26508
123	SO2	119090AAA	ConocoPhillips Co.		132511	Distilling unit: HTR DU3 FIRE (STK5-3)	17.38	15	233555	4305498	754126	4303100	45.72	188.7	3.56	2.59	5.29	9.67	23.1702
124	SO2	119090AAA	ConocoPhillips Co.	X	132512	Steam methane reformer: SMR Heater (HTR SMR - STK12-8)	17.27	15	234078	4303115	754871	4302750	60.96	672	11.17	3.66	68.15	8.59	298.497
126	SO2	119090AAA	ConocoPhillips Co.		132517	Rectified absorption system to RFG	17.4	15	233472	4305548	754240	4303144	45.72	649.8	8.03	1.83	120.0046	15.12	525.621024
128	SO2	119090AAA	ConocoPhillips Co.		132526	CCU-1 Startup heater B-1	17.4	15	233472	4305548	754240	4303144	64.62	539.2	26.51	1.37	35.48	4.49	155.4024
129	SO2	119090AAA	ConocoPhillips Co.		132535	Catalytic cracking unit #2 (STK8-3)	17.4	15	234063	4307260	754848	4302895	60.96	352.9	15.28	3.35	2169.02072	273.3	9500.310754
133	SO2	119090AAA	ConocoPhillips Co.		132556	Utility boiler #15 (STK12-15)	17.28	15	234066	4303140	754859	4302776	40.23	491.5	13.16	2.13	16.39	2.04	70.9122
134	SO2	119090AAA	ConocoPhillips Co.		132557	Utility boiler #16 (STK12-16)	17.3	15	234081	4303141	754875	4302775	40.23	491.5	13.16	2.13	14.136	1.78	61.91568
135	SO2	119090AAA	ConocoPhillips Co.		132558	Utility boiler 17 (STK12-17)	17.33	15	234109	4303145	754902	4302764	45.72	431.5	15.92	9.05	18.19	2.29	79.6722
136	SO2	119090AAA	ConocoPhillips Co.		132559	Utility boiler 18 (STK6-9)	17.38	15	234128	4303169	754919	4302809	30.48	435.9	4.41	1.89	6.61	0.83	28.9518
141	SO2	119090AAA	ConocoPhillips Co.	X	132567	Catalytic reformer unit #3: Charge heater (HTR-CR3 -H6)	17.16	15	234211	4307935	755019	4302571	45.72	699.8	8.27	2.38	8.9449	1.61	35.236802
142	SO2	119090AAA	ConocoPhillips Co.	X	132568	Catalytic reformer unit #3: First interreactor heater (HTR-CR3-H5)	17.14	15	234210	4307802	755019	4302568	45.72	672	8.23	2.38	6.92916	0.87	30.349721
145	SO2	119090AAA	ConocoPhillips Co.	X	132594	Sulfuric acid tank	17.65	15	234328	4308176	755114	4302829	12.19	358.7	8.01	0.61	2.35	0.3	10.793
146	SO2	119090AAA	ConocoPhillips Co.		145809	Crude heaters (STK5-3)	17.35	15	233639	4303409	754815	4303016	95.1	549.9	26.82	4.27	19.8236	2.5	86.827368
147	SO2	119090AAA	ConocoPhillips Co.		145820	Sulfur recovery unit #1 (STK3-1)	16.92	15	232155	4305567	752928	4303077	38.1	792	5.4	2.19	40.5	5.1	177.39
148	SO2	119090AAA	ConocoPhillips Co.		145826	Supplemental air compressor engine CCU-1	17.4	15	233472	4305548	754240	4303144	4.57	320.8	6.21	0.46	1.74	0.22	7.6212
149	SO2	119090AAA	ConocoPhillips Co.	X	145838	Sulfur recovery unit #2 (STK3-2)	16.92	15	232155	4305561	752929	4303071	38.1	792	5.4	2.19	40.5	5.1	177.39
151	SO2	119090AAA	ConocoPhillips Co.		160709	Supplemental air compressor engine CCU-2	17.4	15	233472	4305548	754240	4303144	14.63	320.8	6.21	0.46	1.74	0.22	7.6212
152	SO2	119090AAA	ConocoPhillips Co.	X	167858	Soot unit	17.4	15	233472	4305548	754240	4303144	6.88	319.5	4.35	2.74	172.368	21.72	754.97184
160	SO2	119090AAA	ConocoPhillips Co.		148054	Catalytic cracking unit #1 (STK6-2)	17.4	15	234029	4308256	754864	4302895	60.96	352.9	15.23	3.35	38.379	4.84	168.19002
162	SO2	119090AAA	ConocoPhillips Co.		125832	Startup/malfunction/breakdown	17.4	15	233472	4305548	754240	4303144	31.39	602	6.61	1.91	191	24.07	836.58
167	SO2	119090AAA	ConocoPhillips Co.	A	227034	Sulfur operation	17.4	15	233472	4305548	754240	4303144	88.16	582.2	33.53	1.85	29.98	3.78	131.3124
177	SO2	119090AAA	ConocoPhillips Co.	X	228255	SRU Regenerator vent	17.38	15	234411	4308061	755209	4302720	13.41	330.8	9.96	0.61	2.95	0.3	10.293
176	SO2	119090AAA	ConocoPhillips Co.		241302	Coker north flare (FLR3-3)	18.15	15	234213	4304041	754947	4303684	22.37	761.5	8.89	1.64	30.822	3.38	135.00636
177	SO2	119090AAA	ConocoPhillips Co.		241303	VF-5 Heater (H35H2 - STK1-1)	17.95	15	234188	4303817	754937	4303459	45.72	616.5	9.16	2.66	13.47	1.7	58.9986
178	SO2	119090AAA	ConocoPhillips Co.		241304	Coker north heater (H35H2 - STK3-2)	17.81	15	234194	4303663	754963	4303305	45.72	533.2	6.8	3.05	7.37	0.93	32.2306
179	SO2	119090AAA	ConocoPhillips Co.		241305	Coker north heater (H35H1 - STK1-3)	17.83	15	234227	4305980	754986	4303306	45.72	533.2	6.8	3.05	7.38	0.93	32.3244
184	SO2	119090AAA	ConocoPhillips Co.		241312	Heater HP-7 (STK7-1)	17.38	15	234478	4305257	755263	4302920	35.97	477.6	13.72	3.29	28.58	3.61	125.6188
187	SO2	119090AAA	ConocoPhillips Co.		250892	Lift station pump (Z1028)	17.4	15	233472	4305548	754240	4303144	7.92	527.6	18.54	0.43	0.49	0.06	2.1462
188	SO2	119090AAA	ConocoPhillips Co.		250893	Lift station pump (Z1029)	17.4	15	233472	4305548	754240	4303144	7.92	527.6	18.54	0.43	0.46	0.06	2.0148
189	SO2	119090AAA	ConocoPhillips Co.	X	250894	Non-emergency air compressor #1	17.4	15	233472	4305548	754240	4303144	7.92	527.6	18.54	0.43	2.11756	0.27	9.274913
190	SO2	119090AAA	ConocoPhillips Co.	X	250895	Non-emergency air compressor #2	17.4	15	233472	4305548	754240	4303144	7.92	527.6	18.54	0.43	2.11756	0.27	9.274913
191	SO2	119090AAA	ConocoPhillips Co.	X	250896	Non-emergency air compressor #3	17.4	15	233472	4305548	754240	4303144	7.92	527.6	18.54	0.43	2.10488	0.27	9.219374
192	SO2	119090AAA	ConocoPhillips Co.	X	250897	Non-emergency air compressor #4	17.4	15	233472	4305548	754240	4303144	7.92	527.6	18.54	0.43	2.11756	0.27	9.274913
193	SO2	119090AAA	ConocoPhillips Co.	X	250898	Non-emergency air compressor #5	17.4	15	233472	4305548	754240	4303144	7.92	527.6	18.54	0.43	2.11756	0.27	9.274913
196	SO2	119090AAA	ConocoPhillips Co.	X	250899	Non-emergency air compressor #6	17.4	15	233472	4305548	754240	4303144	7.92	527.6	18.54	0.43	2.10488	0.27	9.219374
196	SO2	119090AAA	ConocoPhillips Co.	X	255741	Utility Boiler #19 (BLR-19)	17.27	15	233983	4303169	754755	4302788	60.23	424.3	18.11	2.13	15.4	1.94	67.452
201	SO2	119105AAA	Union Electric Co.	X	166479	Turbine CT02A	4.13	15	223543	4284632	745573	4283620	9.14	727.6	5.75	3.49	27.27	3.44	119.4426
202	SO2	119105AAA	Union Electric Co.	X	223796	Turbine CT03	4.6	15	223659	4283932	745735	4282930	11.58	590.4	22.85	1.04	1.3	0.16	5.6804
203	SO2	119105AAA	Union Electric Co.	X	223797	Turbine CT04	4.57	15	223701	4283946	745778	4282947	11.58	590.4	22.85	1.04	1.3	0.16	5.6804
204	SO2	119105AAA	Union Electric Co.	X	223798	Turbine CT05	4.15	15	223567	4284634	745538	4283620	11.58	590.4	22.85	1.04	0.9	0.11	3.962
205	SO2	119105AAA	Union Electric Co.	X	227679	Diesel generator	4.4	15	223466	4284342	745516	4283326	7.92	527.6	18.54	0.43	0.16	0.02	0.7008
206	SO2	119105AAA	Union Electric Co.	X	237099	Turbine CT02B	4.14	15	223582	4284625	745573	4283613	9.14	727.6	5.75	3.49	27.27	3.44	119.4426
207	SO2	119010ACK	Alton Memorial Hospital		131945	3 Boilers	22.7	15	226028	4310378	746364	4309470	22.13	472	7.35	0.91	12.756	1.61	55.87128
208	SO2	119040AAQ	Gateway Regional Medical Center	X	132225	Boiler #3	9.78	15	226801	4288254	748587	4287448	14.63	588.7	12.54	1.37	12.508778	1.61	56.102448
209	SO2	119040AAQ	Gateway Regional Medical Center	X	132226	Boilers #1 and 2	9.75	15	226807	4288258	748597	4287452	14.63	588.7	11.88	1.37	25.656022	3.23	132.373376
210	SO2	119105AAH	Magnesium Elektron North America	X	142809	Combustion units	2.08	15	224558	4286673	746452	4285724	18.29	505.4	9.31	0.61	4.44	0.56	19.4472
211	SO2	119821AAI	Koch Fertilizer, LLC	X	212881	Ammonia heater	18.57	15	229393	4305984	750008	4305336	7.62	354.3	12.94	0.3	0.53	0.07	2.3214
212	SO2	119040AEI	Center Point Terminal Co.	X	211772	Incinerator/waste heat boiler	9	15	224557	4290159	746361	4289240	5.49	616.5	2.43	0.61	1.05	0.13	4.599
213	SO2	119010AEU	Alton Water Treatment Facility	X	209433	Stack	23.3	15	222254	4310618	742583	4309460	6.71	477.6	25.94	0.2	0.5495	0.07	2.40681
215	SO2	119040ABI	Prairie Farms Dairy, Inc		132248	Boiler #2	0.96	15	225728	4288427	747505	4287550	2.61	463.7	19.82	0.76	1.1925	0.15	5.22315
219	SO2	163121AAP	Veolia ES Technical Solutions, LLC		183733	Hazardous waste incinerator #4 (rotary kiln)	11.21	15	223000	4276071	745532	4275942	17.37	617	9.93	0.85	11.62	1.46	50.8956
221	SO2	163121AAM	Cemex Flow Products, LLC.		253166	Generators	11.73	15	225858	4276256	746228	4275272	7.92	527.6	18.54	0.43	0.28187	0.04	1.234591
223	SO2	119802AAH	Madison County Sand, LLC	X	215315	Drum mix asphalt plant	10.98	15	232217	4289153	758921	4289026	9.75	391.5	19.65	1.25	0.9	0.06	2.19
226	SO2	119105AAK	Custom Steel Processing	X	218537	Scrubber	1.99	15	224461	4286999	746335	4286043	16.76	294.3	14.95	1.27	0.1	0.01	0.438
225	SO2	119105AAK	Custom Steel Processing	X	218539	Sulfuric acid storage tank	1.99	15	224461	4286999	746335	4286043	10.67	325.8	0	0.73	0.1	0.01	0.438
232	SO2	163050AAA	Chemtrade Solutions, LLC		207740	Scrubber C007	7.58	15	231145	4281874	753339	4281367	9.14	294.3	9.12	0.3	0.2	0.03	0.876
233	SO2	163052AAG	Interurban ILAWC		224167	Emergency generator	14.08	15	234720	4276371	757265	4276109	8.64	744.3	15.66	0.4	4.6	0.58	20.148
234	SO2	119813AAA	Christ Bros Products, LLC	X	182781	Baghouse	7	15	232068	4283693	754160	4283243	9.75	388.7	25.52	1.19	24.82	3.19	106.7116
235	SO2	119813AAA	Christ Bros Products, LLC		229921	8 Heaters and boilers	7	15	232068	4283693	754160	4283243	13.28	477.6	6.3	0.56	2.8	0.35	12.264
236	SO2	119040ATN	Gateway Energy & Coke Co., LLC	X	233397	Waste heat stack 1	1.04	15	227370	4287577	749199	4286909	25.91	1366.5	22.76	2.74	62.997	7.94	275.92686
237	SO2	119040ATN	Gateway Energy & Coke Co., LLC	X	233398	Pushing - Stack 1 of 6	1.49	15	227810	4287853	749620	4287113	6.1	477.6	21.22	1.52	2.0418	0.26	8.943084
238	SO2	119040ATN	Gateway Energy & Coke Co., LLC	X	233402	Waste heat stack 2	1.12	15	227448	4287625	749274	4286862	25.91	1366.5	22.76	2.74	63.3765	7.99	277.58907
239	SO2	119040ATN	Gateway Energy & Coke Co., LLC	X	233403	Waste heat stack 3	1.2	15	227581	4287827	749353	4286919	25.91	1366.5	22.76	2.74	62.997	7.94	275.92686
240	SO2	119040ATN	Gateway Energy & Coke Co., LLC	X	233404	Waste heat stack 4	1.28	15	227810	4287775	749429	4286973	25.91	1366.5	22.76	2.74	63.3765	7.99	277.58907
241	SO2	119040ATN	Gateway Energy & Coke Co., LLC	X	233405	Waste heat stack 5	1.41	15	227732	4287800	749545	4287055	25.91	1366.5	22.76	2.74	63.3765	7.99	277.58907
242	SO2	119040ATN	Gateway Energy & Coke Co., LLC	X	233406	Waste heat stack 6	1.49	15	227810	4287848	749630	4287109	25.91	1366.5	22.76	2.74	63.3765	7.99	277.58907
243	SO2	119040ATN	Gateway Energy & Coke Co., LLC	X	240022	Pushing - Stack 2 of 6	1.41	15	227732	4287804	749545	4287060	6.1	477.6	21.22	1.52	2.0541	0.26	8.996958
244	SO2	119040ATN	Gateway Energy & Coke Co., LLC	X	240023	Pushing - Stack 3 of 6	1.28	15	227610	4287729	749429	4286977	6.1	477.6	21.22	1.52	2.0541	0.26	8.996958
245	SO2	119040ATN	Gateway Energy & Coke Co., LLC	X	240024	Pushing - Stack 4 of 6	1.2	15	227531	4287680	749352	4286923	6.1	477.6	21.22	1.52	2.0418	0.26	8.943084
246	SO2	119040ATN	Gateway Energy & Coke Co., LLC	X	240025	Pushing - Stack 5 of 6	1.12	15	227449	4287629	749278	4286866	6.1	477.6	21.22	1.52	2.0541	0.26	8.996958
247	SO2	119040ATN	Gateway Energy & Coke Co., LLC	X	240026	Pushing - Stack 6 of 6	1.04	15	227369	4287580	749198	4286813	6.1	477.6	21.22	1.52	2.0541	0.26	8.996958
248	SO2	119040ATN	Gateway Energy & Coke Co., LLC	X	240528	Coking (New Main Stack)	1.13	15	227461	4287746	749279	4286984	60.96	418.2	18.71	3.96	227.7	28.69	997.326
249	SO2	119040ATN	Gateway Energy & Coke Co., LLC	X	242560	Malfunctions	1.05	15	227373	4287575	749207	4286808	38.44	367.6	2.96	1.53	267.94	33.76	1173.5772
250	SO2	119025ABA	Asphalt Sales & Products Inc	X	220618	Drum mix asphalt plant	16.09	15	236572	4300093	757560	4299901	9.75	410.9	20.83	1.3	33.96	4.28	148.7448
251	SO2	119025ABA	Asphalt Sales & Products Inc	X	222135	Asphalt heaters and boilers	16.09	15	236572	4300093	757560	4299901	10.67	455.9	8.2	1.13	7.8	0.35	12.264
253	SO2	119465AAG	Green Plains Madison, LLC	X	237659	Boiler #1	3.2	15	223349	4286506	745256	4285477	21.64	413.2	7	1.98	0.5	0.06	2.19
254	SO2	119465AAG	Green Plains Madison, LLC	X	237660	Fire Pump back-up Engine (460 HP)	3.29	15	223279	4286462	745193	4285409	3.96	509.7	26.29	0.25	0.94	0.12	4.1172
255	SO2	119465AAG	Green Plains Madison, LLC	X	237661	Electrical system backup Engine (1405 HP)	3.28	15	223241	4286572	745144	4285537	8.53	803.7	22.49	0.38	12.09	1.52	52.9542

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256	SO2	1194A5AAG	Green Plains Madison, LLC	X	237879	Indirect dryer #1	3.27	15	223283	4286500	746191	4285468	23.64	470.4	7.7	1.4	0.91	9.05	1.7958
257	SO2	1194D5AAG	Green Plains Madison, LLC	X	253367	Boiler #3	3.7	15	223332	4286514	745238	4285485	23.64	413.2	7	1.01	0.9	9.06	2.19
258	SO2	1194B5AAG	Green Plains Madison, LLC	X	253368	Boiler #3	3.7	15	223353	4286520	745160	4285491	23.64	413.2	7	1.01	0.9	9.06	2.19
259	SO2	1194A5AAG	Green Plains Madison, LLC	X	253369	Boiler #4	3.19	15	223356	4286521	745262	4285488	23.64	413.2	7	1.01	0.9	9.06	2.19
260	SO2	1194D5AAG	Green Plains Madison, LLC	X	253370	Indirect dryer #2	3.31	15	223358	4286465	745164	4285439	23.64	470.4	7.53	1.65	0.91	9.05	1.7953
262	SO2	1190B7AAB	Christ Bros Products, LLC	X	224592	Drum mix asphalt plant	15.01	15	234696	4300139	755685	4277823	9.75	394.6	10.35	1.15	13.79	1.38	681.8082
263	SO2	1190B7AAB	Christ Bros Products, LLC	X	224593	Asphalt tank heaters and boilers	15.03	15	234713	4300156	755701	4279841	3.95	489.5	11.04	13.3	2.8	0.85	12.264
264	SO2	1830B8AAD	Waterloo City Light Plant		133825	Engine #1	40.08	15	223888	4247572	748316	4246769	8.83	972	4.14	0.71	1.85	0.17	2.913
265	SO2	1830A8AAD	Waterloo City Light Plant	X	133827	Engine #9	40.06	15	223898	4247577	748326	4246769	5.18	775.4	25.87	0.3	3.6	0.45	15.768
266	SO2	1830J8AAD	Waterloo City Light Plant	X	133828	Engine #10	40.08	15	223888	4247572	748326	4246769	5.18	775.4	25.87	0.3	3.6	0.45	15.768
267	SO2	1830B8AAD	Waterloo City Light Plant	X	133817	Engine #11	40.08	15	223888	4247572	748326	4246769	5.18	775.4	25.87	0.3	3.6	0.45	15.768
269	SO2	1830B8AAD	Waterloo City Light Plant		143320	Engine #8	40.08	15	223888	4247572	748326	4246769	8.23	933.2	25.68	0.7	2.38	0.17	5.9568
280	SO2	3630A8AAA	Safety Kleen Systems, Inc		130098	Pipe still heat exchanger	30.54	15	227777	4277775	749786	4276425	4.57	340.8	0.09	0.9	1.38378	0.17	0.465161
281	SO2	1190A6AAC	Amsted Rail Co., Inc.	X	132148	Electric Arc Furnace #1 (EF-1)	1.3	15	225352	4288526	747122	4287625	16.75	394.8	16.45	1.89	8.07	0.51	17.8266
282	SO2	1190A0AAC	Amsted Rail Co., Inc.	X	132149	Electric Arc Furnace #2 (EF-2)	1.28	15	225377	4288526	747137	4287625	13.41	394.8	12.99	2.13	5.07	0.51	17.8266
283	SO2	1190A6AAC	Amsted Rail Co., Inc.		167781	Pouring and casting (PP/CST-1)	1.47	15	225253	4288519	747029	4287611	30.78	394.8	19.6	2.96	0.67	0.038	2.9344
284	SO2	1190A0AAC	Amsted Rail Co., Inc.	X	167787	Ladle Preheater (LDP-1)	1.86	15	225267	4288519	747033	4287611	24.99	535.9	9.6	1.86	0.22	0.03	0.9636
285	SO2	1190A0AAC	Amsted Rail Co., Inc.	X	251059	Annealing Furnace 1R	2.77	15	225402	4288525	747071	4287670	11.49	413.2	7.06	0.62	0.1	0.01	0.438
288	SO2	1190A6AAC	Illinois Electric Works	X	227590	3 Burn off ovens	1.81	15	228132	4289976	747872	4288126	14.02	394.8	11.97	0.72	0.609	0.01	0.39222
291	SO2	1190A6AAC	Amsted Rail Co., Inc.	X	253581	Sand regeneration process (combustion)	1.57	15	225198	4288449	746975	4287537	11.49	413.2	7.06	0.62	0.28	0.04	1.2784
292	SO2	1630B0AEB	City of Belleville		236359	2 Emergency generators (1500 HW each)	26.24	38	240301	4285470	753564	4286585	6.51	603.7	22.45	0.48	1.84	0.23	6.0937
293	SO2	1630A5AOB	Bunge NA Grain, LLC.	C	230350	Grain Dryer	6.13	15	223858	4282023	748158	4281034	29.26	313.7	26.8	2.54	17.08	2.15	73.8542
296	SO2	1190B8AAD	Shell Oil Products US	X	238869	RFCC	17.72	15	233023	4304004	752758	4303990	5.79	366.5	19.15	9.76	0.847	0.11	3.70496

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CO Annual Emissions Inventory		Centering UTM:	Zone 16	276332 m E	4286727 m N
Radius:	50 km	Converted From:	Zone 15	748156 m E	4786841 m N

Emission Unit ID	Pollutant	Facility ID	Facility Name	Stack ID	Stack Description	Distance from Centering UTM	Actual UTM Zone	Zone 16		Zone 15		Height	Temperature	Exit Velocity	Diameter	Emissions	Emissions
						(km)		X UTM (m)	Y UTM (m)	X UTM (m)	Y UTM (m)	(m)	(K)	(m/s)	(m)	(g/s)	(tpy)
1	CO	163010AAH	Empire Comfort Systems	201452	Stack	25.77	16	240327	4266986	763529	4266194	7.62	449.8	3.05	0.3	0.13	1.3954
4	CO	163010AEU	Lakeview Memorial Gardens	135983	Crematory	19.62	16	243195	4273783	762596	4273004	5.88	752.6	8.13	0.76	0.38	11.9236
5	CO	163060AAF	Village of Freeburg	130133	Engine #7	16.13	16	245570	4257000	760352	4256178	6.71	755.4	5.72	0.53	0.13	5.865793
19	CO	163110AAY	Asphalt Sales & Products Inc	135187	Drum mix asphalt plant	27.19	16	250373	4275908	772959	4275089	30.66	435.9	14.37	1.37	1.66	57.85263
23	CO	163302AAA	Christ Bros Finishers, LLC	136547	Drum mix asphalt plant	17.07	15	224226	4270746	747182	4269805	30.47	450.4	14.4	1.07	1.68	58.3608818
25	CO	163502AAD	Salvay Fluorides, LLC	213894	Boiler	19.03	16	242716	4276836	760245	4276115	9.14	355.8	2.23	0.64	0.18	6.28992
26	CO	163040AA1	American Colloid Co	220267	Sand drying	1.35	15	225086	4288158	748882	4287239	23.95	349.2	8.77	1.01	0.08	1.28
27	CO	163040AA1	American Colloid Co.	220267	Space Heaters	1.35	15	225086	4288158	748882	4287239	10.67	366.4	6.55	0.43	0.01	0.22
28	CO	163040AJV	Center Point Tennimum Co	242126	Tank Heater	2.83	15	224681	4286977	748359	4286057	24.94	339.3	9.9	0.75	0.13	2.49804
29	CO	163040AOM	Precast Metals	132224	Afterburners AB1 and AB2	1.95	16	228015	4283277	749428	4282538	10.36	349.8	10.67	1.22	0.32	13.0056619
30	CO	163040AOM	Precast Metals	155304	Boiler B1	1.95	16	228015	4283277	749459	4282538	7.32	366.5	3.79	0.49	0.11	3.841084
32	CO	163050AAA	Premier Refining Group, Inc.	224901	Thermal oxidizer	16.74	15	231912	4302935	753275	4302416	6.3	645.4	15.09	0.24	0.09	3.23232
33	CO	163050AAA	Premier Refining Group, Inc.	251786	Vapor Combustion Unit	16.24	15	231962	4302935	753275	4302416	16.15	415.9	7.57	0.88	1.26	43.68
34	CO	163050AAD	Omega Partners Hartford, LLC	246761	Truck Bail Marine casks loadout and VCUs	14.63	15	231318	4301402	752132	4300860	10.06	294	0.1	0.1	0.83	28.6888
37	CO	163050AAD	Omega Partners Hartford, LLC	246762	Boiler 1 and 2	14.46	15	231348	4301336	752174	4300808	17.68	497.6	8.43	1.04	0.48	16.72944
38	CO	163110AAC	Alton Steel Inc.	131843	Electric arc furnaces	21	15	227306	4305693	747753	4305237	30.48	394.3	9.46	2.38	21.72	755.62
39	CO	163110AAE	Alton Steel Inc.	131845	14 inch rolling mill reheat furnace	20.85	15	227190	4306520	747645	4305792	22.71	366.5	8.73	4.85	2.42	84
40	CO	163010AAE	Alton Steel Inc.	155303	Tank Furnace	21	15	227306	4306963	747753	4306232	22.56	405.2	26.59	0.91	2.16	75.06
44	CO	163030AAE	Auget USA, LLC	132739	Liquified Carbon Dioxide Plant	17.87	15	235500	4302778	756314	4301509	9.14	293.3	24.28	0.66	0.05	1.758888
45	CO	163801AAE	National Maintenance and Repair	132739	Cleaver Brooks boiler (Stack 1 of 2)	14.33	15	230007	4301531	750915	4300904	10.36	549.8	7.11	0.61	0.24	8.2992
46	CO	163801AAE	National Maintenance and Repair	236698	Cleaver Brooks boiler (Stack 2 of 2)	14.31	15	230011	4301530	750920	4300905	10.36	505.4	7.11	0.61	0.24	8.2992
50	CO	163121AAC	Solutia Inc	236612	Sacrifice process, Thermal oxidizer 2 700134	11.17	15	223783	4276799	746325	4275822	34.14	680.9	5.12	3.84	1.65	65.52
51	CO	163121AAC	Solutia Inc	238198	Air stripsoil vapor extraction system	11.17	15	223783	4276799	746325	4275822	6.57	294.3	22.58	0.05	0.05	1.7477
59	CO	163020AAC	Olin Winchester, LLC	226352	Heavyweight 1, 2 and 3 Stack 1 HW-2 and HW-3	21.58	16	230077	4308926	750495	4308287	6.4	344.3	5.09	0.53	0.56	19.3992
60	CO	163070AAG	Olin Winchester, LLC	248262	New Rotary retort process (RRR-2)	21.58	16	230077	4308926	750495	4308287	4.88	322	5.8	0.51	0.22	15.012
61	CO	163013AAI	Granite City Works of United States Steel Corp.	132832	Blast furnaces, Blast furnace A - stoves	1.65	15	227986	4287537	749516	4286810	66.14	533.2	15.14	2.13	9.36	325.526832
62	CO	163013AAI	Granite City Works of United States Steel Corp.	132836	Blast furnaces, Blast furnace casthouse baghouse	1.45	15	227781	4287473	749317	4286733	19.2	338.7	19.67	3.35	4.48	155.964
63	CO	163013AAI	Granite City Works of United States Steel Corp.	132837	Blast furnaces, Blast furnace flare 1	1.62	15	227950	4287571	749778	4286841	35.42	518.7	11.98	1.83	8.46	294.61378
64	CO	163013AAI	Granite City Works of United States Steel Corp.	132838	Blast furnaces, Blast furnace B - stoves	1.53	15	227836	4287455	749656	4286721	66.59	533.2	15.56	3	13.98	453.18
65	CO	163013AAI	Granite City Works of United States Steel Corp.	132842	Hot strip mill, Slab reheat furnaces #1	0.48	15	229021	4287627	749788	4286760	17.37	616.5	4.64	4.19	1.12	38.84644
66	CO	163013AAI	Granite City Works of United States Steel Corp.	132849	Finishing operations: Galvanizing line #5 - fumes scrubber	0.83	15	227080	4287981	748588	4287196	24.38	299.8	12.7	0.91	0.06	1.8304
67	CO	163013AAI	Granite City Works of United States Steel Corp.	132855	Basic oxygen furnaces, BOF #1 and #2	0.3	15	226580	4285501	748415	4284664	45.07	349.8	15.92	5.49	465.86	16087.47776
68	CO	163013AAI	Granite City Works of United States Steel Corp.	132861	Boilers, Boilers 1-7	1.59	15	227813	4287563	749741	4286831	68.58	460.9	4.51	3.27	2.01	69.874656
69	CO	163013AAI	Granite City Works of United States Steel Corp.	132862	Boilers, Boilers 8-10	1.55	15	227859	4287547	749809	4286791	60.96	460.9	3.13	3.35	0.86	29.96448
70	CO	163013AAI	Granite City Works of United States Steel Corp.	132867	Boilers, Boiler 11	1.31	15	228041	4287609	749866	4286885	45.72	421.5	9.91	2.44	12.14	769.5324
71	CO	163013AAI	Granite City Works of United States Steel Corp.	132872	Boilers, Boiler 12	1.72	15	228057	4287632	749882	4286889	45.72	441.5	8.14	2.44	9.12	318.92952
72	CO	163013AAI	Granite City Works of United States Steel Corp.	132876	Coke production, Battery A - pushing	1.5	15	228228	4287688	750048	4286977	5.49	310.8	29.92	1.22	0.28	8.8306195
73	CO	163013AAI	Granite City Works of United States Steel Corp.	132877	Coke production, Battery A - soaking	1.93	15	228284	4287699	750082	4286988	18.2	329.3	5.01	2.74	3.02	106.630812
74	CO	163013AAI	Granite City Works of United States Steel Corp.	132878	Coke production, Battery A - doors	1.88	15	228217	4287683	750037	4286971	9.14	350.8	4.87	2.65	0.08	2.79552
75	CO	163013AAI	Granite City Works of United States Steel Corp.	132879	Coke production, Battery A - lids and standpipes	1.9	15	228229	4287706	750048	4286998	6.14	355.4	4.42	1.58	0.01	0.222738
76	CO	163013AAI	Granite City Works of United States Steel Corp.	132880	Coke production, Battery B - pushing	1.97	15	228297	4287723	750118	4287016	5.49	338.8	35.97	1.22	0.3	10.559445
77	CO	163013AAI	Granite City Works of United States Steel Corp.	132890	Coke production, Battery B - soaking	1.94	15	228274	4287704	750092	4286995	70.2	375.4	4.97	2.74	5.2	183.379632
78	CO	163013AAI	Granite City Works of United States Steel Corp.	132891	Coke production, Battery B - doors	1.93	15	228276	4287732	750093	4287023	6.14	359.8	4.87	2.65	0.08	2.790224
79	CO	163013AAI	Granite City Works of United States Steel Corp.	132892	Coke production, Battery B - lids and standpipes	1.98	15	228295	4287740	750109	4287032	9.14	355.4	4.42	1.58	0.01	0.222738
80	CO	163013AAI	Granite City Works of United States Steel Corp.	132895	By-products plant, Flare	1.81	15	228186	4287706	749968	4286988	28.45	308.7	26.68	0.61	0.6	20.59332
81	CO	163013AAI	Granite City Works of United States Steel Corp.	132898	Finishing operations: Galvanizing line #7A - natural gas furnace	0.31	15	226586	4287857	748398	4287038	16.46	305.4	5.63	0.61	0.28	8.830656
82	CO	163013AAI	Granite City Works of United States Steel Corp.	132936	Basic oxygen furnaces: Ladle drying/preheating	0.38	15	226645	4287433	748484	4286625	60.96	455.4	10.53	1.34	1.02	35.998832
83	CO	163013AAI	Granite City Works of United States Steel Corp.	132937	Blast furnaces: Slag spout baghouse	1.68	15	228003	4287545	749822	4286619	53.31	327.7	10.49	2.59	0.43	13.56224
84	CO	163013AAI	Granite City Works of United States Steel Corp.	160868	Coke production: Battery A - underfiring	1.88	15	228124	4287693	750033	4286980	30.48	359.8	4.87	2.65	0.02	0.558052
85	CO	163013AAI	Granite City Works of United States Steel Corp.	160869	Coke production: Battery B - underfiring	1.96	15	228286	4287733	750112	4287025	30.05	359.8	4.87	2.65	0.02	0.552425
86	CO	163013AAI	Granite City Works of United States Steel Corp.	172512	Hot strip mill: Slab reheat furnace #3	0.67	15	225870	4287597	747701	4286733	17.37	616.5	4.64	4.19	1.12	38.74536
87	CO	163013AAI	Granite City Works of United States Steel Corp.	172514	Hot strip mill, Slab reheat furnace #4	0.67	15	225869	4287591	747701	4286715	44.5	644.3	9.81	3.83	0.89	28.79944
88	CO	163013AAI	Granite City Works of United States Steel Corp.	172516	Coke production: Battery A - pushing	1.91	15	228246	4287667	750065	4286966	53.04	378.5	6.76	2.1	0.02	0.6605495
89	CO	163013AAI	Granite City Works of United States Steel Corp.	172518	Coke production: Battery B - pushing	1.94	15	228275	4287707	750093	4286998	53.04	378.5	6.76	2.1	0.02	0.7009575
90	CO	163013AAI	Granite City Works of United States Steel Corp.	172522	Hot strip mill, Slab reheat furnace #2	0.65	15	225886	4287613	747716	4286748	17.37	616.5	4.64	4.19	1.03	35.868
91	CO	163013AAI	Granite City Works of United States Steel Corp.	172533	Finishing operations, Galvanizing line #6 - natural gas furnace	0.31	15	226586	4287857	748398	4287038	16.15	421.5	10.3	0.61	0.24	8.38656
92	CO	163013AAI	Granite City Works of United States Steel Corp.	172556	Finishing operations, Galvanizing line #7A - miscellaneous heaters	0.31	15	226586	4287857	748398	4287038	11.13	414.3	5.79	0.7	0.26	9.1728
93	CO	163013AAI	Granite City Works of United States Steel Corp.	228699	Internal Combustion: #4 Coke oven gas booster pump	0.15	15	226235	4287566	748067	4286726	14.33	371.5	9.06	0.61	4.5	156.50544
94	CO	163013AAI	Granite City Works of United States Steel Corp.	229317	Finishing operations: Galvanizing line #8 - space heaters	0.31	15	226586	4287857	748398	4287038	11.89	413.2	7.06	0.62	0.08	1.880752
95	CO	163013AAI	Granite City Works of United States Steel Corp.	229388	Finishing operations: Galvanizing line #8 - drying oven and storage area heaters	0.31	15	226586	4287857	748398	4287038	11.89	413.2	7.06	0.62	0.02	0.95176
96	CO	163013AAI	Granite City Works of United States Steel Corp.	229339	Finishing operations: Galvanizing line #8 - miscellaneous heaters	0.31	15	226586	4287857	748398	4287038	11.89	413.2	7.06	0.62	0.08	1.952592
97	CO	163013AAI	Granite City Works of United States Steel Corp.	229601	Internal Combustion: Emergency Generator (3500 HP)	1.48	15	227814	4287961	749041	4286862	11.28	500.9	10	0.58	0.15	5.2775
98	CO	163013AAI	Granite City Works of United States Steel Corp.	235979	Emergency portable Boiler #1	0.15	15	226235	4287566	748067	4286726	17.68	497.6	8.43	1.04	0.24	8.2992
99	CO	163013AAI	Granite City Works of United States Steel Corp.	235039	Emergency portable Boiler #2	0.15	15	226235	4287568	748067	4286726	17.68	497.6	8.43	1.04	0.24	8.2992
100	CO	163013AAI	Granite City Works of United States Steel Corp.	235040	Emergency portable Boiler #3	0.15	15	226235	4287566	748067	4286726	17.68	497.6	8.43	1.04	0.24	8.2992
101	CO	163013AAI	Granite City Works of United States Steel Corp.	235041	Emergency portable Boiler #4	0.15	15	226235	4287568	748067	4286726	17.68	497.6	8.43	1.04	0.24	8.2992
102	CO	163013AAI	Granite City Works of United States Steel Corp.	238459	New Cogeneration Boiler	1.84	15	227954	4287804	749777	4286705	41.76	366.5	38.99	1.83	9.73	338.958864
103	CO	163013AAI	Granite City Works of United States Steel Corp.	240479	Blast furnaces, Flare 2	1.73	15	228043	4287545	749836	4286971	45.72	533.2	26.72	1.83	8.46	294.85176
104	CO	163013AAI	Granite City Works of United States Steel Corp.	241099	Desulfurization unit	2.17	15	228493	4287891	750299	4287197	42.7	340.9	26.65	1.52	2.04	70.7616
105	CO	163013AAI	Granite City Works of United States Steel Corp.	242880	Coke production, Battery A - decarbonizing	0.15	15	226235	4287568	748067	4286726	22.25	645.4	7.54	1.75	0.03	1.193556
106	CO	163013AAI	Granite City Works of United States Steel Corp.	242881	Coke production: Battery B - decarbonizing	0.15	15	226235	4287568	748067	4286726	17.68	480.9	10.93	1.07	0.04	1.353267
107	CO	163013AAI	Granite City Works of United States Steel Corp.	242882	Coke production: Battery A - soaking	0.15	15	226235	4287568	748067	4286726	26.52	590.9	14.23	1.63	0.01	0.258178
108	CO	163013AAI	Granite City Works of United States Steel Corp.	242883	Coke production: Battery B - soaking	0.15	15	226235	4287568	748067	4286726	26.52	590.9	14.23	1.63	0.01	0.314998
109	CO	163045AFW	Southwestern Illinois Correctional Center	155437	2 Boilers	9.93	15	240008	4279813	753202	4278289	9.75	477.6	1.21	0.46	0.09	3.028061
111	CO	163050AAN	ConocoPhillips Co.	183171	Loading rack	13.75	15	231321	4300525	751252	4299987	12.19	1255.4	28.68	0.61	0.19	6.68604
112	CO	163100AAD	Darling Ingredients, Inc.	136169	Continuous rendering process	5.45	15	225295	4282330	747472	4281438	13.41	297	25.87	1.22	0.4	14.007
113	CO	163100AAD	Darling Ingredients, Inc.	160742	Enclosed boiler	5.45	15	225295	4282330	747472	4281438	10.67	505.4	16.8	0.79	0.22	8.37348
114	CO	163100AAD	Darling Ingredients, Inc.	213839	Johnson boiler	5.45	15	225295	4282330	747472	4281438	10.06	505.4	14.31	0.85	0.24	8.37348
176	CO	163090AAF	Roxana Landfill, Inc.	232755	Enclosed flare	18.22	15	238258	4301353	759153	4301368	30.67	1144.3	9.07	3.66	2.8	100.9008

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127	CO	1190904AF	Roxana Landfill, Inc.	249499	Zink ultra-low emissions (Zule) Flare	18.22	15	235258	4301453	758153	4501308	18.29	1144.3	0.15	3.96	1.57	54.6	
128	CO	1190904AF	Roxana Landfill, Inc	255341	New open flare	18.22	15	238756	4301453	759153	4501308	13.72	1144.3	10.49	0.41	4.74	164.6736	
130	CO	1190904ED	Totall Metal Recycling, Inc	227432	Safety certification unit	7.28	15	226355	4299960	748030	4259120	1.83	981.5	2.46	0.57	0.01	0.4368	
132	CO	1190914AK	Chain of Rocks Recycling & Disposal	212682	Open flare	6.55	15	225544	4294176	746945	4293274	6.1	1033.2	14.41	0.2	0.87	30.239664	
133	CO	1190914AK	Chain of Rocks Recycling & Disposal	251758	Passive flare #1	6.55	15	225543	4294176	746944	4293274	3.05	722.6	1.45	0.15	0.05	2.159976	
134	CO	1190914AK	Chain of Rocks Recycling & Disposal	254175	Passive flare #2	6.55	15	225543	4294176	746944	4293274	3.05	722.6	1.45	0.15	0.05	2.159976	
135	CO	1190914AK	Chain of Rocks Recycling & Disposal	254176	Passive flare #3	6.55	15	225543	4294176	746944	4293274	3.05	722.6	1.45	0.15	0.05	2.159976	
136	CO	1190914AK	Chain of Rocks Recycling & Disposal	254177	Passive flare #4	6.55	15	225543	4294176	746944	4293274	3.05	722.6	1.45	0.15	0.05	2.159976	
137	CO	1190914AK	Chain of Rocks Recycling & Disposal	254178	Passive flare #5	6.55	15	225543	4294176	746944	4293274	3.05	722.6	1.45	0.15	0.05	2.159976	
138	CO	1190914AK	Chain of Rocks Recycling & Disposal	254179	Passive flare #6	6.55	15	225543	4294176	746944	4293274	3.05	722.6	1.45	0.15	0.05	2.159976	
139	CO	1194284AB	Collinsville Wastewater Treatment Plant	227400	Emergency diesel generator (2922 HP/2180 kW)	10.53	15	238256	4284840	758289	4283982	10.97	639.8	20.54	0.62	0.12	4.3	
143	CO	1194214AE	Charles E. Mahoney	149308	Drum mix asphalt plant	23.09	15	229202	4310592	749517	4309892	7.62	419.8	20.21	1.22	1.66	57.84812	
145	CO	1194214AE	Charles E. Mahoney	237862	Asphalt heaters and boilers	23.09	15	229202	4310592	749517	4309892	3.05	449.8	21.38	0.3	0.15	5.15424	
148	CO	1631214AY	Contract Services, LLC	190090	3 Boilers	11.17	15	224220	4276704	746767	4275755	12.19	327.6	7.69	1.22	1.07	37.359939	
149	CO	1631214AY	Contract Services, LLC	218569	Boiler #6	11.17	15	224220	4276704	746767	4275755	12.19	408.2	8.37	1.14	1.63	56.74032	
150	CO	1196814AA	Enable Mississippi River Transmission, LLC	132928	Engine SN-02	34.43	16	260558	4283924	782556	4285336	9.14	672	2.87	0.29	1.7	59.1864	
152	CO	1196814AA	Enable Mississippi River Transmission, LLC	166491	Turbine SN-03	34.43	16	260558	4283924	782556	4285336	9.14	672	26.48	0.27	1.2	41.75808	
154	CO	1630D2AAB	Phillips 66 Pipeline, LLC	217756	Truck loading racks	13.09	15	222267	4275223	744935	4274152	6.1	294.3	3.23	0.61	1.38	48.048	
156	CO	1630950AAD	Milam Recycling and Disposal Facility	136125	Open flare	4.63	15	228341	4283597	750434	4282812	12.5	1255.4	3.07	0.3	2.3	79.9344	
157	CO	1630950AAD	Milam Recycling and Disposal Facility	154190	Engine #1	4.65	15	228454	4283541	750544	4282853	7.92	366.5	26.29	0.25	0.87	30.27024	
158	CO	1630950AAD	Milam Recycling and Disposal Facility	154191	Engine #2	4.65	15	228447	4283540	750538	4282852	7.92	699.8	26.29	0.25	0.87	30.27024	
159	CO	1630950AAD	Milam Recycling and Disposal Facility	154192	Engine #3	4.65	15	228458	4283543	750548	4282855	7.92	699.8	26.29	0.25	0.9	31.18752	
160	CO	1630960AAD	Milam Recycling and Disposal Facility	204633	3 Passive solar flares	4.93	15	228439	4283225	750550	4282537	6.1	1255.4	7.26	0.21	0.53	18.47664	
161	CO	1630950AAD	Milam Recycling and Disposal Facility	226013	325 HP Tub grinder	4.93	15	228439	4283225	750550	4282537	2.13	603.7	17.57	0.1	0.06	1.575	
162	CO	1630950AAD	Milam Recycling and Disposal Facility	226014	Enclosed flare	4.64	15	228384	4283517	750476	4282825	16.76	1033.2	0.2	3.66	3.07	104.832	
163	CO	1630950AAD	Milam Recycling and Disposal Facility	226015	750 HP Tub grinder	4.93	15	228439	4283225	750550	4282537	2.44	603.7	21.61	0.2	0.12	4.38	
164	CO	1630950AAD	Milam Recycling and Disposal Facility	245839	Landfill gas conversion plant	4.68	15	228578	4283675	750666	4282895	16.76	294.3	0	1.37	0.48	16.5984	
165	CO	1630950AAD	Milam Recycling and Disposal Facility	253738	2000 scfm Utility Flare	4.93	15	228439	4283225	750550	4282537	10.97	728.7	5.66	1.39	2.3	79.9344	
166	CO	1630895AAJ	Christ Bros Products, LLC	198552	Drum mix asphalt plant	32.3	16	256126	4275305	778702	4276345	30.67	426.4	18.98	1.16	1.66	57.8592	
171	CO	119050AAO	Meister, LLC	169226	2 Boilers	14.97	15	231419	4301752	752306	4301220	6.57	699.8	0.16	0.43	0.32	11.00736	
174	CO	1631214AB	Alton Chemical Corp.	159942	Unit 266. Flare 36-0011/36-0610	10.59	15	224105	4277311	746653	4276356	30.48	644.3	38.1	0.2	1.07	37.3464	
175	CO	1631214AB	Alton Chemical Corp.	159965	Flare 36-0219	10.67	15	224003	4277269	746513	4276305	44.5	819.9	11.12	0.12	0.48	16.77312	
176	CO	1631214AB	Alton Chemical Corp.	160888	Boiler 500-15-0110	10.46	15	224154	4277444	746653	4276489	13.72	422	3.76	2.13	0.23	8.071421	
179	CO	1631214AB	Alton Chemical Corp.	230300	Flare 36-0090	10.68	15	223987	4277280	746478	4276293	33.72	1033.2	0.05	2.44	0.26	9.5096	
180	CO	1631214AB	Alton Chemical Corp.	240359	Boiler 500-15-0210	10.46	15	224182	4277482	746660	4276488	13.72	422	3.76	2.13	0.23	8.071421	
181	CO	1631214AB	Alton Chemical Corp.	240360	Boiler 500-15-0310	10.46	15	224175	4277458	746676	4276485	33.72	422	3.76	2.13	0.23	8.09566	
182	CO	1191154AY	Kinder Morgan Liquids Terminals, LLC	132791	New Truck loading rack	17.42	15	232201	4304062	751598	4303578	6.1	294.3	0.08	0.69	0.61	21.27235	
183	CO	1190404SW	Kraft Heinz Co.	155357	Boiler B	2.74	15	226460	4290414	748105	4289580	12.19	466.5	21.62	0.61	0.18	6.272448	
184	CO	1190404SW	Kraft Heinz Co.	236927	Boiler C	2.74	15	226460	4290414	748105	4289580	12.19	466.5	21.62	0.61	0.18	6.272448	
185	CO	1190404SW	Kraft Heinz Co.	236928	Boiler D	2.74	15	226460	4290414	748105	4289580	12.19	466.5	21.62	0.61	0.18	6.272448	
186	CO	1190404SW	Kraft Heinz Co.	236929	Boiler E	2.74	15	226460	4290414	748105	4289580	12.19	466.5	21.62	0.61	0.18	6.272448	
187	CO	1190404SW	Kraft Heinz Co.	248869	Boiler F	2.74	15	226460	4290414	748105	4289580	7.92	466.5	10.49	0.61	0.18	6.272448	
188	CO	1190504AF	Marathon Ashland Pipe Line, LLC	257535	Marine vapor combustion unit	16.12	15	230405	4303205	751739	4302661	35.54	705.4	8.46	2.26	0.78	27.1	
190	CO	1190904AA	ConocoPhillips Co.	232496	Catalytic reformer #1 (STK12-4)	17.35	15	234008	4302988	754869	4302825	106.68	588.3	17.32	4.57	7.88	274.240512	
191	CO	1190904AA	ConocoPhillips Co.	232510	Distilling unit: HTR-DU1-#301 (STK5-2)	17.37	15	233554	4303475	754327	4303077	56.39	432.6	6.67	2.66	1.52	52.80912	
192	CO	1190904AA	ConocoPhillips Co.	232511	Distilling unit: HTR-DU1-#301 (STK5-1)	17.38	15	233555	4303488	754326	4303100	45.72	338.7	3.56	2.59	1.92	68.34656	
193	CO	1190904AA	ConocoPhillips Co.	232512	Steam methane reformer: SMR Heater (HTR-SMR - STK12-8)	17.27	15	234078	4303113	754873	4302759	60.96	672	11.17	3.66	5.87	207.01404	
194	CO	1190904AA	ConocoPhillips Co.	232516	Rectified absorption unit: Reboiler heater (HTR-RAU-DEBUT - STK5-5)	17.3	15	233688	4303332	754470	4302993	22.86	727.6	10.5	1.52	0.9	31.18752	
196	CO	1190904AA	ConocoPhillips Co.	232519	Cracked absorpsion unit (HTR-CAU-ROSTNL - STK5-4)	17.32	15	233687	4303353	754468	4302993	25.91	699.8	6.76	2.19	0.88	29.93112	
198	CO	1190904AA	ConocoPhillips Co.	232535	Catalytic cracking unit #2 (STK6-3)	17.4	15	234063	4303260	754948	4302896	60.96	852.6	15.23	3.35	5.96	206.347848	
202	CO	1190904AA	ConocoPhillips Co.	232551	Alkylation unit: HTR-ALKY-HM2 (STK6-6)	17.56	15	234154	4303402	754936	4302943	66.02	519.3	3.78	1.75	0.54	18.86976	
203	CO	1190904AA	ConocoPhillips Co.	232556	Utility boiler #15 (STK12-15)	17.29	15	234056	4303140	754958	4302776	40.23	491.5	13.16	2.13	1.33	115.79568	
204	CO	1190904AA	ConocoPhillips Co.	232557	Utility boiler #16 (STK12-16)	17.3	15	234081	4303141	754825	4302778	40.23	491.5	13.16	2.13	1.49	121.403808	
205	CO	1190904AA	ConocoPhillips Co.	232558	Utility boiler 17 (STK12 17)	17.31	15	234108	4303145	754902	4302784	45.72	431.5	15.92	3.05	4.52	157.20832	
206	CO	1190904AA	ConocoPhillips Co.	232559	Utility boiler 18 (STK6-9)	17.34	15	234128	4303169	754919	4302809	30.48	435.9	4.41	1.89	1.77	131.08368	
207	CO	1190904AA	ConocoPhillips Co.	232581	Hydrodesulfurization unit #1: Charge heater (HTR-HDU-1 - STK12-1)	17.28	15	234410	4302929	755117	4302588	45.72	694.3	9.8	1.52	0.7	24.4608	
208	CO	1190904AA	ConocoPhillips Co.	232564	Hydrodesulfurization unit #2: Charge heater (HTR-HDU-2 - STK12-18)	17.13	15	234212	4302584	755072	4302530	45.72	755.4	9.58	1.77	0.62	21.4932	
209	CO	1190904AA	ConocoPhillips Co.	232569	Cat reformer #5: Stabilizer reboiler (HTR-CR3-N2 - STK12-9)	17.17	15	234207	4302935	755016	4302582	45.72	783.2	2.14	2.38	0.6	20.907432	
211	CO	1190904AA	ConocoPhillips Co.	232581	Catalytic reformer unit #3: Charge heater (HTR-CR3-H4)	17.16	15	234211	4302925	755019	4302579	45.72	699.8	8.77	2.38	2.2	76.359192	
212	CO	1190904AA	ConocoPhillips Co.	232558	Catalytic reformer unit #3: Feed interreactor heater (HTR-CR3-H5)	17.14	15	234216	4302902	755019	4302548	45.72	672	8.21	2.38	2.65	92.082552	
213	CO	1190904AA	ConocoPhillips Co.	232559	Cat reformer #3: Second interreactor heater (HTR-CR3-H6 - STK12-12)	17.15	15	234211	4302913	755019	4302559	45.72	672	4.27	2.38	0.7	24.2424	
216	CO	1190904AA	ConocoPhillips Co.	232594	Sulfuric acid tank	17.44	15	234328	4303176	755114	4302829	12.19	358.2	8.01	0.61	0.22	7.7532	
218	CO	1190904AA	ConocoPhillips Co.	145809	Crude heaters (STK5-3)	17.35	15	233699	4303409	754435	4303016	95.1	549.8	26.82	4.27	9.81	340.9224	
220	CO	1190904AA	ConocoPhillips Co.	145826	Supplemental air compressor engine CCU-1	17.4	15	233472	4303548	754240	4303144	4.57	326.4	6.21	0.46	0.09	3.10128	
221	CO	1190904AA	ConocoPhillips Co.	145850	Flare for major effluent treatment project	17.4	15	233472	4303548	754240	4303144	9.14	288.7	4.27	2.8	0.57	19.69968	
226	CO	1190904AA	ConocoPhillips Co.	218530	North property ground flare (FLR1-2)	17.66	15	233728	4303709	754486	4303322	59.44	1255.4	0.73	0.93	1.78	61.71984	
227	CO	1190904AA	ConocoPhillips Co.	218687	Gas plant sour water stripper	17.4	15	233472	4303548	754240	4303144	4.57	327	3.47	0.88	0.13	4.63008	
232	CO	1190904AA	ConocoPhillips Co.	148356	Catalytic cracking unit #1 (STK6-2)	17.4	15	234079	4303259	754864	4302895	60.96	352.6	15.23	3.35	7.93	101.46864	
233	CO	1190904AA	ConocoPhillips Co.	220849	Alkylation unit flare (FLR6-1)	17.64	15	234181	4303453	755035	4303081	60.96	1255.4	0.82	0.76	2.32	80.76432	
234	CO	1190904AA	ConocoPhillips Co.	225832	Startup/malfunction/breakdown	17.4	15	233472	4303548	754240	4303144	31.39	602	6.61	1.41	3.59	124.9245	
237	CO	1190904AA	ConocoPhillips Co.	227030	#4 Crude unit heater H-24 (STK9-5)	16.32	15	232238	4302996	753051	4302413	54.86	560.9	7.99	2.59	2.85	99.06624	
239	CO	1190904AA	ConocoPhillips Co.	227032	Hydrogen plant #1 flare (FLR12-2)	17.44	15	234401	4303135	755196	4302793	39.62	1255.4	2.43	0.53	1.04	70.93632	
241	CO	1190904AA	ConocoPhillips Co.	227035	Process heater HP-1 (STK12-9)	17.44	15	234401	4303135	755194	4302793	38.71	455.4	8.26	2.29	0.88	30.44496	
242	CO	1190904AA	ConocoPhillips Co.	227038	SZU Charge heater H-3	17.33	15	234418	4303089	755219	4302667	45.72	570.4	7.78	1.53	0.72	25.119	
243	CO	1190904AA	ConocoPhillips Co.	228294	Distilling west refinery flare (FLR10-1)	16.94	15	232841	4302990	753647	4302546	60.05	1255.4	2.92	0.91	3.15	109.50576	
244	CO	1190904AA	ConocoPhillips Co.	228295	SZU Regenerator vent	17.38	15	234411	4303081	755209	4302720	13.41	330.4	9.85	0.61	0.22	7.7532	
245	CO	1190904AA	ConocoPhillips Co.	232739	Benzene extraction unit #3 (STK6-8)	17.46	15	234139	4303289	754923	4302930	56.39	516.5	6.92	2.96	1.53	53.7896	
247	CO	1190904AA	ConocoPhillips Co.	238942	Reniel Boiler #3	17.4	15	233472	4303548	754240	4303144	6.1	449.8	12.13	1.22	0.21	7.2072	
248	CO	1190904AA	ConocoPhillips Co.	241300	VOC Flare (West - FLR4-1)	17.07	15	232657	4303531	753428	4303073	9.14	1255.4	7.98	0.2	0.18	6.24624	
249	CO	1190904AA	ConocoPhillips Co.	241301	VOC Flare (East - FLR4-2)	17.07	15	232678	4303530	753441	4303073	9.14	1255.4	7.98	0.2	0.18	6.24624	
263	CO	1190904AA	ConocoPhillips Co.	250894	Non-emergency air compressor #1	17.4	15	233472	4303548	754240	4303144	7.92	527.6	18.54	0.43	0.76	26.260416	
264	CO	1190904AA	ConocoPhillips Co.	250895	Non-emergency air compressor #2	17.4	15	233472	4303548	754240	4303144	7.92	527.6	18.54	0.43	0.76	26.260416	
265	CO	1190904AA	ConocoPhillips Co.	250896	Non-emergency air compressor #3	17.4	15	233472	4303548	754240	4303144	7.92	527.6	18.54	0.43	0.75	26.193168	
266	CO	1190904AA	ConocoPhillips Co.	250897	Non-emergency air compressor #4	17.4	15	233472	4303548	754240	4303144	7.92	527.6	18.54	0.43	0.76	26.260416	

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267	CO	1190904AA	ConocoPhillips Co.	230898	Non-emergency air compressor #5	17.2	15	2334472	4305548	754280	4305144	7.92	527.6	18.54	0.43	0.78	28.760416
268	CO	1190904AA	ConocoPhillips Co.	230899	Non-emergency air compressor #6	17.6	15	2334472	4305548	754280	4305144	7.92	527.6	18.54	0.43	0.79	29.103168
269	CO	1190904AA	ConocoPhillips Co.	231735	Diesel engine (600 HP)	12.4	15	2334472	4305548	754280	4305144	6.37	424	9.1	0.1	0.44	16.288
275	CO	1628115AA	US Air Force/Scott Air Force Base	156624	Boilers and Heaters	30.87	15	2534833	4270028	7741337	4276862	9.14	435.3	7.1	0.67	0.6	21.010008
276	CO	1628115AA	US Air Force/Scott Air Force Base	189689	Diesel generators	30.87	15	2534833	4270028	7741337	4276862	13.78	428.7	8.98	0.4	1.01	34.988
277	CO	1119105AA	Union Electric Co	186475	Turbine CT02A	4.13	15	2235463	4286632	749573	4253620	9.14	527.6	5.75	3.49	0.56	19.325
278	CO	1119105AA	Union Electric Co.	223798	Turbine CT03	4.6	15	2236659	4285992	749535	4282598	11.58	5904	22.85	1.64	0.78	25.725
279	CO	1119105AA	Union Electric Co.	223797	Turbine CT04	4.57	15	2237051	4284996	749776	4287947	11.58	5904	22.85	1.64	0.78	25.725
280	CO	1119105AA	Union Electric Co.	223798	Turbine CT05	4.15	15	2235957	4286634	749538	4253620	11.58	5904	22.85	1.64	1.04	26.225
281	CO	1119105AA	Union Electric Co.	227079	Signet gasgringer	4.4	15	2234466	4284382	749516	4288126	7.92	527.6	18.54	0.43	0	0.16225
282	CO	1119105AA	Union Electric Co	237099	Turbine CT02B	5.14	15	2235542	4284625	749572	4288611	9.14	777.6	5.75	3.49	0.56	19.3425
283	CO	1190404TC	Midwest Metal Coatings, LLC	192953	Chemical cleaner/infrared oven (CCI/IRO)	3.59	15	2236885	4291215	748281	4290395	10.36	316.5	5.77	0.93	0.04	1.76672
284	CO	1190404TC	Midwest Metal Coatings, LLC	192954	Afterburner	5.58	15	2236889	4291215	748281	4290395	10.36	755.4	7.25	1.32	0.04	1.430957
285	CO	1190404TC	Midwest Metal Coatings, LLC	192967	Boiler (B1)	3.96	15	2236889	4291215	748281	4290395	10.36	422	18.15	0.46	0.27	9.26016
286	CO	1630504AF	Touchette Regional Hospital	136614	2 Boilers	14.32	15	2239154	4273633	751899	4273614	11.89	5956.8	2	1.13	0.28	9.94924
287	CO	1179024AA	Star Memorial Pet Crematory	131722	Crematory	17.67	15	2238830	4325175	749744	4324586	6.88	699.8	8.41	0.3	0.34	13.7936
289	CO	1190404AD	Gateway Regional Medical Center	132225	Boiler #3	0.78	15	2236801	4286854	749537	4287645	10.83	585.7	12.54	1.37	0.08	1.158319
290	CO	1190404AD	Gateway Regional Medical Center	132226	Boilers #1 and 2	0.75	15	2236807	4286258	748552	4287452	14.69	588.7	13.88	1.37	0.07	2.319714
291	CO	1190404BJ	Mayco Mfg, LLC	167845	Britt kettles combustion stack	0.98	15	2235374	4287869	747189	4286970	10.36	394.3	9.72	0.34	0.03	0.8736
292	CO	1190404BJ	Mayco Mfg, LLC	167846	Mixed metals & B dross baghouse discharge stack	0.99	15	2235374	4287869	747189	4286970	9.14	388.2	16.04	1.52	0.01	0.30004
293	CO	1190404BJ	Mayco Mfg, LLC	250343	Natural gas combustion	0.98	15	2235374	4287869	747189	4286970	11.89	413.2	7.06	0.62	0.22	7.60032
294	CO	1190404BJ	Mayco Mfg, LLC	253816	Expansion: Natural gas combustion	0.98	15	2235374	4287869	747189	4286970	11.89	413.2	7.06	0.62	0.22	8.47392
296	CO	1191105AH	Magnesium Elektron North America	142809	Combustion units	2.94	15	2234558	4286673	746452	4285724	18.29	585.4	9.31	0.63	1.29	44.72832
297	CO	1191105AH	Magnesium Elektron North America	255527	Natural gas combustion	2.04	15	2234558	4286673	746452	4285724	11.89	413.2	7.06	0.62	0.05	3.85456
298	CO	1198734AI	Koch Fertilizer, LLC	212981	Ammonia heater	13.57	15	2239393	4305994	7530009	4305316	7.61	394.3	12.94	0.3	0.33	10.613424
301	CO	1190404AT	Center Point Terminal Co	208343	Asphalt and polymer modified blend tank (T 9)	3	15	2234697	4290139	748561	4289240	10.06	358.2	9.22	0.46	0.03	0.4308
302	CO	1190404AT	Center Point Terminal Co.	211777	Incinerator/waste heat boiler	3	15	2234697	4290185	748361	4289240	5.49	616.5	2.43	0.61	0.02	0.299344
306	CO	1190404DR	Grande City Pekling D. Warehousing	155305	Boiler	1.18	15	2235154	4287903	746879	4286690	15.73	699.3	4.71	0.82	0.09	3.087061
309	CO	1190404BJ	Prairie Farms Dairy, Inc.	132247	Boiler #1	0.95	15	2235726	4288427	747505	4287550	22.86	435.9	9.17	0.76	0.02	0.58734
310	CO	1190404BJ	Prairie Farms Dairy, Inc.	132248	Boiler #2	0.96	15	2235726	4288427	747505	4287550	7.61	435.9	15.82	0.76	0.03	1.04832
312	CO	1189806AO	Elias Kallal & Schaaf Funeral Home & Crematory	332777	Crematorium	26.09	15	2231950	4313394	7522956	4311210	9.14	1033.2	5.6	0.52	3.08	3
316	CO	1631218AP	Veolia ES Technical Solutions, LLC	181713	Hazardous waste incinerator #2 (rotary kiln)	11.21	15	2233096	4276921	749512	4275942	17.37	617	9.93	0.85	0.4	13.84056
320	CO	1630204AK	Gulfstream Aerospace Services Corp.	235293	Make up air unit 19-3	13.39	15	2236937	4276457	747629	4273560	11.8	575.9	8.65	0.76	0.7	7.098
328	CO	1631214AM	Cerro Flow Products, LLC	136486	Piercing mill furnace #2	11.73	15	2233650	4276256	748726	4275272	7.62	422	11.86	0.61	0.11	3.773199
335	CO	1633814AB	BFI Waste Systems of North America, Inc	165120	Flare	24.93	15	2355651	4264517	7538887	4264338	10.67	1144.3	1.64	0.14	0.85	29.7024
336	CO	1178074AH	Madison County Sand, LLC	233515	Drum mix asphalt plant	10.98	15	2237237	4289153	758921	4289028	9.75	394.5	19.65	1.25	0.38	19.5
339	CO	1631214BE	Center Ethanol Co.	228766	West boiler	11.41	15	2233337	4276668	745828	4275642	22.86	693.2	13.25	0.91	0.41	14.10564
340	CO	1631214BE	Center Ethanol Co.	228262	East boiler	11.41	15	2233337	4276668	745859	4275642	22.86	693.2	13.85	0.91	0.41	14.10864
341	CO	1631214BE	Center Ethanol Co.	228263	RTO	11.41	15	2233337	4276668	7458BE	4275642	15.24	477.6	21.55	1.63	0.86	26.5208
343	CO	1631214BE	Center Ethanol Co.	237903	Ethanol loadout Rack	11.81	15	2233337	4276668	745888	4275602	5.79	310.4	3.58	0.23	0.11	3.870048
345	CO	1630574AG	Interurban ILAWC	224157	Emergency generator	14.08	15	2234720	4276371	752765	4276109	8.86	744.3	15.69	0.9	0.08	2.76
348	CO	1631104AZ	Schildknecht Funeral Home, Inc	226783	Crematory	23.62	15	2354443	4275290	760823	4275796	5.18	933.2	4.11	0.51	0.15	5.256
347	CO	1198134AA	Chrisi Bros Products, LLC	132781	Baghouse	7	15	2320488	4283693	754160	4283248	9.75	388.7	25.52	1.39	1.66	57.8552
348	CO	1198134AA	Chrisi Bros Products, LLC	229921	8 Heaters and boilers	7	15	2320888	4286883	7541160	4285248	11.28	477.6	8.8	0.56	0.15	5.1688
351	CO	1190404AN	Gateway Energy & Coke Co., LLC	233895	Charging - Stack 1 of 6	1.49	15	2237834	4287887	749624	4287108	7.92	422	20.76	1.37	0.01	0.291782
352	CO	1190404AN	Gateway Energy & Coke Co., LLC	233897	Waste heat stack 1	1.04	15	2237270	4287577	749199	4286809	25.91	1366.5	22.76	2.74	0.02	0.568875
353	CO	1190404AN	Gateway Energy & Coke Co., LLC	233898	Pushing - Stack 1 of 6	1.49	15	2237830	4287853	749620	4287111	6.1	477.6	21.22	1.52	0.16	5.728195
354	CO	1190404AN	Gateway Energy & Coke Co., LLC	233902	Waste heat stack 2	1.12	15	2237458	4287625	749274	4286882	25.91	1366.5	22.76	2.74	0.02	0.568875
355	CO	1190404AN	Gateway Energy & Coke Co., LLC	233903	Waste heat stack 3	1.2	15	2237531	4287677	749853	4286919	25.91	1366.5	22.76	2.74	0.02	0.568875
356	CO	1190404AN	Gateway Energy & Coke Co., LLC	233904	Waste heat stack 4	1.28	15	2237610	4287725	749429	4286973	25.91	1366.5	22.76	2.74	0.02	0.568875
357	CO	1190404AN	Gateway Energy & Coke Co., LLC	233905	Waste heat stack 5	1.41	15	2237732	4287800	749545	4287055	25.91	1366.5	22.76	2.74	0.02	0.568875
358	CO	1190404AN	Gateway Energy & Coke Co., LLC	233906	Waste heat stack 6	1.49	15	2237810	4287868	749620	4287106	25.91	1366.5	22.76	2.74	0.02	0.568875
359	CO	1190404AN	Gateway Energy & Coke Co., LLC	240022	Pushing - Stack 2 of 6	1.41	15	2237732	4287904	749545	4287060	6.1	477.6	21.22	1.52	0.17	5.762702
360	CO	1190404AN	Gateway Energy & Coke Co., LLC	240023	Pushing - Stack 3 of 6	1.28	15	2237610	4287729	749429	4286977	6.1	477.6	21.22	1.52	0.17	5.762702
361	CO	1190404AN	Gateway Energy & Coke Co., LLC	240024	Pushing - Stack 4 of 6	1.2	15	2237531	4287680	749353	4286923	6.1	477.6	21.22	1.52	0.16	5.728195
362	CO	1190404AN	Gateway Energy & Coke Co., LLC	240025	Pushing - Stack 5 of 6	1.12	15	2237458	4287629	749274	4286882	6.1	477.6	21.22	1.52	0.17	5.762702
363	CO	1190404AN	Gateway Energy & Coke Co., LLC	240026	Pushing - Stack 6 of 6	1.04	15	2237369	4287580	749198	4286813	6.1	477.6	21.22	1.52	0.17	5.762702
364	CO	1190404AN	Gateway Energy & Coke Co., LLC	240528	Coking (New Main Stack)	1.13	15	2237461	4287746	749279	4286984	60.96	605.5	11.94	3.96	3.29	114.4435
365	CO	1190404AN	Gateway Energy & Coke Co., LLC	241023	Charging - Stack 2 of 6	1.41	15	2237736	4287799	749649	4287055	7.92	422	20.76	1.37	0.01	0.291782
366	CO	1190404AN	Gateway Energy & Coke Co., LLC	241024	Charging - Stack 3 of 6	1.28	15	2237635	4287722	749433	4286972	7.92	422	20.76	1.37	0.01	0.290035
367	CO	1190404AN	Gateway Energy & Coke Co., LLC	241025	Charging - Stack 4 of 6	1.2	15	2237535	4287675	749357	4286918	7.92	422	20.76	1.37	0.01	0.291782
368	CO	1190404AN	Gateway Energy & Coke Co., LLC	241026	Charging - Stack 5 of 6	1.12	15	2237452	4287624	749278	4286861	7.92	422	20.76	1.37	0.01	0.291782
369	CO	1190404AN	Gateway Energy & Coke Co., LLC	241027	Charging - Stack 6 of 6	1.05	15	2237373	4287575	749202	4286805	7.92	422	20.76	1.37	0.01	0.290035
370	CO	1190404AN	Gateway Energy & Coke Co., LLC	241560	Malfunctions	3.05	15	2237373	4287575	749202	4286908	14.44	847.6	2.96	1.33	0.55	19.04648
372	CO	1190425AB	Asphalt Sales & Products Inc.	220618	Drum mix asphalt plant	16.09	15	2365721	4300093	757560	4299901	9.75	418.9	20.83	1.3	1.68	57.8512
377	CO	1190504AA	Apex Oil Co., Inc.	222388	Thermal oxidizers	18.43	15	2331675	4303188	752471	4302467	5.49	710.9	13.41	0.71	0.37	13.01664
378	CO	1194654AG	Green Plains Madison, LLC	237655	Boiler #1	3.2	15	2233349	4286506	749256	4285477	21.64	413.2	7	1.01	0.16	5.63472
379	CO	1194654AG	Green Plains Madison, LLC	237660	Fire Pump back up Engine (660 HP)	3.29	15	2233278	4286442	7481191	4285408	3.96	883.7	28.29	0.25	0	0.12
380	CO	1194654AG	Green Plains Madison, LLC	237661	Electrical system backup Engine (1495 HP)	3.25	15	2233241	4286572	7481144	4285537	8.53	603.7	22.49	0.38	0.02	0.531
381	CO	1194654AG	Green Plains Madison, LLC	237670	Indirect dryer #1	3.27	15	2233283	4286500	7481191	4285468	21.64	670.4	5.2	1.4	1	32.81299
382	CO	1194654AG	Green Plains Madison, LLC	253367	Boiler #2	3.2	15	2233352	4286514	7482559	4285488	21.64	413.2	7	1.01	0.16	5.63472
383	CO	1194654AG	Green Plains Madison, LLC	253368	Boiler #3	3.2	15	2233353	4286520	7482560	4285491	21.64	413.2	7	1.01	0.16	5.63472
384	CO	1194654AG	Green Plains Madison, LLC	253369	Boiler #4	3.19	15	2233356	4286528	7482562	4285500	21.64	413.2	7	1.01	0.16	5.63472
385	CO	1194654AG	Green Plains Madison, LLC	253370	Indirect dryer #2	3.31	15	2233254	4286455	7481104	4285430	24.69	670.4	5.2	1.68	1	74.81196
386	CO	1634054AM	Alliant USA, Inc	253107	Natural gas combustion	10.38	15	2237192	4277233	7496698	4276478	17.68	497.6	6.43	1.04	0.41	19.236188
387	CO	1194654AA	Enable Mississippi River Transmission, LLC	224838	Compressor engine SN-01	2.38	15	2233118	4286161	7500039	4285426	6.71	880.4	20.26	0.34	0.54	18.715435
388	CO	1194654AA	Enable Mississippi River Transmission, LLC	224839	Compressor engine SN-02	2.37	15	2233123	4286131	7500044	4285416	6.71	880.4	20.26	0.34	0.54	18.715435
389	CO	1194654AA	Enable Mississippi River Transmission, LLC	224840	Compressor engine SN-03	2.38	15	2233127	4286121	7500049	4285406	6.71	880.4	20.26	0.34	0.54	18.715435
390	CO	1194654AA	Enable Mississippi River Transmission, LLC	224841	Compressor engine SN-04	2.38	15	2233131	4286112	7500054	4285397	6.71	880.4	20.26	0.34	0.54	18.715435
391	CO	1630104AE	Belleville Landfill, Inc.	224416	Flare	25.88	15	2320123	4284133	7604003	4284040	10.67	1144.3	1.49	0.14	1.55	53.2598
392	CO	1198074AB	Chrisi Bros Products, LLC	224592	Drum mix asphalt plant	15.01	15	2234996	4300139	7556595	4299823	9.75	394.8	18.35	1.25	1.66	57.8348
394	CO	1198074AB	Chrisi Bros Products, LLC	224594	Asphalt tank heaters and boilers	15.03	15	2234713	4300156	7557001	4299841	3.85	486.5	12.94	0.3	0.15	5.1683
395	CO	1130304AO	Waterloo City Light Plant	133625	Engine #3	40.08	15	2223888	4247672	7483226	4246768	8.84	677	4.14	0.71	0.28	9.5823
400	CO	1130304AO	Waterloo City Light Plant	143320	Engine #8	40.08	15	2223888	4247672	7483226	4246768	8.71	633.2	25.68	0.7	0.13	4.68

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401	CO	133030AAO	Waterloo City Light Plant	222033	Dual fuel fired Turbine GT1	40.08	35	223888	4246572	748826	4246769	11.89	595.4	12.68	1.47	1.18	40.991108
408	CO	163121ABH	Gateway Terminals, LLC	232284	Marine vapor combustion unit (MVCU)	12.27	35	222021	4276184	744607	4275093	22.56	540.9	7.67	1	1.24	43.1205
409	CO	163121ABH	Gateway Terminals, LLC	233295	Truck/Rail vapor destruction unit (TRCU)	12.27	35	222021	4276184	744607	4275093	22.56	540.9	7.67	1	1.06	36.64752
410	CO	163121ABH	Gateway Terminals, LLC	248799	600 HP Boiler	12.27	35	222021	4276184	744607	4275093	2.92	486.5	6.93	0.66	0.27	9.21648
411	CO	119040AAO	Velocity Services, LLC.	132193	North American Boiler	1.01	35	227059	4286978	748928	4286197	8.23	595.4	7.41	0.7	0.3	10.30848
412	CO	119040AAO	Velocity Services, LLC.	132194	Cleaver Brooks boiler	1.01	35	227059	4286978	748928	4286192	8.84	499.8	12.67	0.61	0.3	10.30848
415	CO	119813AAY	Metro Crematory	225166	Crematory	7.15	15	232541	4291222	754120	4290785	5.49	564.3	25.87	0.3	0.19	6.552
422	CO	119040AAC	Amsted Rail Co., Inc.	132148	Electric Arc Furnace #1 (EF-1)	1.3	15	225952	4288526	747122	4287625	16.76	394.3	16.49	1.89	3.45	119.808
423	CO	119040AAC	Amsted Rail Co., Inc.	132149	Electric Arc Furnace #2 (EF-2)	1.28	15	225577	4288526	747147	4287625	13.41	394.3	12.94	2.33	3.45	119.808
424	CO	119040AAC	Amsted Rail Co., Inc.	147787	Ladle Preheater (LDP 3)	1.36	15	225267	4288519	747039	4287611	24.99	535.9	9.6	1.86	0.65	22.802
425	CO	119040AAC	Amsted Rail Co., Inc.	237886	Curing oven	1.47	15	225143	4288540	746913	4287625	11.99	398.7	8.53	0.59	0.03	1.190736
426	CO	119040AAC	Amsted Rail Co., Inc.	251099	Annealing Furnace 18	1.37	15	225303	4288575	747071	4287670	13.89	413.2	7.06	0.62	0.14	3.87996
427	CO	163005AAH	City of O'Fallon	225843	400 kW (591 HP) Diesel generator	28.13	16	252106	4276406	774612	4277280	3.96	933.2	26.4	0.21	0.19	6.74
428	CO	163005AAH	City of O'Fallon	225844	900 kW (1 322 HP) Diesel generator	28.13	16	252106	4276406	774612	4277280	5.18	933.2	26.4	0.21	0.43	15.1
429	CO	119465AAM	Westwood Lands, Inc.	240053	Process heater DPH-1	1.36	15	226962	4288426	748866	4285684	11.89	418.2	7.06	0.62	0.1	3.62544
430	CO	119020ABG	GBC Metals, LLC (d/b/a Olin Brass)	226184	IF Mix muller (MM-3) Low profile turbine (LF-1) and induction form stations 1 and 2 (IF-1 and IF-2)	19.52	15	229520	4306930	750075	4306259	12.5	372	13	0.64	9.25	8.736
432	CO	119020ABG	GBC Metals, LLC (d/b/a Olin Brass)	226204	Strip anneal #4 (SA-4)	21.64	15	229735	4309049	750150	4308388	27.43	449.8	12.63	0.89	15.72	497.316
433	CO	119020ABG	GBC Metals, LLC (d/b/a Olin Brass)	226256	Strip Anneal #3 (SA-3)	21.61	15	230019	4309971	750439	4308328	30.48	449.8	18.13	0.4	12.36	429.59912
434	CO	119020ABG	GBC Metals, LLC (d/b/a Olin Brass)	226257	#7 Strip Anneal (SA-7)	21.6	15	229803	4308992	750222	4308335	27.13	533.2	11.79	0.46	14.88	517.1712
435	CO	119020ABG	GBC Metals, LLC (d/b/a Olin Brass)	235939	Strip anneal #5 (SA-5)	21.63	15	229735	4309035	750151	4308373	27.43	508.4	16.49	0.43	13.48	468.55536
436	CO	119020ABG	GBC Metals, LLC (d/b/a Olin Brass)	235940	Strip anneal #6 (SA-6)	21.65	15	229792	4309048	750207	4308390	33.53	577.6	15.18	0.4	13.48	468.55536
440	CO	133005AAP	Crown Feside Services	219420	Boiler	22.74	15	220677	4260524	744287	4259382	7.32	449.8	8.59	0.52	0.13	4.40904
441	CO	119040ATQ	Illinois Electric Works	227580	3 Burn off ovens	1.31	15	226132	4288976	747872	4288124	14.02	394.3	12.57	0.72	0.15	5.11056
442	CO	119040ATS	Amsted Rail Co., Inc.	230395	Sand dryer	1.37	15	225198	4288449	746975	4287537	11.89	413.2	7.06	0.62	0.06	2.0995
443	CO	119040ATS	Amsted Rail Co., Inc.	239396	Thermal sand reclaimer	1.37	15	225198	4288449	746975	4287537	11.89	413.2	7.06	0.62	0.04	1.32275
444	CO	119040ATS	Amsted Rail Co., Inc	253361	Sand regeneration process (combustion)	1.37	15	225198	4288449	746975	4287537	11.89	413.2	7.06	0.62	0.03	1.001
445	CO	163110ABA	St. Clair Crematory	228319	Human crematory	27.52	16	250682	4274860	773291	4275644	5.18	933.2	4.11	0.51	0.15	5.2416
446	CO	163010AFQ	Kursus Funeral Home	231291	2 Crematories	19.04	15	236199	4271388	759066	4271234	5.49	892.6	4.02	0.34	0.34	11.7936
447	CO	163010AER	City of Belleville	236359	2 Emergency generators (1500 kW each)	26.24	16	240303	4265470	765546	4265595	8.53	603.7	22.49	0.38	0.18	6.42
448	CO	163010AFS	Stookey Township WWTP	249759	2000 kW Emergency generator	18.71	15	233309	4270316	756253	4269975	8.53	603.7	22.49	0.38	0.11	3.85
449	CO	163045AGR	Bunge SF Grain, LLC	236260	Grain Dryer	6.13	15	223956	4282023	748158	4281045	29.26	902.6	26.8	2.51	0.64	22.30208
453	CO	163814AAA	Moore Recycling Concrete & Asphalt, LLC.	255953	Drum mix asphalt plant	42.56	15	257704	4246664	761178	4246660	10.67	394.8	17.35	1.21	1.66	57.81232
455	CO	119025ABD	Procter & Gamble Distributing	241405	Emergency diesel generator #1	11.97	15	235225	4295093	756304	4295421	7.92	527.6	18.54	0.43	0.12	4.204375
456	CO	119025ABD	Procter & Gamble Distributing	241449	Emergency diesel generator #2	11.97	15	235235	4296007	756494	4295735	7.92	527.6	18.54	0.43	0.12	4.204375
457	CO	119025ABD	Procter & Gamble Distributing	245579	Emergency diesel generator #3	11.75	15	234918	4295701	756198	4295409	7.92	527.6	18.54	0.43	0.12	4.203375
458	CO	119025ABD	Procter & Gamble Distributing	245580	Emergency diesel generator #4	11.97	15	234928	4296012	756182	4295725	7.92	527.6	18.54	0.43	0.12	4.204375
459	CO	163110ACV	HSHS St. Elerabeth's Hospital	254699	2 Emergency generators	22.4	16	244606	4274724	767237	4275161	8.53	603.7	22.49	0.38	0.14	4.825
461	CO	163010AAW	City of Belleville	253167	Emergency diesel generator (1500 kW)	25	16	239277	4266294	762469	4266351	7.92	527.6	18.54	0.43	0.08	2.9
462	CO	163045AMD	PBT Acquisition, LLC	256624	ASR Dryer	6.04	15	226626	4281641	748704	4280830	9.75	424.8	6.94	0.45	0.32	11.05104

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CO Hourly Emissions Inventory

Radius: 50 km

Centering UTM: Zone 16 226332 m E 4287677 m N

Converted From: Zone 15 748156 m E 4286841 m N

Strip ID	Pollutant	Facility ID	Facility Name	Stack ID	Stack Description	Distance from Centering UTM (km)	Actual UTM Zone	Zone 16 X UTM (m)	Zone 16 Y UTM (m)	Zone 15 X UTM (m)	Zone 15 Y UTM (m)	Height (m)	Temperature (K)	Exit Velocity (m/s)	Diameter (m)	Emissions (lb/hr)	Emissions (g/s)	Emissions (t/y)
1	CO	163010AAH	Empire Comfort Systems	201852	Stack	35.72	16	240325	4268886	763579	4268192	7.62	699.8	4.37	0.4	2.69	0.34	11.7822
4	CO	163016AEU	Lakeview Memorial Gardens	135983	Crematory	19.61	16	240196	4273793	762896	4273894	4.88	752.6	8.13	0.79	8.4	1.06	36.792
5	CO	163025AKO	Brickyardigs of IL	134012	Natural gas combustion	13.79	16	234027	4278097	756461	4277782	11.58	444.8	7.86	0.82	3.9375	0.5	17.24625
7	CO	163060AAF	Village of Freeburg	136125	Engine #6	36.13	16	245574	4257092	769352	4257578	7.32	672	7.39	0.55	3.92997	0.5	17.213269
8	CO	163060AAF	Village of Freeburg	136130	Engine #4	36.13	16	245574	4257092	769352	4257578	7.62	560.9	38.79	0.6	9.6	1.21	42.048
9	CO	163060AAF	Village of Freeburg	136131	Engine #7	36.13	16	245574	4257092	769352	4257578	6.71	755.4	5.77	0.82	45.01	5.67	197.1438
11	CO	163060AAF	Village of Freeburg	179671	Engine #1	36.13	16	245574	4257092	769352	4257578	9.14	533.2	12.29	0.3	8.55	1.08	37.449
12	CO	163060AAF	Village of Freeburg	179672	Engine #2	36.13	16	245574	4257092	769352	4257578	9.14	533.2	12.29	0.3	8.55	1.08	37.449
13	CO	163060AAF	Village of Freeburg	179673	Engine #3a	36.13	16	245574	4257092	769352	4257578	7.62	533.2	16.82	0.3	5.97	0.75	25.9256
14	CO	163060AAF	Village of Freeburg	230950	Engine #10	36.13	16	245574	4257092	769352	4257578	8.53	772	26.73	0.46	12.8	1.61	56.064
15	CO	163060AAF	Village of Freeburg	231259	Engine #11	36.13	16	245574	4257092	769352	4257578	8.53	772	26.73	0.46	12.8	1.61	56.064
16	CO	163060AAF	Village of Freeburg	231260	Engine #12	36.13	16	245574	4257092	769352	4257578	8.53	772	26.73	0.46	12.8	1.61	56.064
19	CO	163110AAV	Asphalt Sales & Products Inc.	136182	Drum mix asphalt plant	27.19	16	250353	4274928	772959	4275690	10.06	435.9	14.37	1.37	64.93	8.18	284.3934
21	CO	163110AAV	Asphalt Sales & Products Inc.	218995	Asphalt silos and truck loadout	27.19	16	250353	4274928	772959	4275690	9.75	383.7	55.87	0.46	1.26	0.16	5.5188
23	CO	163302AAA	Christ Bros Products, LLC	136542	Drum mix asphalt plant	17.07	15	224226	4270740	741162	4269805	10.97	410.4	26.4	1.07	13.361	1.68	58.52118
25	CO	163802AAD	Sobsey Foundry, LLC.	213856	Boiler	10.93	15	227715	4270836	750245	4276115	9.14	455.9	1.33	0.84	1.84	0.18	6.3072
26	CO	119040AAI	American Colloid Co	220256	Sand drying	1.35	15	225966	4288156	746862	4287239	21.95	378.2	8.77	1.01	1.29	0.16	5.6592
27	CO	119040AAI	American Colloid Co.	220257	Space Heaters	1.35	15	225966	4288158	746862	4287239	10.67	365.4	6.55	0.43	0.23	0.03	1.0074
28	CO	119040ADI	Center Point Terminals Co	242126	Tank Heater	2.83	15	224681	4289977	744359	4289022	14.94	439.3	9.8	0.75	1.03	0.13	4.5114
29	CO	119040ADM	Precast Metals	132324	Afterburner AB1 and AB2	5.85	15	229015	4293277	749498	4292538	10.36	810.9	19.67	1.22	3.2256	0.41	14.128128
30	CO	119040ADM	Precast Metals	155308	Boiler B1	5.85	15	228916	4293277	749469	4292538	7.32	644.3	6.32	0.49	0.88	0.11	3.8544
32	CO	119050AAA	Premcor Refining Group, Inc.	229681	Thermal oxidizer	16.24	15	231962	4302415	753775	4302414	6.1	645.4	15.08	0.24	0.74	0.09	3.2412
33	CO	119050AAA	Premcor Refining Group, Inc.	231286	Vapor Combustion Unit	16.24	15	231962	4302915	753775	4302414	16.15	415.9	7.57	0.88	10	1.26	43.8
34	CO	119050AAD	Omega Partners Hartford, LLC	246761	Truck, Rail, Marine racks loadout and VCUs	14.61	15	231318	4301407	752232	4300866	10.06	294	0.1	0.1	6.6	0.83	28.908
35	CO	119050AAD	Omega Partners Hartford, LLC	246762	Boiler 1 and 2	14.46	15	231348	4301236	752273	4300698	17.68	497.6	8.43	1.04	3.83	0.48	16.7754
36	CO	119010AAE	Alton Steel Inc.	131841	Electric arc furnaces	21	15	227306	4308653	747753	4307832	30.48	394.3	9.49	7.38	325.32	28.39	986.9016
37	CO	119010AAE	Alton Steel Inc.	131845	14 inch rolling mill reheat furnace	20.86	15	227190	4308520	747645	4307692	32.31	366.5	9.73	4.88	24	3.02	105.12
39	CO	119010AAE	Alton Steel Inc.	155302	Ladle Furnace	21	15	227306	4308653	747753	4307832	22.56	408.2	26.59	9.93	22.4	2.82	98.112
48	CO	119090AAE	Airgas USA, LLC	132599	Liquified carbon dioxide plant	17.67	15	235590	4302778	756114	4301509	9.14	294.3	24.26	0.06	0.81	0.05	1.7958
45	CO	119801AAE	National Maintenance and Repair	132739	Cleaver Brooks boiler (Stack 1 of 2)	14.33	15	230007	4301531	750915	4300904	10.36	505.4	7.11	0.61	1.9	0.24	8.322
46	CO	119801AAE	National Maintenance and Repair	236910	Cleaver Brooks boiler (Stack 2 of 2)	14.33	15	230011	4301530	750920	4300906	10.36	505.4	7.11	0.61	1.9	0.24	8.322
49	CO	116112AAC	Solutia Inc.	225612	Sanstiflex process: Thermal oxidizer 2770934	11.37	15	223783	4276799	746325	4275822	34.14	735.9	5.12	3.84	15	1.89	65.7
50	CO	116112AAC	Solutia Inc.	238199	An in-situ soil vapor extraction system	11.37	15	223783	4276799	746325	4275822	4.57	294.3	22.38	0.05	0.4	0.05	1.752
59	CO	119020AAG	Olin Winchester, LLC	226332	Hammermill 1, 2 and 3 (HM-1, HM-2 and HM-3)	21.58	15	230072	4308926	750495	4308287	6.4	344.3	5.99	0.55	8.03	1.01	35.1714
60	CO	119020AAG	Olin Winchester, LLC	248262	New Rotary report process (RDR-2)	21.58	15	230072	4308926	750495	4308287	4.88	322	8.12	0.51	9.62	1.21	42.1356
61	CO	119813AAI	Granite City Works of Unites States Steel Corp.	132833	Blast furnaces, Blast furnace A - stoves	1.66	15	227386	4287537	749816	4286810	66.14	533.2	26.8	2.13	24.324	3.39	326.41512
62	CO	119813AAI	Granite City Works of Unites States Steel Corp.	132836	Blast furnaces: Blast furnace casthouse baghouse	1.46	15	227782	4287473	749617	4286733	19.2	338.7	19.47	3.35	35.5	4.47	155.49
63	CO	119813AAI	Granite City Works of Unites States Steel Corp.	132837	Blast furnaces: Flare 1	1.62	15	227950	4287571	749778	4286641	45.42	518.7	11.98	1.83	67.32	8.48	294.9616
64	CO	119813AAI	Granite City Works of Unites States Steel Corp.	132838	Blast furnaces: Blast furnace B - stoves	1.51	15	227830	4287458	749666	4286721	68.58	533.2	15.56	3	102.75	13.07	454.423
65	CO	119813AAI	Granite City Works of Unites States Steel Corp.	132842	Hot strip mill: Slab reheat furnaces #1	0.43	15	225901	4287627	747730	4286768	17.37	616.5	4.64	4.19	10.665	1.34	46.6689
66	CO	119813AAI	Granite City Works of Unites States Steel Corp.	132849	Finishing operations: Galvanizing line #8 - fume scrubber	0.81	15	227080	4287583	748883	4287195	24.38	299.8	12.7	0.91	0.3	0.04	1.314
67	CO	119813AAI	Granite City Works of Unites States Steel Corp.	132855	Basic oxygen furnaces: BOF #1 and #2	0.3	15	226580	4287501	748415	4286681	49.07	560.9	15.97	5.49	3885.32	494.35	16141.7016
68	CO	119813AAI	Granite City Works of Unites States Steel Corp.	132861	Boilers: Boilers 1-7	1.59	15	227913	4287561	749741	4286831	68.58	460.9	4.51	4.27	15.797	2.02	70.06686
69	CO	119813AAI	Granite City Works of Unites States Steel Corp.	132862	Boilers: Boilers 8-10	1.53	15	227899	4287577	749690	4286791	60.96	460.9	3.13	3.35	6.86	0.86	30.0468
70	CO	119813AAI	Granite City Works of Unites States Steel Corp.	132867	Boilers: Boiler 11	1.71	15	228041	4287609	749866	4286885	45.72	441.5	9.1	2.44	378.175	22.2	771.5465
71	CO	119813AAI	Granite City Works of Unites States Steel Corp.	132872	Boilers: Boiler 12	1.73	15	228057	4287612	749882	4286889	45.72	441.5	8.14	2.44	73.015	9.2	319.8057
72	CO	119813AAI	Granite City Works of Unites States Steel Corp.	132876	Coke production: Battery A - pushing	1.9	15	228226	4287648	750048	4286977	5.49	326.5	25.97	1.22	2.0614	0.26	9.028932
73	CO	119813AAI	Granite City Works of Unites States Steel Corp.	132877	Coke production: Battery A - soaking	1.93	15	228264	4287699	750082	4286989	76.2	529.3	5.01	2.74	24.459	3.08	107.12042
74	CO	119813AAI	Granite City Works of Unites States Steel Corp.	132878	Coke production: Battery A - doors	1.89	15	228217	4287683	750027	4286971	9.14	359.8	4.87	2.65	0.64	0.08	2.8032
75	CO	119813AAI	Granite City Works of Unites States Steel Corp.	132879	Coke production: Battery A - lids and standpipes	1.9	15	228229	4287706	750048	4286994	9.14	355.4	4.42	1.58	0.06244	0.01	0.273487
76	CO	119813AAI	Granite City Works of Unites States Steel Corp.	132889	Coke production: Battery B - pushing	1.97	15	228297	4287724	750114	4287016	5.49	326.5	25.97	1.22	2.41748	0.3	10.588475
77	CO	119813AAI	Granite City Works of Unites States Steel Corp.	132890	Coke production: Battery B - soaking	1.94	15	228274	4287704	750092	4286995	76.2	529.3	4.97	2.74	25.499	3.21	111.69362
78	CO	119813AAI	Granite City Works of Unites States Steel Corp.	132891	Coke production: Battery B - doors	1.94	15	228276	4287732	750093	4287023	9.14	359.8	4.87	2.65	0.62963	0.08	2.757775
79	CO	119813AAI	Granite City Works of Unites States Steel Corp.	132892	Coke production: Battery B - lids and standpipes	1.96	15	228293	4287740	750109	4287037	9.14	355.4	4.42	1.58	0.06244	0.01	0.273487
80	CO	119813AAI	Granite City Works of Unites States Steel Corp.	132895	By products plant: Flare	1.81	15	228146	4287706	749965	4286988	30.48	408.7	26.68	0.61	68.93	6.17	214.3134
81	CO	119813AAI	Granite City Works of Unites States Steel Corp.	132910	Finishing operations: Galvanizing line #7A - natural gas furnace	0.31	15	226586	4287857	748398	4287038	16.46	505.4	5.63	0.61	2.52	0.32	11.0376
82	CO	119813AAI	Granite City Works of Unites States Steel Corp.	132926	Basic oxygen furnaces: Ladle drying/preheating	0.39	15	229645	4287439	748484	4286625	60.96	455.4	10.51	1.34	8.149	1.03	35.69262
83	CO	119813AAI	Granite City Works of Unites States Steel Corp.	132927	Blast furnaces: Iron spout baghouse	1.68	15	228003	4287545	749832	4286919	13.11	327	10.82	2.39	3.43	0.43	15.0234
84	CO	119813AAI	Granite City Works of Unites States Steel Corp.	160868	Coke production: Battery A - underfiring	1.88	15	228214	4287693	750033	4286980	10.06	359.8	4.87	2.65	0.13548	0.02	0.593413
85	CO	119813AAI	Granite City Works of Unites States Steel Corp.	160869	Coke production: Battery B - underfiring	1.96	15	228296	4287733	750112	4287025	10.06	359.8	4.87	2.65	0.13572	0.02	0.594454
86	CO	119813AAI	Granite City Works of Unites States Steel Corp.	172512	Hot strip mill: Slab reheat furnace #3	0.47	15	225870	4287597	747701	4286731	17.37	616.5	4.64	4.19	13.185	1.66	57.7503
87	CO	119813AAI	Granite City Works of Unites States Steel Corp.	172514	Hot strip mill: Slab reheat furnace #4	0.27	15	225869	4287581	747701	4286715	44.5	644.3	9.81	3.83	10.185	1.28	44.6103
88	CO	119813AAI	Granite City Works of Unites States Steel Corp.	172516	Coke production: Battery A - pushing	1.91	15	228246	4287697	750065	4286986	53.04	376.5	6.76	2.1	0.1386	0.02	0.607068
89	CO	119813AAI	Granite City Works of Unites States Steel Corp.	172518	Coke production: Battery B - pushing	1.94	15	228275	4287707	750093	4286998	53.04	376.5	6.76	2.1	0.16254	0.02	0.711925
90	CO	119813AAI	Granite City Works of Unites States Steel Corp.	172532	Hot strip mill: Slab reheat furnace #2	0.45	15	225886	4287613	747716	4286748	17.37	616.5	4.64	4.19	9.925	1.25	43.4715
91	CO	119813AAI	Granite City Works of Unites States Steel Corp.	172555	Finishing operations: Galvanizing line #8 - natural gas furnace	0.31	15	226586	4287857	748398	4287038	16.46	621.5	10.3	0.91	1.92	0.24	8.4096
92	CO	119813AAI	Granite City Works of Unites States Steel Corp.	172566	Finishing operations: Galvanizing line #7A - miscellaneous heaters	0.31	15	226586	4287857	748398	4287038	13.11	414.8	5.79	0.7	2.1	0.26	9.198
93	CO	119813AAI	Granite City Works of Unites States Steel Corp.	216596	Internal combustion, #4 coke oven gas booster pump	0.15	15	226235	4287568	748067	4286726	14.33	321.5	9.06	0.82	35.83	4.51	156.9334
94	CO	119813AAI	Granite City Works of Unites States Steel Corp.	229337	Finishing operations: Galvanizing line #8 - space heaters	0.31	15	226586	4287857	748398	4287038	11.89	413.2	7.06	0.62	0.339	0.04	1.48482
95	CO	119813AAI	Granite City Works of Unites States Steel Corp.	229338	Finishing operations: Galvanizing line #8 - drying oven and storage area heaters	0.51	15	226586	4287857	748398	4287038	11.89	413.2	7.06	0.62	0.195	0.02	0.8541
96	CO	119813AAI	Granite City Works of Unites States Steel Corp.	229339	Finishing operations: Galvanizing line #8 - miscellaneous heaters	0.31	15	226586	4287857	748398	4287038	11.89	413.2	7.06	0.62	0.44	0.06	1.9272
97	CO	119813AAI	Granite City Works of Unites States Steel Corp.	229601	Internal combustion: Emergency Generator (3500 HP)	1.48	15	227812	4287601	749641	4286863	11.28	500.9	10	0.58	21.11	2.66	92.4618
98	CO	119813AAI	Granite City Works of Unites States Steel Corp.	235979	Emergency portable Boiler #1	0.15	15	226235	4287568	748067	4286726	17.68	497.6	8.43	1.04	1.9	0.24	8.322
99	CO	119813AAI	Granite City Works of Unites States Steel Corp.	236039	Emergency portable Boiler #2	0.15	15	226235	4287568	748067	4286726	17.68	497.6	8.43	1.04	1.9	0.24	8.322
100	CO	119813AAI	Granite City Works of Unites States Steel Corp.	236040	Emergency portable Boiler #3	0.15	15	226235	4287568	748067	4286726	17.68	497.6	8.43	1.04	1.9	0.24	8.322
101	CO	119813AAI	Granite City Works of Unites States Steel Corp.	236041	Emergency portable Boiler #4	0.15	15	226235	4287568	748067	4286726	17.68	497.6	8.43	1.04	1.9	0.24	8.322
102	CO	119813AAI	Granite City Works of Unites States Steel Corp.	238459	New Cogeneration Boiler	1.64	15	227964	4287804	749777	4287075	41.76	500.9	18.55	1.83	77.463	9.76	339.28794
103	CO	119813AAI	Granite City Works of Unites States Steel Corp.	240479	Blast furnaces: Flare 2	1.71	15	228043	4287645	749866	4286921	45.72	533.2	26.77	1.83	67.32	8.48	294.8616
104	CO	119813AAI	Granite City Works of Unites States Steel Corp.	241099	Desulfurization unit	2.17	15	228483	4287892	750299	4287197	44.2	922	26.65	3.52	16.2	2.04	70.956
105	CO	119813AAI	Granite City Works of Unites States Steel Corp.	242880	Coke production: Battery A - decarbonizing	0.15	15	226235	4287568	748067	4286726	22.25	645.4	7.54	1.75	0.27325	0.03	1.196835
106	CO	119813AAI	Granite City Works of Unites States Steel Corp.	242881	Coke production: Battery B - decarbonizing	0.15	15	226235	4287568	748067	4286726	17.68	400.9	10.93	1.07	0.28692	0.04	1.256571
107	CO	119813AAI	Granite City Works of Unites States Steel Corp.	242882	Coke production: Battery A - soaking	0.15	15	226235	4287568	748067	4286726	26.52	590.9	14.23	1.03	0.06831	0.01	0.299198

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108	CO	119813AAI	Granite City Works of Unites States Steel Corp.	242883	Coke production: Battery B - soaking	0.35	15	226235	4283588	748067	4286726	26.52	590.9	14.23	1.63	0.072	0.01	0.31536
109	CO	163045AFW	Southwestern Illinois Correctional Center	155437	2 Boilers	9.91	15	230808	4278813	753202	4278290	9.75	305.4	4.66	0.46	0.7056	0.09	3.090528
111	CO	119050AAN	ConocoPhillips Co.	181173	Loading rack	13.78	15	231321	4300525	752292	4299987	12.19	1255.4	26.68	0.63	1.53	0.19	6.7014
112	CO	163100AAD	Darling Ingredients, Inc.	136169	Contenuous rendering process	5.45	15	225295	4282330	747472	4281438	13.41	297	25.87	1.22	6.67	0.84	29.2146
113	CO	163100AAD	Darling Ingredients, Inc.	160742	Kewanee boiler	5.45	15	225295	4282330	747472	4281438	10.67	585.4	16.6	0.79	1.95575	0.25	8.566185
114	CO	163100AAD	Darling Ingredients, Inc.	213834	Johnson boiler	5.45	15	225295	4282330	747472	4281438	10.06	585.4	14.31	0.65	1.95575	0.25	8.566185
115	CO	119055AAD	Highland Electric Light Plant	132424	Engine IC-5	40.49	15	266638	4291524	266638	4291524	8.53	595.4	25.87	0.61	20.66	2.6	90.4908
116	CO	119055AAD	Highland Electric Light Plant	132425	Engine IC-7	40.49	15	266638	4291524	266638	4291524	17.17	663.2	1.91	3.49	25.07	3.16	109.8066
117	CO	119055AAD	Highland Electric Light Plant	179611	Engine IC-1	40.49	15	266638	4291524	266638	4291524	3.66	619.8	28.5	0.37	14.43	1.82	63.2034
118	CO	119055AAD	Highland Electric Light Plant	237182	Engine IC-6	40.49	15	266638	4291524	266638	4291524	8.53	595.4	25.87	0.61	13.24	1.67	57.9912
119	CO	119055AAD	Highland Electric Light Plant	237183	Engine IC-8	40.49	15	266638	4291524	266638	4291524	17.17	663.2	18.83	3.49	25.65	3.23	112.347
120	CO	119055AAD	Highland Electric Light Plant	249480	Engine IC-2	40.49	15	266638	4291524	266638	4291524	17.17	663.2	18.83	3.49	14.4	1.81	63.072
121	CO	119055AAD	Highland Electric Light Plant	249481	Engine IC-3	40.49	15	266638	4291524	266638	4291524	17.17	663.2	18.83	3.49	12.5	1.58	54.75
122	CO	119055AAD	Highland Electric Light Plant	249482	Engine IC-9	40.49	15	266638	4291524	266638	4291524	17.17	663.2	18.83	3.49	15	1.89	65.7
123	CO	119055AAD	Highland Electric Light Plant	249483	Engine IC-10	40.49	15	266638	4291524	266638	4291524	17.17	663.2	18.83	3.49	15	1.89	65.7
125	CO	119019AOF	City of Alton	149873	Incinerator	24.19	15	229233	4311692	749456	4310990	7.62	1033.2	19.17	0.3	1.4	0.18	6.132
126	CO	119080AAF	Roxana Landfill, Inc.	232785	Enclosed flare	18.22	15	238258	4301453	759153	4303368	10.67	1144.3	6.1	3.66	23.1	2.91	101.178
127	CO	119080AAF	Roxana Landfill, Inc.	249499	Zink ultra-Low emissions (Zule) Flare	18.22	15	238258	4301453	759153	4303368	18.29	1255.4	14.28	3.96	12.5	1.58	54.75
128	CO	119080AAF	Roxana Landfill, Inc.	255341	New open flare	18.22	15	238258	4301453	759153	4303368	13.72	1255.4	18.73	0.41	37.7	4.75	165.126
129	CO	119025AAW	Kienstra-Illinois, LLC	211274	Natural gas combustion	19.28	16	243256	4296722	764559	4296982	6.1	444.8	7.96	0.82	0.768	0.1	3.36384
130	CO	119040AED	Totall Metal Recycling, Inc.	227432	Safety certification unit	2.28	15	226155	4289960	749030	4289120	1.83	581.5	2.46	0.37	0.1	0.01	0.438
132	CO	119801AAK	Chain of Rocks Recycling & Disposal	212692	Open flare	6.55	15	225544	4294176	746945	4293274	6.1	1033.2	14.41	0.2	6.923	0.87	30.32274
133	CO	119801AAK	Chain of Rocks Recycling & Disposal	251754	Passive flare #1	6.55	15	225543	4294176	746944	4293274	3.05	722.6	1.45	0.15	0.4945	0.06	2.16591
134	CO	119801AAK	Chain of Rocks Recycling & Disposal	254175	Passive flare #2	6.55	15	225543	4294176	746944	4293274	3.05	722.6	1.45	0.15	0.4945	0.06	2.16591
135	CO	119801AAK	Chain of Rocks Recycling & Disposal	254176	Passive flare #3	6.55	15	225543	4294176	746944	4293274	3.05	722.6	1.45	0.15	0.4945	0.06	2.16591
136	CO	119801AAK	Chain of Rocks Recycling & Disposal	254177	Passive flare #4	6.55	15	225543	4294176	746944	4293274	3.05	722.6	1.45	0.15	0.4945	0.06	2.16591
137	CO	119801AAK	Chain of Rocks Recycling & Disposal	254178	Passive flare #5	6.55	15	225543	4294176	746944	4293274	3.05	722.6	1.45	0.15	0.4945	0.06	2.16591
138	CO	119801AAK	Chain of Rocks Recycling & Disposal	254179	Passive flare #6	6.55	15	225543	4294176	746944	4293274	3.05	722.6	1.45	0.15	0.4945	0.06	2.16591
139	CO	119428AEI	Collinsville Wastewater Treatment Plant	227400	Emergency diesel generator (2922 HP/2180 kW)	10.53	15	236256	4284160	758289	4283982	10.97	639.8	20.54	0.62	17.2	2.17	75.336
143	CO	119821AAE	Charles E. Mahoney	149908	Drum mix asphalt plant	23.09	15	229202	4310592	749517	4309892	7.62	419.3	20.21	1.22	57.39	7.23	251.3682
144	CO	119821AAE	Charles E. Mahoney	237340	Asphalt silo filling	23.09	15	229202	4310592	749517	4309892	7.62	298.5	0.08	0.12	0.53	0.07	2.3214
145	CO	119821AAE	Charles E. Mahoney	237341	Truck loadout	23.09	15	229202	4310592	749517	4309892	8.23	330.9	12.82	0.59	0.6	0.08	2.628
146	CO	119821AAE	Charles E. Mahoney	237362	Asphalt heaters and boilers	23.09	15	229202	4310592	749517	4309892	8.05	449.8	21.34	0.3	1.18	0.15	5.1684
148	CO	163121AAY	Contract Services, LLC	190090	3 Boilers	11.17	15	224220	4276704	746767	4275755	12.19	427.6	15.36	1.27	8.53	1.07	37.3614
149	CO	163121AAY	Contract Services, LLC	218569	Boiler #4	11.17	15	224220	4276704	746767	4275755	12.19	427.6	14.95	1.14	12.99	1.64	56.8962
150	CO	119818AAA	Enable Mississippi River Transmission, LLC	132928	Engine SN-02	30.43	16	260558	4283924	782556	4285336	9.14	810.9	2.87	0.79	13.55	1.71	59.949
152	CO	119818AAA	Enable Mississippi River Transmission, LLC	166491	Turbine SN-03	34.43	16	260558	4283924	782556	4285336	9.14	672	26.48	0.77	9.56	1.2	41.8728
154	CO	163020AAB	Phillips 66 Pipeline, LLC	217756	Truck loading racks	13.09	15	222287	4275223	744935	4274152	6.1	294.3	3.23	0.61	11	1.39	48.18
155	CO	163020AAB	Phillips 66 Pipeline, LLC	253300	Engines (insignificant activities)	13.09	15	222287	4275223	744935	4274152	7.92	527.6	18.54	0.43	0.973	0.12	4.04274
156	CO	163050AAD	Milam Recycling and Disposal Facility	136125	Open flare	4.63	15	228341	4283507	750434	4282812	12.8	1255.4	3.07	0.9	18.3	2.31	80.154
157	CO	163050AAD	Milam Recycling and Disposal Facility	154190	Engine #1	4.65	15	228454	4283541	750544	4282853	7.92	710.9	26.29	0.25	6.93	0.87	30.3534
158	CO	163050AAD	Milam Recycling and Disposal Facility	154193	Engine #2	4.65	15	228447	4283546	750538	4282852	7.92	710.9	26.29	0.25	6.93	0.87	30.3534
159	CO	163050AAD	Milam Recycling and Disposal Facility	154192	Engine #3	4.65	15	228458	4283543	750548	4282855	7.92	710.9	26.29	0.25	7.14	0.9	31.2732
160	CO	163050AAD	Milam Recycling and Disposal Facility	204833	3 Passive solar flares	4.93	15	228439	4283275	750550	4282537	6.1	1255.4	17.42	0.21	4.23	0.53	18.5274
161	CO	163050AAD	Milam Recycling and Disposal Facility	226013	325 HP Tub grinder	4.93	15	228439	4283225	750550	4282537	2.13	603.7	22.57	0.1	2.2	0.28	9.636
162	CO	163050AAD	Milam Recycling and Disposal Facility	226014	Enclosed flare	4.64	15	228384	4283517	750476	4282825	16.76	1033.2	0.2	3.66	24	3.02	105.12
163	CO	163050AAD	Milam Recycling and Disposal Facility	226015	760 HP Tub grinder	4.93	15	228439	4283225	750550	4282537	2.44	603.7	21.61	0.2	5.1	0.64	22.338
164	CO	163050AAD	Milam Recycling and Disposal Facility	245839	Landfill gas conversion plant	4.68	15	228578	4283575	750666	4282895	16.76	294.3	0	1.37	3.8	0.48	16.644
165	CO	163050AAD	Milam Recycling and Disposal Facility	253738	2000 scfm Utility Flare	4.93	15	228439	4283225	750550	4282537	10.97	728.7	5.66	1.39	18.3	2.31	80.154
166	CO	163065AAI	Christ Bros Products, LLC	198552	Drum mix asphalt plant	32.3	16	256126	4275206	778702	4276345	10.67	620.4	18.98	1.16	29.32	3.72	129.2976
171	CO	119050AAO	Messer, LLC	169226	2 Boilers	14.97	15	231419	4301754	752309	4301220	4.57	699.8	0.16	0.43	2.52	0.32	11.0376
174	CO	163121AAB	Alton Chemical Corp.	159942	Unit 266: Flare 36-0011/36-0616	10.59	15	224145	4277311	746653	4276356	30.48	644.3	18.1	0.2	9.55	1.08	37.449
175	CO	163121AAB	Alton Chemical Corp.	159965	Flare 36-0219	10.67	15	224003	4277269	746513	4276305	44.5	850.9	13.08	0.12	3.84	0.48	16.8192
178	CO	163121AAB	Alton Chemical Corp.	160898	Boiler 500-35-0310	10.46	15	224154	4277444	746653	4276483	13.72	449.8	5.28	2.13	4.893771	0.62	21.425957
179	CO	163121AAB	Alton Chemical Corp.	230300	Flare 36-0090	10.68	15	223967	4277260	746478	4276293	13.72	1144.3	0.2	2.44	2.2	0.28	9.636
180	CO	163121AAB	Alton Chemical Corp.	240359	Boiler 500-35-0210	10.46	15	224162	4277442	746660	4276488	13.72	449.8	5.28	2.13	4.893771	0.62	21.425957
181	CO	163121AAB	Alton Chemical Corp.	240360	Boiler 500-35-0310	10.46	15	224175	4277438	746674	4276485	13.72	449.8	5.28	2.13	4.596461	0.62	21.490299
182	CO	119135AAY	Kinder Morgan Liquids Terminals, LLC	132701	New Truck loading rack	17.42	15	232261	4304062	752998	4303578	6.1	294.3	0.08	0.68	4.87	0.63	21.3306
183	CO	119040A5W	Kraft Heinz Co.	155307	Boiler B	2.74	15	226460	4290434	748105	4289580	12.19	466.5	21.02	0.61	1.436	0.18	6.28968
184	CO	119040A5W	Kraft Heinz Co.	236927	Boiler C	2.74	15	226460	4290414	748105	4289580	12.19	466.5	21.02	0.61	1.436	0.18	6.28968
185	CO	119040A5W	Kraft Heinz Co.	236928	Boiler D	2.74	15	226460	4290434	748105	4289580	12.19	466.5	21.02	0.61	1.436	0.18	6.28968
186	CO	119040A5W	Kraft Heinz Co.	236929	Boiler E	2.74	15	226460	4290414	748105	4289580	12.19	466.5	21.02	0.61	1.436	0.18	6.28968
187	CO	119040A5W	Kraft Heinz Co.	248060	Boiler F	2.74	15	226460	4290434	748105	4289580	7.92	466.5	10.49	0.61	1.436	0.18	6.28968
188	CO	119050AAF	Marathon Ashland Pipe Line, LLC	257535	Marine vapor combustion unit	16.12	15	230445	4303265	751299	4302663	15.54	705.4	8.46	2.26	27.1	3.41	118.698
190	CO	119090AAA	ConocoPhillips Co.	132496	Catalytic reformer #3 (STK12-4)	17.15	15	233066	4302988	754869	4302625	106.68	568.7	17.32	4.57	62.784	7.91	274.99392
191	CO	119090AAA	ConocoPhillips Co.	132510	Distilling unit: HTR-DU3-F301 (STK5-2)	17.37	15	233554	4303475	754327	4303077	56.39	433.6	6.67	2.44	12.09	1.52	52.9542
192	CO	119090AAA	ConocoPhillips Co.	132511	Distilling unit: HTR-DU5-F302 (STK5-1)	17.39	15	233555	4303498	754328	4303100	45.72	338.7	3.56	2.59	15.87	1.97	68.6346
193	CO	119090AAA	ConocoPhillips Co.	132512	Steam methane reformer: SMR Heater (HTR-SMR - STK12-8)	17.27	15	234078	4303113	754873	4302750	60.96	672	11.17	3.66	47.53	5.99	208.1814
194	CO	119090AAA	ConocoPhillips Co.	132516	Rectified absorption unit: Reboiler heater (HTR-RAU-DEBUT - STK5-5)	17.3	15	233688	4303332	754470	4302943	22.86	727.6	10.5	1.52	7.14	0.9	31.2732
196	CO	119090AAA	ConocoPhillips Co.	132519	Cracked absorption unit (HTR-CAU-ROSTILL - STK5-4)	17.32	15	233687	4303353	754468	4302963	25.91	699.8	6.76	2.19	6.715	0.85	29.4117
198	CO	119090AAA	ConocoPhillips Co.	132535	Catalytic cracking unit #2 (STK6-3)	17.4	15	234063	4303260	754848	4302895	60.96	352.6	15.23	3.35	47.2408	5.95	206.314704
202	CO	119090AAA	ConocoPhillips Co.	132551	Alkylation unit: HTR-ALKY-HM2 (STK6-6)	17.56	15	234154	4303402	754930	4303043	46.02	519.3	3.78	1.75	4.32	0.54	18.9216
203	CO	119090AAA	ConocoPhillips Co.	132556	Utility boiler #15 (STK12-15)	17.29	15	234066	4303140	754859	4302776	40.23	491.5	13.16	2.13	26.51	3.34	116.1136
204	CO	119090AAA	ConocoPhillips Co.	132557	Utility boiler #16 (STK12-16)	17.3	15	234081	4303141	754875	4302778	40.23	491.5	13.16	2.13	27.7985	3.5	121.73553
205	CO	119090AAA	ConocoPhillips Co.	132558	Utility boiler 17 (STK12-17)	17.31	15	234109	4303145	754901	4302784	45.72	431.5	15.92	3.05	35.99	4.53	157.6362
206	CO	119090AAA	ConocoPhillips Co.	132559	Utility boiler 18 (STK6-9)	17.34	15	234128	4303169	754919	4302809	30.48	435.9	4.41	1.89	30.01	3.78	131.4438
207	CO	119090AAA	ConocoPhillips Co.	132561	Hydrodesulfurization unit #1: Charge heater (HTR-HDU-1 - STK13-1)	17.26	15	234410	4302929	755217	4302588	45.72	694.3	9.8	1.52	5.6	0.71	24.528
208	CO	119090AAA	ConocoPhillips Co.	132564	Hydrodesulfurization unit #2: Charge heater (HTR-HDU-2 - STK12-14)	17.13	15	234212	4302864	755022	4302530	45.72	755.4	9.58	1.77	6.3	0.62	21.462
209	CO	119090AAA	ConocoPhillips Co.	132585	Cat reformer #3: Stabilizer reboiler (HTR-CR3-H2 - STK12-9)	17.17	15	234207	4302935	755014	4302580	45.72	783.2	2.14	2.38	4.7865	0.6	20.96487
211	CO	119090AAA	ConocoPhillips Co.	132567	Catalytic reformer unit #3: Charge heater (HTR-CR3 -H4)	17.16	15	234211	4302925	755019	4302571	45.72	699.8	8.77	2.38	17.4815	2.2	76.36897
212	CO	119090AAA	ConocoPhillips Co.	132568	Catalytic reformer unit #3: First interreactor heater (HTR-CR3 H5)	17.14	15	234210	4302902	755019	4302548	45.72	672	8.21	2.38	21.0824	2.66	92.340912
213	CO	119090AAA	ConocoPhillips Co.	132569	Cat reformer #3: Second interreactor heater (HTR-CR3-H6 - STK12-12)	17.15	15	234211	4302913	755019	4302559	45.72	672	4.27	2.38	5.55	0.7	24.309
216	CO	119090AAA	ConocoPhillips Co.	132594	Sulfuric acid tank	17.44	15	234324	4303176	755114	4302829	12.19	358.7	8.01	0.61	1.775	0.22	7.7745
217	CO	119090AAA	ConocoPhillips Co.	132598	CCU-2 Startup heater B-1	17.4	15	233473	4303548	754240	4303144	4.88	538.2	10.05	0.98	0.44	0.06	1.9272
218	CO	119090AAA	ConocoPhillips Co.	145809	Crude heaters (STK5-3)	17.15	15	233639	4303409	754415	4303016	85.1	549.8	26.62	4.27	78.05	9.83	341.859
220	CO	119090AAA	ConocoPhillips Co.	145826	Supplemental air compressor engine CCU-3	17.4	15	233472	4303548	754240	4303144	4.57	320.4	6.23	0.46	0.71	0.09	3.1098
221	CO	119090AAA	ConocoPhillips Co.	145850	Flare for major effluent treatment project	17.4	15	233472	4303548	754240	4303144	9.14	298.7	4.27	2.8	4.51	0.57	19.7538

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236	CO	119090AAA	ConocoPhillips Co.	218730	North property ground flare (FLR1-2)	17.66	15	233729	4303709	754486	4303322	59.44	1255.4	9.73	0.91	14.83	1.78	61.8894
237	CO	119090AAA	ConocoPhillips Co.	218687	Gas plant sour water stripper	17.4	15	233472	4303548	754240	4303144	8.57	327	3.47	0.88	1.06	0.13	4.6428
238	CO	119090AAA	ConocoPhillips Co.	148318	Catalytic cracking unit #1 (STK6-2)	17.4	15	234079	4303259	754864	4302895	60.95	352.6	15.23	1.35	23.23	2.93	101.7474
239	CO	119090AAA	ConocoPhillips Co.	230849	Alkylation unit flare (FLR6-1)	17.64	15	234261	4303433	755035	4303081	60.96	1255.4	9.62	0.76	18.49	2.33	80.9662
240	CO	119090AAA	ConocoPhillips Co.	225833	Startup/malfunction/breakdown	17.4	15	233472	4303548	754240	4303144	33.39	602	6.61	1.43	28.6	3.6	125.268
241	CO	119090AAA	ConocoPhillips Co.	227040	#4 Crude unit heater H-24 (STK9-5)	17.37	15	232238	4302806	753051	4302413	54.96	560.9	7.89	2.59	22.68	2.86	99.3384
242	CO	119090AAA	ConocoPhillips Co.	227032	Hydrogen plant #1 flare (FLR12-2)	17.44	15	234491	4303135	755298	4302793	89.62	1255.4	2.43	0.61	16.24	2.05	71.1312
243	CO	119090AAA	ConocoPhillips Co.	227035	Process heater HP-1 (STK12-6)	17.44	15	234401	4303135	755194	4302793	38.71	455.4	8.26	2.29	6.97	0.88	30.5356
244	CO	119090AAA	ConocoPhillips Co.	227038	SZU Charge heater H-1	17.33	15	234418	4303608	755219	4302667	45.72	570.4	7.78	1.58	5.75	0.72	25.185
245	CO	119090AAA	ConocoPhillips Co.	228294	Distilling west refinery flare (FLR10-1)	16.64	15	232841	4302980	753647	4302546	60.05	1255.4	2.02	0.91	25.07	3.16	109.8066
246	CO	119090AAA	ConocoPhillips Co.	228297	SZU Regenerator vent	17.58	15	234411	4303061	755209	4302720	13.41	330.4	9.86	0.61	1.775	0.22	7.7745
247	CO	119090AAA	ConocoPhillips Co.	232230	Benzene extraction unit #3 (STK6-4)	17.45	15	234139	4303289	754923	4302930	56.39	516.5	3.92	2.96	12.2	1.54	53.436
247	CO	119090AAA	ConocoPhillips Co.	238542	Rental Boiler #3	17.4	15	233472	4303548	754240	4303144	6.1	560.9	14.15	1.72	1.65	0.21	7.227
248	CO	119090AAA	ConocoPhillips Co.	241300	VOC Flare (West - FLR4-1)	17.07	15	232657	4303531	753428	4303073	9.14	1255.4	7.98	0.2	1.43	0.18	6.2634
249	CO	119090AAA	ConocoPhillips Co.	241301	VOC Flare (East - FLR4-2)	17.07	15	232670	4303530	753441	4303073	9.14	1255.4	7.98	0.2	1.43	0.18	6.2634
261	CO	119090AAA	ConocoPhillips Co.	250892	Lift station pump (210D8)	17.4	15	233472	4303548	754240	4303144	7.92	527.6	18.54	0.43	1.8	0.18	6.132
262	CO	119090AAA	ConocoPhillips Co.	250893	Lift station pump (210D9)	17.4	15	233472	4303548	754240	4303144	7.92	527.6	18.54	0.43	1.8	0.18	6.132
263	CO	119090AAA	ConocoPhillips Co.	250894	Non-emergency air compressor #1	17.4	15	233472	4303548	754240	4303144	7.92	527.6	18.54	0.43	6.012	0.76	26.33256
264	CO	119090AAA	ConocoPhillips Co.	250895	Non-emergency air compressor #2	17.4	15	233472	4303548	754240	4303144	7.92	527.6	18.54	0.43	6.012	0.76	26.33256
265	CO	119090AAA	ConocoPhillips Co.	250896	Non-emergency air compressor #3	17.4	15	233472	4303548	754240	4303144	7.92	527.6	18.54	0.43	5.976	0.75	26.17488
266	CO	119090AAA	ConocoPhillips Co.	250897	Non-emergency air compressor #4	17.4	15	233472	4303548	754240	4303144	7.92	527.6	18.54	0.43	6.012	0.76	26.33256
267	CO	119090AAA	ConocoPhillips Co.	250898	Non-emergency air compressor #5	17.4	15	233472	4303548	754240	4303144	7.92	527.6	18.54	0.43	6.012	0.76	26.33256
268	CO	119090AAA	ConocoPhillips Co.	250899	Non-emergency air compressor #6	17.4	15	233472	4303548	754240	4303144	7.92	527.6	18.54	0.43	5.976	0.75	26.17488
269	CO	119090AAA	ConocoPhillips Co.	251735	Diesel engine (805 HP)	17.4	15	233472	4303548	754240	4303144	4.57	294	0.1	0.1	3.5	0.44	15.33
274	CO	163815AAA	US Air Force/Scott Air Force Base	156624	Boilers and Heaters	30.67	16	251413	4270021	774137	4270862	9.14	439.3	7.1	0.67	4.91	0.61	21.0878
275	CO	163815AAA	US Air Force/Scott Air Force Base	189069	Diesel generators	30.67	16	251413	4270021	774137	4270862	11.28	478.7	8.98	0.4	58.33	7.35	255.4854
277	CO	119105AAA	Union Electric Co.	156479	Turbine CT07A	4.13	15	223543	4284632	745573	4283620	9.14	727.6	5.75	3.49	77.3	9.74	338.5744
278	CO	119105AAA	Union Electric Co.	213796	Turbine CT03	4.6	15	223659	4283932	745735	4283530	11.58	590.4	22.85	1.04	49	6.17	214.62
279	CO	119105AAA	Union Electric Co.	213797	Turbine CT04	4.57	15	223701	4283946	745775	4282947	11.58	590.4	22.85	1.04	49	6.17	214.62
280	CO	119105AAA	Union Electric Co.	213798	Turbine CT05	4.15	15	223507	4284634	745538	4283620	11.58	590.4	22.85	1.04	69	8.69	302.22
281	CO	119105AAA	Union Electric Co.	217679	Diesel generator	4.4	15	223466	4284342	745516	4283326	7.92	727.6	18.54	0.43	1.3	0.16	5.694
282	CO	119105AAA	Union Electric Co.	237099	Turbine CT02B	4.14	15	223542	4284635	745573	4283613	9.14	727.6	5.75	3.49	77.37	9.75	338.8806
283	CO	119040ATC	Midwest Metal Coatings, LLC	192653	Chemical coater/cmt-lined oven (CC/IRO)	3.56	15	226688	4291215	748281	4290395	10.36	316.3	5.77	0.91	0.28	0.04	1.2208
284	CO	119040ATC	Midwest Metal Coatings, LLC	192964	Afterburner	3.56	15	226689	4291215	748281	4290395	10.36	755.4	7.25	1.52	0.3278	0.04	1.434888
285	CO	119040ATC	Midwest Metal Coatings, LLC	192967	Boiler (B1)	3.56	15	226689	4291215	748281	4290395	10.36	427.6	10.53	0.48	2.12	0.27	9.2856
286	CO	163030AAF	Touchette Regional Hospital	136014	2 Boilers	14.32	15	229154	4273633	751890	4273014	11.89	699.8	3	1.13	2.255	0.28	9.8769
287	CO	117802AAA	Star Memorial Pet Crematory	131772	Crematory	17.67	15	229880	4325375	749264	4324486	4.88	699.8	8.41	0.3	2.7	0.34	11.826
289	CO	119040AAQ	Gateway Regional Medical Center	132225	Boiler #3	0.78	15	226901	4288254	746587	4287448	14.63	589.7	13.54	1.37	1.532133	0.19	6.710743
290	CO	119040AAQ	Gateway Regional Medical Center	132226	Boilers #1 and 2	0.75	15	226807	4288258	746592	4287452	14.63	589.7	11.88	1.32	3.903866	0.49	13.441633
291	CO	119040ABJ	Mayco Mfg, LLC	147845	Britt kettles combustion stack	0.98	15	225374	4287869	747189	4286970	10.36	394.3	9.72	0.36	0.2	0.03	0.876
292	CO	119040ABJ	Mayco Mfg, LLC	147846	Mixed metals A-H dross baghouse discharge stack	0.98	15	225374	4287869	747189	4286970	9.14	308.2	18.04	1.63	0.577	0.07	2.52726
293	CO	119040ABJ	Mayco Mfg, LLC	250343	Natural gas combustion	0.98	15	225374	4287869	747189	4286970	11.89	413.2	7.06	0.62	1.74	0.22	7.6212
294	CO	119040ABJ	Mayco Mfg, LLC	255836	Expansion. Natural gas combustion	0.98	15	225374	4287869	747189	4286970	11.89	413.2	7.06	0.62	1.04	0.24	8.4972
296	CO	119105AAH	Magnesium Elektron North America	142809	Combustion units	2.06	15	224558	4286873	746452	4285724	18.29	505.4	9.31	0.61	10.24	1.28	44.8512
297	CO	119105AAH	Magnesium Elektron North America	255527	Natural gas combustion	2.06	15	224558	4286873	746452	4285724	11.89	413.2	7.06	0.62	0.42	0.05	1.8396
299	CO	119821AAI	Koch Fertilizer, LLC	212881	Ammonia heater	18.57	15	229393	4305994	750008	4305336	7.62	394.3	12.36	0.3	2.63	0.31	10.6434
301	CO	119040ATI	Center Point Terminal Co.	208343	Asphalt and polymer modified blend tank (T-9)	3	15	224697	4290189	746361	4289240	10.06	358.2	0.29	0.46	0.1	0.01	0.438
302	CO	119040ATI	Center Point Terminal Co.	211772	Incinerator/waste heat boiler	3	15	224697	4290189	746361	4289240	5.49	616.5	2.41	0.61	0.183	0.02	0.80154
304	CO	088025AAS	Illinois Department of Transportation	213573	R and K model 367-1 incinerator	48.11	15	215294	4333987	732106	4332182	4.57	664.3	8.41	0.85	2.88	0.36	12.6144
306	CO	119040ADR	Granite City Pickling & Warehousing	155305	Boiler	3.38	15	225154	4287803	746973	4286090	15.24	439.3	4.71	0.82	0.7055	0.09	3.090528
308	CO	119090AAM	Concrete Supply, LLC	209238	Natural gas combustion	18.18	15	236935	4302444	757768	4302278	8.1	344.8	7.86	0.82	0.969	0.12	4.24572
309	CO	119040ABI	Prairie Farms Dairy, Inc.	132247	Boiler #1	0.96	15	225728	4288427	747505	4287556	22.86	463.7	9.17	0.76	0.15	0.02	0.5694
310	CO	119040ABI	Prairie Farms Dairy, Inc.	132248	Boiler #2	0.96	15	225728	4288427	747505	4287556	7.62	463.7	19.82	0.76	0.24	0.03	1.0512
312	CO	119806AAO	Elias Kallal & Schaaf Funeral Home & Crematory	132777	Crematorium	26.09	15	221950	4313394	740898	4312210	9.14	1033.2	5.6	0.52	3	0.38	13.14
316	CO	163121AAP	Veolia ES Technical Solutions, LLC	183733	Hazardous waste incinerator #4 (rotary kiln)	11.23	15	223000	4276971	745532	4275942	17.37	617	5.93	0.85	3.17	0.4	13.8846
318	CO	163121AAP	Veolia ES Technical Solutions, LLC	253769	2 Emergency generators	11.23	15	223000	4276973	745532	4275942	7.93	527.6	18.54	0.43	0.741	0.09	3.24558
320	CO	163020AAK	Gulfstream Aerospace Services Corp.	235261	Make up air unit 19-3	13.29	15	224937	4274457	747629	4273560	12.8	575.9	5.95	0.76	1.525	0.2	7.1175
323	CO	163045AGB	Brady McCasland, Inc.	160741	Compaction plant	9.86	15	226048	4277818	748518	4276987	5.18	1100.4	19.96	0.55	0.52	0.07	2.2776
328	CO	163121AAM	Cerro Flow Products, LLC.	136486	Piercing Mill Furnace #2	11.73	15	223650	4276256	746228	4275272	7.62	422	11.86	0.61	0.8852	0.11	3.889576
334	CO	163121AAM	Cerro Flow Products, LLC.	253166	Generators	11.73	15	223650	4276256	746228	4275272	7.92	527.6	18.54	0.43	0.923	0.12	4.04274
335	CO	163814ABS	BFI Waste Systems of North America, Inc	165120	Flare	24.93	15	235565	4284517	758882	4284136	10.67	1148.3	7.16	0.24	6.8	0.86	29.784
336	CO	119802AAH	Madison County Sand, LLC	215315	Drum mix asphalt plant	10.98	15	237217	4289154	758921	4288026	9.75	391.5	39.69	1.25	16.25	2.05	71.175
339	CO	163121ABE	Center Ethanol Co.	228260	West boiler	11.41	15	223337	4276668	745888	4275662	22.86	463.2	33.25	0.91	3.23	0.41	14.1474
340	CO	163121ABE	Center Ethanol Co.	228262	East boiler	11.41	15	223337	4276668	745888	4275662	22.86	493.2	33.85	0.91	3.23	0.41	14.1474
341	CO	163121ABE	Center Ethanol Co.	228263	RTO	11.41	15	223337	4276668	745888	4275662	15.24	427.6	21.55	1.68	8.85	0.86	30.008
342	CO	163121ABE	Center Ethanol Co.	237899	Emergency generator	11.41	15	223337	4276668	745888	4275662	8.53	569.7	22.49	0.38	3.3	0.42	14.454
343	CO	163121ABE	Center Ethanol Co.	237903	Ethanol loadout Rack	11.41	15	223337	4276668	745888	4275662	5.79	310.6	2.38	0.23	0.886	0.11	3.89068
345	CO	163052AAQ	Interurban ELAWFC	224167	Emergency generator	14.08	15	234720	4276371	757265	4276109	6.84	744.3	15.69	0.4	11.04	1.39	48.3552
346	CO	163110AAZ	Schildknecht Funeral Home, Inc.	226783	Crematory	23.62	16	246443	4275290	769033	4275796	5.18	994.8	4.15	0.51	1.2	0.15	5.256
347	CO	119813AAA	Christ Bros Products, LLC	132781	Baghouse	7	15	232088	4283593	754180	4283243	9.75	368.7	25.52	1.19	55.63	7.01	243.6594
348	CO	119813AAA	Christ Bros Products, LLC	229921	8 Heaters and boilers	7	15	232088	4283693	754160	4283243	11.28	477.6	6.3	0.56	1.18	0.15	5.1684
349	CO	119813AAA	Christ Bros Products, LLC	229922	Silo filling	7	15	232088	4283593	754160	4283243	7.62	296.5	9.08	0.12	0.53	0.06	2.2338
350	CO	119813AAA	Christ Bros Products, LLC	229923	Truck loading	7	15	232088	4283693	754160	4283243	8.84	330.4	14.65	0.62	0.58	0.07	2.5404
351	CO	119040ATN	Gateway Energy & Coke Co., LLC	233395	Charging - Stack 1 of 6	1.49	15	227814	4287847	749624	4287108	7.92	422	20.76	1.37	0.0668	0.01	0.292584
352	CO	119040ATN	Gateway Energy & Coke Co., LLC	233397	Waste heat stack 1	1.04	15	227370	4287577	749199	4286809	25.91	1366.5	22.76	2.74	0.7304	0.09	3.199152
353	CO	119040ATN	Gateway Energy & Coke Co., LLC	233398	Pushing - Stack 1 of 6	1.49	15	227810	4287853	749620	4287113	6.1	477.6	21.22	1.52	1.3114	0.17	5.743932
354	CO	119040ATN	Gateway Energy & Coke Co., LLC	233402	Waste heat stack 2	1.12	15	227448	4287625	749274	4286862	25.91	1366.5	22.76	2.74	0.7348	0.09	3.218424
355	CO	119040ATN	Gateway Energy & Coke Co., LLC	233403	Waste heat stack 3	1.2	15	227931	4287677	749353	4286919	25.91	1366.5	22.76	2.74	0.7304	0.09	3.199152
356	CO	119040ATN	Gateway Energy & Coke Co., LLC	233404	Waste heat stack 4	1.28	15	227610	4287725	749429	4286973	25.91	1366.5	22.76	2.74	0.7348	0.09	3.218424
357	CO	119040ATN	Gateway Energy & Coke Co., LLC	233405	Waste heat stack 5	1.41	15	227732	4287800	749545	4287055	25.91	1366.5	22.76	2.74	0.7348	0.09	3.218424
358	CO	119040ATN	Gateway Energy & Coke Co., LLC	233406	Waste heat stack 6	1.49	15	227810	4287848	749620	4287109	25.91	1366.5	22.76	2.74	0.7348	0.09	3.218424
359	CO	119040ATN	Gateway Energy & Coke Co., LLC	240022	Pushing - Stack 2 of 6	1.41	15	227732	4287804	749545	4287060	6.1	477.6	21.22	1.52	1.3193	0.17	5.778534
360	CO	119040ATN	Gateway Energy & Coke Co., LLC	240023	Pushing - Stack 3 of 6	1.28	15	227610	4287729	749429	4286977	6.1	477.6	21.22	1.52	1.3193	0.17	5.778534
361	CO	119040ATN	Gateway Energy & Coke Co., LLC	240024	Pushing - Stack 4 of 6	1.2	15	227531	4287680	749352	4286923	6.1	477.6	21.22	1.52	1.3114	0.17	5.743932
362	CO	119040ATN	Gateway Energy & Coke Co., LLC	240025	Pushing - Stack 5 of 6	1.12	15	227449	4287629	749278	4286866	6.1	477.6	21.22	1.52	1.3193	0.17	5.778534
363	CO	119040ATN	Gateway Energy & Coke Co., LLC	240026	Pushing - Stack 6 of 6	1.04	15	227369	4287586	749198	4286813	6.1	477.6	21.22	1.52	1.3193	0.17	5.778534
364	CO	119040ATN	Gateway Energy & Coke Co., LLC	240028	Coking (New Main Stack)	1.12	15	227461	4287746	749279	4286964	50.96	418.2	14.73	3.96	26.2	3.3	114.756

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365	CO	119040ATN	Gateway Energy & Coke Co., LLC	241023	Charging - Stack 2 of 6	1.41	15	227736	4287799	749549	4287055	7.92	422	28.76	1.37	0.0668	0.01	0.292584
366	CO	119040ATN	Gateway Energy & Coke Co., LLC	241024	Charging - Stack 3 of 6	1.28	15	227615	4287724	749433	4286972	7.92	422	28.76	1.37	0.0664	0.01	0.290832
367	CO	119040ATN	Gateway Energy & Coke Co., LLC	241025	Charging - Stack 4 of 6	1.2	15	227535	4287675	749357	4286918	7.92	422	28.76	1.37	0.0668	0.01	0.292584
368	CO	119040ATN	Gateway Energy & Coke Co., LLC	241026	Charging - Stack 5 of 6	1.12	15	227452	4287624	749278	4286861	7.92	422	28.76	1.37	0.0668	0.01	0.292584
369	CO	119040ATN	Gateway Energy & Coke Co., LLC	241027	Charging - Stack 6 of 6	1.06	15	227373	4287575	749202	4286808	7.92	422	28.76	1.37	0.0664	0.01	0.290832
370	CO	119040ATN	Gateway Energy & Coke Co., LLC	242569	Malfunctions	1.06	15	227373	4287575	749202	4286808	34.44	347.6	2.96	1.33	4.36	0.55	19.0968
372	CO	119025ABA	Asphalt Sales & Products Inc	220618	Drum mix asphalt plant	15.99	15	236572	4300093	757560	4299901	9.75	410.9	28.83	1.3	76.12	9.59	333.4056
373	CO	119025ABA	Asphalt Sales & Products Inc	222134	Asphalt silo loading	15.09	15	236572	4300093	757560	4299901	7.92	323.7	1.52	0.52	0.7	0.09	3.066
375	CO	119025ABA	Asphalt Sales & Products Inc	230355	Truck loadout	15.09	15	236572	4300093	757560	4299901	8.51	330.4	13.17	0.58	0.79	0.1	3.4602
377	CO	119050AAS	Apex Oil Co., Inc.	222988	Thermal oxidizers	16.81	15	231675	4303188	752471	4302667	5.49	710.9	13.41	0.71	2.98	0.38	13.0524
378	CO	119465AAG	Green Plains Madison, LLC	237659	Boiler #1	3.2	15	223349	4286506	745256	4285477	21.64	413.2	7	1.01	1.29	0.16	5.6502
379	CO	119465AAG	Green Plains Madison, LLC	237660	Fire Pump back-up Engine (460 HP)	3.29	15	223279	4286442	745193	4285409	3.96	603.7	28.29	0.25	0.48	0.06	2.1024
380	CO	119465AAG	Green Plains Madison, LLC	237661	Electrical system backup Engine (1495 HP)	3.28	15	223241	4286572	745144	4285537	8.51	603.7	22.49	0.38	3.54	0.45	15.5052
381	CO	119465AAG	Green Plains Madison, LLC	237679	Indirect dryer #1	3.27	15	223283	4286500	745191	4285468	21.64	470.4	3.7	1.4	7.97	1	34.9086
382	CO	119465AAG	Green Plains Madison, LLC	253367	Boiler #2	3.2	15	223352	4286514	745258	4285486	21.64	413.2	7	1.01	1.29	0.16	5.6502
383	CO	119465AAG	Green Plains Madison, LLC	253368	Boiler #3	3.2	15	223353	4286520	745260	4285491	21.64	413.2	7	1.01	1.29	0.16	5.6502
384	CO	119465AAG	Green Plains Madison, LLC	253369	Boiler #4	3.19	15	223356	4286528	745262	4285500	21.64	413.2	7	1.01	1.29	0.16	5.6502
385	CO	119465AAG	Green Plains Madison, LLC	253370	Indirect dryer #2	3.31	15	223254	4286465	745184	4285430	24.69	470.4	2.57	1.68	7.92	1	34.9086
386	CO	163045AFM	Allnex USA, Inc.	253107	Natural gas combustion	19.48	15	227192	4277233	749698	4276478	17.68	897.6	8.43	1.04	3.2592	0.41	14.275296
387	CO	119465AAE	Enable Mississippi River Transmission, LLC	224838	Compressor engine SN-01	2.36	15	228118	4286141	750039	4285426	6.71	880.4	20.26	0.34	5.67	0.71	24.8346
388	CO	119465AAE	Enable Mississippi River Transmission, LLC	224839	Compressor engine SN-02	2.37	15	228123	4286131	750044	4285416	6.71	880.4	20.26	0.34	5.67	0.71	24.8346
389	CO	119465AAE	Enable Mississippi River Transmission, LLC	224840	Compressor engine SN-03	2.38	15	228127	4286121	750049	4285406	6.71	880.4	20.26	0.34	5.67	0.71	24.8346
390	CO	119465AAE	Enable Mississippi River Transmission, LLC	224841	Compressor engine SN-04	2.39	15	228131	4286112	750054	4285397	6.71	880.4	20.26	0.34	5.67	0.71	24.8346
391	CO	163010AFO	Belleville Landfill, Inc.	224416	Flare	25.88	15	237063	4264123	760402	4264040	10.67	1144.3	2.64	0.24	12.2	1.54	53.436
392	CO	119097AAB	Christ Bros Products, LLC	224592	Drum mix asphalt plant	15.01	15	234696	4300139	755585	4299823	9.75	394.8	16.35	1.25	30.9	3.89	135.342
393	CO	119097AAB	Christ Bros Products, LLC	224593	Asphalt silo loading and truck loadout	15.02	15	234717	4300141	755706	4299827	9.75	319.3	2.44	0.46	0.603	0.08	2.64114
394	CO	119097AAB	Christ Bros Products, LLC	224594	Asphalt tank heaters and boilers	15.03	15	234713	4300156	755701	4299841	3.05	486.5	12.94	0.3	1.18	0.15	5.1654
395	CO	133030AAO	Waterloo City Light Plant	133625	Engine #1	40.08	15	223858	4247672	748326	4246769	8.84	672	6.14	0.73	29.95	5.03	174.981
396	CO	133030AAO	Waterloo City Light Plant	133627	Engine #9	40.08	15	223888	4247672	748326	4246769	5.18	775.4	25.87	0.3	15	1.89	65.7
397	CO	133030AAO	Waterloo City Light Plant	133628	Engine #10	40.08	15	223888	4247672	748326	4246769	5.18	775.4	25.87	0.3	15	1.89	65.7
398	CO	133030AAO	Waterloo City Light Plant	143317	Engine #11	40.08	15	223888	4247672	748326	4246769	5.18	775.4	25.87	0.3	15	1.89	65.7
399	CO	133050AAO	Waterloo City Light Plant	143319	Engine #7	40.08	15	223888	4247672	748326	4246769	10.06	672	25.87	0.61	34.08	4.29	149.2704
400	CO	133030AAO	Waterloo City Light Plant	143320	Engine #8	40.08	15	223888	4247672	748326	4246769	8.23	633.2	25.68	0.7	18.72	2.36	81.9936
401	CO	133030AAO	Waterloo City Light Plant	222033	Dual fuel-fired Turbine GT1	40.08	15	223888	4247672	748326	4246769	11.89	595.4	12.68	1.47	17.69	2.23	77.4822
402	CO	133030AAO	Waterloo City Light Plant	225960	Engine #4	40.08	15	223888	4247672	748326	4246769	11.28	833.2	26.8	0.76	33.22	4.19	145.5036
403	CO	133030AAO	Waterloo City Light Plant	227333	Engine SG5	37.52	15	225368	4250158	750635	4249610	2.44	768.7	18.65	0.2	1.4	0.18	6.132
407	CO	133050AAO	Waterloo City Light Plant	238839	Turbine Generator (GT2)	40.08	15	223888	4247672	748326	4246769	11.89	792	26.81	1.47	17.8	2.24	77.964
408	CO	163121ABH	Gateway Terminals, LLC	233290	Marine vapor combustion unit (MVCU)	12.27	15	222021	4276184	744607	4275093	22.56	540.9	7.67	1	16.91	2.13	74.0658
409	CO	163121ABH	Gateway Terminals, LLC	233295	Truck/Rail vapor destruction unit (TRCU)	12.27	15	222021	4276184	744607	4275093	22.56	540.9	7.67	1	8.39	1.06	36.7482
410	CO	163121ABH	Gateway Terminals, LLC	248799	600 HP Boiler	12.27	15	222021	4276184	744607	4275093	7.92	499.8	12.06	0.66	2.11	0.27	9.2418
411	CO	119040AAO	Velocity Services, LLC.	132193	North American Boiler	1.01	15	227059	4286978	748928	4286192	8.23	505.4	7.41	0.7	2.36	0.3	10.3368
412	CO	119040AAO	Velocity Services, LLC.	132194	Cleaver Brooks boiler	1.01	15	227059	4286978	748928	4286192	8.84	499.8	12.07	0.61	2.36	0.3	10.3368
415	CO	119813AAY	Metro Crematory	225166	Crematory	7.15	15	232541	4291222	754120	4290785	5.49	664.3	25.87	0.3	1.5	0.19	6.57
422	CO	119040AAC	Amsted Rail Co., Inc.	132148	Electric Arc Furnace #1 (EF-1)	1.3	15	225352	4288526	747122	4287625	16.76	394.3	16.49	1.89	38.4	4.84	168.192
423	CO	119040AAC	Amsted Rail Co., Inc.	132149	Electric Arc Furnace #2 (EF-2)	1.28	15	225377	4288526	747147	4287625	13.41	394.3	12.94	2.13	38.4	4.84	168.192
424	CO	119040AAC	Amsted Rail Co., Inc.	167787	Ladle Preheater (LDP-1)	1.36	15	225267	4288519	747039	4287611	24.99	535.9	9.6	1.86	6.5	0.82	28.47
425	CO	119040AAC	Amsted Rail Co., Inc.	237866	Curing oven	1.47	15	225143	4288540	746913	4287625	11.89	398.7	8.53	0.59	0.252	0.03	1.10376
426	CO	119040AAC	Amsted Rail Co., Inc.	253099	Annealing Furnace 18	1.37	15	225303	4288575	747071	4287670	11.89	413.2	7.06	0.62	1.1172	0.14	4.893356
427	CO	163005AAH	City of O'Fallon	225843	400 kW (591 HP) Diesel generator	28.13	16	252106	4276406	774612	4277280	3.96	533.2	28.4	0.21	3.37	0.42	14.7606
428	CO	163005AAH	City of O'Fallon	225844	900 kW (1 322 HP) Diesel generator	28.13	16	252106	4276406	774612	4277280	5.18	533.2	28.4	0.21	7.55	0.95	33.069
429	CO	119465AAH	Westwood Lands, Inc.	240053	Process heater DFH-1	1.36	15	226962	4286476	748864	4285684	11.89	413.2	7.06	0.62	0.83	0.1	3.6354
430	CO	119020ABG	GBC Metals, LLC (d/b/a Olin Brass)	226184	IF Mix mullex (MM-3). Low profile turbine (LF-1) and Induction form stations 1 and 2 (IF-1 and IF2)	19.52	15	229290	4306930	750075	4306259	12.5	372	11	0.64	2	0.25	8.76
432	CO	119020ABG	GBC Metals, LLC (d/b/a Olin Brass)	226204	Strip anneal #4 (SA-4)	21.64	15	229735	4309049	750150	4308288	27.43	449.8	12.63	0.49	93.25	11.75	408.435
433	CO	119020ABG	GBC Metals, LLC (d/b/a Olin Brass)	226256	Strip Anneal #3 (SA-3)	21.61	15	230019	4308971	750439	4308328	30.48	449.8	19.13	0.4	98.64	12.39	430.7292
434	CO	119020ABG	GBC Metals, LLC (d/b/a Olin Brass)	226257	#7 Strip Anneal (SA-7)	21.6	15	229803	4308992	750222	4308335	27.13	727.6	11.79	0.46	118.4	14.92	518.592
435	CO	119020ABG	GBC Metals, LLC (d/b/a Olin Brass)	235939	Strip anneal #5 (SA-5)	21.63	15	229735	4309035	750151	4308373	27.43	505.4	16.49	0.43	107.27	13.52	469.8426
436	CO	119020ABG	GBC Metals, LLC (d/b/a Olin Brass)	235940	Strip anneal #6 (SA-6)	21.65	15	229792	4309048	750207	4308390	33.53	577.6	19.14	0.4	107.27	13.52	469.8426
439	CO	119020ABG	GBC Metals, LLC (d/b/a Olin Brass)	253386	Engines (insignificant activities)	21.63	15	230005	4308996	750423	4308352	7.92	527.6	18.54	0.43	9.913	0.12	4.04274
440	CO	133005AAP	Crown Textile Services	219420	Boiler	27.74	15	220677	4260524	764287	4259382	7.92	505.4	10.74	0.52	1.03	0.13	4.5114
441	CO	119040ATQ	Illinois Electric Works	227590	3 Burn off ovens	1.31	15	226132	4288976	747872	4288124	14.02	394.3	12.57	0.72	1.17	0.15	5.1246
442	CO	119040ATS	Amsted Rail Co., Inc.	239395	Sand dryer	1.37	15	225198	4288449	746975	4287537	11.89	413.2	7.06	0.62	9.37	0.05	1.6206
443	CO	119040ATS	Amsted Rail Co., Inc.	239396	Thermal sand reclaimer	1.37	15	225198	4288449	746975	4287537	11.89	413.2	7.06	0.62	9.37	0.05	1.6206
444	CO	119040ATS	Amsted Rail Co., Inc.	253351	Sand regeneration process (combustion)	1.37	15	225198	4288449	746975	4287537	11.89	413.2	7.06	0.62	9.28	0.04	1.2768
445	CO	163110ABA	St. Clair Crematory	228119	Human crematory	27.52	16	250582	4274860	773291	4275644	5.18	944.8	4.15	0.51	1.2	0.15	5.256
446	CO	163010AFQ	Kurrus Funeral Home	231291	2 Crematories	19.04	15	236199	4271388	759066	4271234	5.49	892.6	4.02	0.34	2.7	0.34	11.826
447	CO	163010APR	City of Belleville	236359	2 Emergency generators (1500 kW each)	26.24	16	240301	4265470	783544	4265595	8.53	603.7	22.49	0.38	25.68	3.24	112.4784
448	CO	163010AFS	Stookey Township WWTP	246759	2000 kW Emergency generator	18.71	15	233309	4270316	750253	4269979	8.53	603.7	22.49	0.38	15.4	1.94	67.452
449	CO	163045AGR	Bunge-SF Grain, LLC	236260	Grain Dryer	6.13	15	233958	4282023	748158	4281045	29.26	313.7	26.8	2.51	5.06	0.64	22.1628
453	CO	163813AAA	Moore Recycling Concrete & Asphalt, LLC	255953	Drum mix asphalt plant	42.56	15	237704	4246664	762178	4246660	10.67	364.8	17.35	1.21	13.24	1.67	57.9912
455	CO	119025ABD	Procter & Gamble Distributing	241405	Emergency diesel generator #1	11.97	15	235225	4295693	756504	4295421	7.92	527.6	18.54	0.43	16.8175	2.12	73.66065
456	CO	119025ABD	Procter & Gamble Distributing	241449	Emergency diesel generator #2	12.19	15	235235	4296007	756494	4295735	7.92	527.6	18.54	0.43	16.8175	2.12	73.66065
457	CO	119025ABD	Procter & Gamble Distributing	245579	Emergency diesel generator #3	11.75	15	234918	4295701	756198	4295409	7.92	527.6	18.54	0.43	16.8175	2.12	73.66065
458	CO	119025ABD	Procter & Gamble Distributing	245580	Emergency diesel generator #4	11.97	15	234923	4296012	756187	4295721	7.92	527.6	18.54	0.43	16.8175	2.12	73.66065
459	CO	163110ACV	HSHS St. Elizabeth's Hospital	254699	2 Emergency generators	22.4	16	244606	4274724	767237	4275111	8.53	603.7	22.49	0.38	19.3	2.43	84.534
461	CO	163010AMW	City of Belleville	253167	Emergency diesel generator (1500 kW)	25	16	239277	4266294	762469	4266351	7.92	527.6	18.54	0.43	11.6	1.46	50.808
462	CO	163045AMD	PBT Acquisition, LLC	256624	ASR Dryer	6.04	15	226485	4281641	748704	4280830	9.75	424.8	5.94	0.45	2.53	0.32	11.0814

Kras, Kim

From: David Keen <keen@rtpenv.com>
Sent: Monday, August 19, 2019 4:07 PM
To: Ray, Sarah
Cc: David Keen
Subject: [External] RE: Modeling for US Steel Granite City Works

Thanks very much Sarah.

Dave

From: Ray, Sarah
Sent: Monday, August 19, 2019 4:35 PM
To: David Keen
Cc: Sprague, Jeff
Subject: Modeling for US Steel Granite City Works

Dear Dave,

Attached, please find an Excel spreadsheet containing your requested emission inventories for CO and SO2. I've also attached surface characteristics from the Lambert-St. Louis International Airport (STL) for the years 2014 through 2018.

Please let me know if you have any questions or if you would like any additional materials!

Kind regards,
Sarah Ray

Sarah Ray
Environmental Protection Engineer II
Modeling Unit / Air Quality Planning Section
Bureau of Air
Illinois EPA
ph. (217)558-6363

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Carter, Sally

From: Frost, Brad
Sent: Monday, August 21, 2023 1:17 PM
To: Carter, Sally
Subject: FW: U.S. Steel Comment Period Extension

From: Lee, John <John.Lee3@mail.house.gov>
Sent: Monday, August 21, 2023 10:37 AM
To: Frost, Brad <Brad.Frost@illinois.gov>
Subject: [External] RE: U.S. Steel Comment Period Extension

Hey Brad – is there someone on your team who I can discuss this with? Just curious on the background and what the history of this issue entails.

Thanks,
John

John D. Lee | Legislative Director
U.S. Representative Nikki Budzinski (IL-13)
1009 Longworth HOB | P: (202) 225-2371
U.S. REPRESENTATIVE
Nikki Budzinski

From: McCurdy, Finnegan <Finnegan.McCurdy@illinois.gov>
Sent: Friday, August 18, 2023 1:04 PM
To: Hart, Kristin L - DNR <Kristin.Hart@wisconsin.gov>; J Brush <JBRUSH@idem.in.gov>; Kendall Hale <kendall.hale@dnr.mo.gov>; Morse, James (EEC) <James.Morse@ky.gov>; Rex Lane <laner@michigan.gov>; Sarah Piziali <Sarah.Piziali@dnr.iowa.gov>
Cc: Frost, Brad <Brad.Frost@illinois.gov>
Subject: U.S. Steel Comment Period Extension

The comment period for U.S. Steel Corporation's air pollution control construction permit/PSD (Prevention of Significant Deterioration) has been extended to September 11, 2023. See attached for additional information.

ID #: 119813AAI
Permit #: 95010001
Source: U.S. Steel

Finnegan McCurdy, he/him
Illinois EPA
GPSI Intern
Office of Community Relations
(217) 785 6653

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Pritchett, Jacob A.

From: Romaine, Chris
Sent: Monday, August 26, 2013 10:22 AM
To: Carter, Sally
Subject: Accepted: USS - Premeeting for 9/4/2013 meeting

Carter, Sally

From: Frost, Brad
Sent: Tuesday, August 29, 2023 7:45 AM
To: Carter, Sally; Romaine, Chris
Cc: Schnepp, Jason; Marr, Bill
Subject: FW: US Steel Notification

For your records.

From: Vetter, Trina <TVetter@sgop.ilga.gov>
Sent: Monday, August 28, 2023 10:21 AM
To: Frost, Brad <Brad.Frost@Illinois.gov>
Subject: [External] US Steel Notification

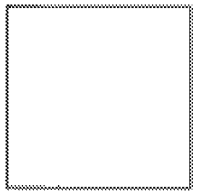
Good morning,

We have been informed of the extension for public comments regarding the denial of US Steel Corp application to Revise a Construction Permit. As a newly established office with Senator Erica Harriss, we want to ensure that we take the necessary action. Do you think it would be prudent to inform our district about this matter? Your guidance would be greatly appreciated.

Trina M Vetter

District Director for
Senator Erica Harriss
56th Illinois Senate District

We've Moved! 120 North Main Street, Suite 1B, Edwardsville, IL 62025



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Pritchett, Jacob A.

Subject:	USS
Start:	Mon 8/30/2021 10:30 AM
End:	Mon 8/30/2021 11:30 AM
Show Time As:	Tentative
Recurrence:	(none)
Meeting Status:	Not yet responded
Organizer:	Carter, Sally
Required Attendees:	LaDonna Driver; Chris Romaine

-- Do not delete or change any of the following text. --

When it's time, join your Webex meeting here.

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https://illinois.webex.com/illinois/j.php?MTID=m62af320a1fa6b347dfbd5d841b51f4e8

Join by meeting number
Meeting number (access code): 2466 639 1836
Meeting password: qdGqMTgG764

Tap to join from a mobile device (attendees only)
+1-312-535-8110,,24666391836## United States Toll (Chicago)
+1-415-655-0002,,24666391836## US Toll

Join by phone
+1-312-535-8110 United States Toll (Chicago)
+1-415-655-0002 US Toll
Global call-in numbers

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Dial 24666391836.illinois@lync.webex.com

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Pritchett, Jacob A.

Subject: FW: USS - Premeetiing for 9/4/2013 meeting
Location: DLC

Start: Tue 9/3/2013 10:30 AM
End: Tue 9/3/2013 11:00 AM
Show Time As: Tentative

Recurrence: (none)

Meeting Status: Not yet responded

Organizer: Carter, Sally

When: Tuesday, September 03, 2013 10:30 AM-11:00 AM (GMT-06:00) Central Time (US & Canada).
Where: DLC

Note: The GMT offset above does not reflect daylight saving time adjustments.

~~*~*~*~*~*~*~*~*~*

Please plan to attend.

Thanks

-----Original Appointment-----
From: Carter, Sally
Sent: Monday, August 26, 2013 9:54 AM
To: Carter, Sally; Reed, Michael; Romaine, Chris; Belogorsky, Anatoly; Schnepp, Jason
Subject: USS - Premeetiing for 9/4/2013 meeting
When: Tuesday, September 03, 2013 10:30 AM-11:00 AM (GMT-06:00) Central Time (US & Canada).
Where: DLC

Pritchett, Jacob A.

Subject:	USS
Location:	IEPA - 3 North
Start:	Thu 9/5/2019 1:30 PM
End:	Thu 9/5/2019 5:30 PM
Show Time As:	Tentative
Recurrence:	(none)
Meeting Status:	Not yet responded
Organizer:	Carter, Sally
Required Attendees:	Romaine, Chris; Patel, Minesh; Kras, Kim; LaDonna Driver

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Pritchett, Jacob A.

From: Romaine, Chris
Sent: Thursday, September 5, 2019 4:00 PM
To: 'LaDonna Driver'
Subject: Accepted: FW: Conference call- USS & IEPA

Pritchett, Jacob A.

From: Romaine, Chris
Sent: Thursday, September 6, 2018 12:34 PM
To: Carter, Sally
Subject: Accepted: USS

Pritchett, Jacob A.

From: Romaine, Chris
Sent: Tuesday, September 7, 2021 4:45 PM
To: 'LaDonna Driver'
Subject: Accepted: USS & IEPA Conference call

Pritchett, Jacob A.

Subject: FW: USS

Start: Wed 9/7/2022 8:00 AM
End: Wed 9/7/2022 5:00 PM
Show Time As: Tentative

Recurrence: (none)

Meeting Status: Not yet responded

Organizer: Carter, Sally

FYI

The next conversation with US Steel is scheduled for September 7 or 8.

-----Original Appointment-----
From: Carter, Sally <Sally.Carter@Illinois.gov>
Sent: Wednesday, June 29, 2022 3:15 PM
To: Carter, Sally; Carter, Sally; Romaine, Chris; Patel, Minesh
Subject: USS
When: Wednesday, September 7, 2022 8:00 AM-5:00 PM (UTC-06:00) Central Time (US & Canada).
Where:

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Pritchett, Jacob A.

Subject:	[External] USS and IEPA Joint Meeting
Location:	IL Chamber of Commerce (main floor conference room) - 215 E Adams St, Springfield, IL 62701
Start:	Wed 9/7/2022 8:00 AM
End:	Wed 9/7/2022 5:00 PM
Show Time As:	Tentative
Recurrence:	(none)
Organizer:	LaDonna Driver

IL Chamber of Commerce
(main floor conference room)
215 E Adams Street
Springfield, IL 62701

HEPLERBROOM LLC
Lisa M. Fortner
Legal Secretary
Lisa.Fortner@heplerbroom.com
Phone: 217-993-7153
4340 Acer Grove Drive, Springfield, IL 62711
www.HeplerBroom.com | vCard

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Pritchett, Jacob A.

Subject: FW: USS

Start: Wed 9/7/2022 8:00 AM
End: Wed 9/7/2022 5:00 PM
Show Time As: Tentative

Recurrence: (none)

Meeting Status: Not yet responded

Organizer: Carter, Sally

FYI

The next conversation with US Steel is scheduled for September 7 or 8.

-----Original Appointment-----
From: Carter, Sally <Sally.Carter@Illinois.gov>
Sent: Wednesday, June 29, 2022 3:15 PM
To: Carter, Sally; Carter, Sally; Romaine, Chris; Patel, Minesh
Subject: USS
When: Wednesday, September 7, 2022 8:00 AM-5:00 PM (UTC-06:00) Central Time (US & Canada).
Where:

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Pritchett, Jacob A.

Subject:	[External] USS and IEPA Joint Meeting
Location:	IL Chamber of Commerce (main floor conference room) - 215 E Adams St, Springfield, IL 62701
Start:	Thu 9/8/2022 8:00 AM
End:	Thu 9/8/2022 5:00 PM
Show Time As:	Tentative
Recurrence:	(none)
Organizer:	LaDonna Driver

IL Chamber of Commerce
(main floor conference room)
215 E Adams Street
Springfield, IL 62701

HEPLERBROOM LLC
Lisa M. Fortner
Legal Secretary
Lisa.Fortner@heplerbroom.com
Phone: 217-993-7153
4340 Acer Grove Drive, Springfield, IL 62711
www.HeplerBroom.com | vCard

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Pritchett, Jacob A.

From: Romaine, Chris
Sent: Friday, September 9, 2016 4:25 PM
To: Carter, Sally
Subject: Accepted: USS

Kras, Kim

From: Froning, Dawn <Dawn.Froning@dnr.mo.gov>
Sent: Monday, September 9, 2019 9:52 AM
To: 'David Keen'
Cc: Hale, Kendall; Sprague, Jeff; Will, Matt (Matt.Will@Illinois.gov)
Subject: [External] RE: Modeling for US Steel Granite City Works
Attachments: GraniteCityCO_1Hr_8Hr_NAAQS.txt; GraniteCitySO2_1Hr_NAAQS.txt; GraniteCitySO2_3Hr_24Hr_Annual_NAAQS.txt; Granite_City_Steel_Screening_Results.xlsx

David,

As requested, please find attached three text files that contain the National Ambient Air Quality Standards interactive source inventories for carbon monoxide (CO) and sulfur dioxide (SO_2). All inputs are model ready with the following units of measure:

- Emission Rate
  - Grams Per Second (Point and Volume Sources)

- Point Source Release Parameters
  - Stack Height-Meters
  - Stack Temperature-Degrees Kelvin
  - Stack Exit Velocity-Meters Per Second
  - Stack Diameter-Meters

- Volume Source Release Parameters
  - Release Height-Meters
  - Initial Lateral Dimension-Meters
  - Initial Vertical Dimension-Meters

All locational data is in the NAD83 datum, **UTM Zone 15**. The emission rates are based upon the actual emissions that were reported by each facility within the MoEIS emissions reporting system. For the 1-hour SO_2 inventory, the emission rates for all emergency equipment was set to zero to account for intermittent use.

I have also attached an Excel spreadsheet that contains the screening results for CO and SO_2.

If you have any questions, please feel free to contact me at (573)526-2097. I am available Monday-Thursday from 6:00-4:30 Central Standard Time.

Sincerely,

Dawn Froning
Construction Permit Modeling Unit

From: David Keen
Sent: Wednesday, August 28, 2019 9:25 AM
To: Froning, Dawn

Cc: David Keen
Subject: RE: Modeling for US Steel Granite City Works

OK, great. Thanks for the update.

Dave

From: Froning, Dawn <Dawn.Froning@dnr.mo.gov>
Sent: Wednesday, August 28, 2019 10:19 AM
To: David Keen <keen@rtpenv.com>
Cc: Hale, Kendall <kendall.hale@dnr.mo.gov>
Subject: RE: Modeling for US Steel Granite City Works

David,

Not a problem. I started some screening runs this morning. I will use the results to determine which sources can be removed, which sources appear to be in error and which sources should remain in the inventory. There are a lot of sources so my run times are a bit slow.

I will have a final inventory to you no later than next week. If the runs finish by tomorrow and I have time to review, I will try to get it to you sooner. But, I am not holding my breath.

Sincerely,

Dawn Froning
Construction Permit Modeling Unit

From: David Keen <keen@rtpenv.com>
Sent: Wednesday, August 28, 2019 9:15 AM
To: Froning, Dawn <Dawn.Froning@dnr.mo.gov>
Cc: David Keen <keen@rtpenv.com>
Subject: RE: Modeling for US Steel Granite City Works

Dawn,

Any progress on the US Steel inventory? Hate to nag.

Dave

From: Froning, Dawn <Dawn.Froning@dnr.mo.gov>
Sent: Wednesday, August 7, 2019 5:26 PM
To: David Keen <keen@rtpenv.com>
Cc: Gurinder (Gary) Saini <saini@rtpenv.com>; Hale, Kendall <kendall.hale@dnr.mo.gov>
Subject: RE: Modeling for US Steel Granite City Works

Hi Dave,

I can start to pull the information for your inventory later this week or early next week.

Sincerely,

Dawn Froning
Construction Permit Modeling Unit

From: David Keen <keen@rtpenv.com>
Sent: Wednesday, August 7, 2019 4:24 PM
To: Froning, Dawn <Dawn.Froning@dnr.mo.gov>
Cc: Gurinder (Gary) Saini <saini@rtpenv.com>; David Keen <keen@rtpenv.com>
Subject: Modeling for US Steel Granite City Works

Hi Dawn,

Its been a while. I hope you have been well. I will be modeling for NAAQS compliance at the US Steel Granite City Works facility in East St. Louis. I will need an off-site emission inventories for CO and SO2. I do not yet have a defined distance to significant impact for any pollutant yet, but was hoping we could conservatively use a 50km screening radius to define the impact area so that I could make preliminary runs. The UTM coordinates of the Granite City site are 748,156m E, 4,286,841m N (NAD83, Zone 15).

Thanks for your help,
Dave

David Keen
RTP Environmental
keen@rtpenv.com
(919) 845-1422 x41
(919) 845-1424 fax
(919) 906-6016 mobile

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FEDERAL_ID	NAME_PLANT	OP_Type	UTM_E_X	UTM_N_Y	Elevation	EMIS_YEAR	TPY-PTE
2909900002	RIVER CEMENT CO. DBA BUZZI UNICEM USA SELMA PLANT	P70	733431.88	4229131.13	124.42	2018	1566.49
2909900007	FRED WEBER INC FESTUS ASPHALT PLANT	CP-NOP	729154.40	4233428.28	121.54	2018	26.27
2909900008	US SILICA	CP-NOP	729108.26	4231444.96	131.69	2018	22.07
2909900010	BRECKENRIDGE OF JEFFERSON COUNTY PLANT 5	CP-NOP	728308.26	4231659.93	132.99	2017	0.88
2909900011	UNION PACIFIC RAILROAD CO DESOTO CAR SHOP	INT	714576.20	4224511.20	149.73	2018	3.56
2909900013	COVIA HOLDINGS CORP PEVELY	CP-NOP	722152.16	4238060.55	172.66	2017	7.38
2909900014	DDP SPECIALTY ELECTRONIC MATERIALS US INC THE RIVERSIDE PLANT	P70	728353.47	4240500.97	140.02	2018	26.24
2909900016	AMEREN MISSOURI RUSH ISLAND ENERGY CENTER	P70	739491.07	4234078.19	123.53	2018	3465.61
2909900034	EASTERN MISSOURI CONCRETE HILLSBORO	CP-NOP	713982.87	4236409.34	220.33	2018	0.94
2909900044	METAL CONTAINER CORPORATION ARNOLD	P70	730800.10	4257280.94	134.39	2018	111.43
2909900046	MERCY HOSPITAL JEFFERSON	CP-NOP	728195.03	4230846.83	128.73	2017	61.54
2909900052	ENGINEERED COIL COMPANY D.B.A. DBS MARLO COIL	INT	713890.13	4239179.94	219.89	2018	1.60
2909900068	ARDAGH GLASS INC. PEVELY	P70	727306.83	4241579.89	139.96	2018	34.38
2909900084	SCHAEFER MORTUARY SERVICE	CP-NOP	721906.76	4257606.53	237.03	2018	0.47
2909900090	H-I ENTERPRISES INC HIGH RIDGE	CP-NOP	715077.24	4259628.13	275.33	2005	0.37
2909900092	BEHR PROCESS CORPORATION IMPERIAL	CP-NOP	722606.76	4249432.22	147.20	2012	1.40
2909900101	ARNOLD READY MIX CORP CEDAR HILL SITE	CP-NOP	705028.13	4247338.03	143.30	2015	0.33
2909900111	CARONDELET CORPORATION PEVELY	INT	727491.85	4241725.78	143.95	2018	44.70
2909900116	SINCLAIR AND RUSH ARNOLD PLANT	CP-NOP	731089.76	4257755.95	134.98	2012	7.37
2909900125	NATIONAL GEOSPATIAL INTELLIGENCE AGENCY ARNOLD	CP-NOP	727174.16	4255061.22	172.61	2018	202.34
2909900146	FRED WEBER, INC. ANTONIA	CP-NOP	720102.79	4248877.71	203.44	2014	0.08
2909900147	BRECKENRIDGE MATERIALS JEFFCO PLANT 12	CP-NOP	726107.87	4259055.67	139.80	2017	0.53
2909900150	ANIMAL CARE SERVICE INC FESTUS	CP-NOP	728479.42	4236856.27	132.87	2014	2.10
2909900155	JEFFERSON COUNTY CREMATION SERVICES LC PEVELY	CP-NOP	728536.07	4239554.88	178.32	2011	4.26
2909900156	SIMPSON CONSTRUCTION MATERIALS PAULINA HILLS SITE	CP-NOP	726459.86	4259188.04	123.25	2009	4.15
2909900172	AMERICAN CREMATION SERVICES LLC FESTUS	CP-NOP	728488.55	4236853.80	133.02	2012	0.26
2909900174	SUPERIOR SOLVENTS AND CHEMICALS ARNOLD	INT	731241.07	4256633.82	126.88	2017	0.20
2909900179	H-I ENTERPRISES	CP-NOP	713197.82	4259238.84	209.58	2016	0.13
2909940007	AAA ZOELLNER MATERIALS INC	CP-NOP	718403.43	4250460.86	259.55	2012	0.14
2909950012	PRODUCTION CASTINGS	CP-NOP	718311.53	4263597.54	166.78	2009	1.05
29099P094	H. B. WEST CONTRACTING CO INC HOUSE SPRINGS ASPHALT	CP-NOP	712353.42	4251763.19	159.78	2017	71.37
2918300001	AMEREN MISSOURI SIOUX ENERGY CENTER	P70	734752.14	4310260.61	135.29	2018	2838.61
2918300004	FRED WEBER INC O'FALLON ASPHALT PLANT	INT	695429.39	4297531.36	174.87	2017	623.72
2918300018	BOEING COMPANY ST. CHARLES	P70	719409.76	4298420.37	137.44	2018	27.52
2918300019	SSM HEALTH ST JOSEPHS HOSPITAL	CP-NOP	718499.57	4295433.59	156.93	2015	124.47
2918300023	MAGELLAN TERMINALS HOLDINGS LP ST. CHARLES TERMINAL	CP-NOP	709524.38	4296960.80	163.49	2017	35.11
2918300027	MEMC LLC-ST. PETERS PLANT	INT	703282.66	4298580.54	147.29	2018	14.16
2918300029	RB MANUFACTURING LLC ST. PETERS	CP-NOP	704453.54	4298543.79	149.02	2016	4.29
2918300038	EMI AEROSPACE, INC. HWY 94 PLANT	CP-NOP	719382.42	4299311.12	134.56	2018	1.47
2918300064	SCHREITER READY MIX	CP-NOP	701795.95	4296286.02	149.59	2012	1.69
2918300076	GENERAL MOTORS LLC WENTZVILLE CENTER	P70	689428.03	4299089.70	189.65	2018	3461.40
2918300077	O'FALLON CASTING LLC	INT	702963.32	4297576.48	150.80	2018	1.36
2918300079	ST CHARLES COUNTY CONCRETE WENTZVILLE PLANT	CP-NOP	683500.90	4297292.12	200.89	2012	1.58
2918300093	MFA AGRI SERVICES WENTZVILLE	CP-NOP	686261.70	4297939.57	190.90	2014	0.46
2918300103	SSM HEALTH ST JOSEPH HOSPITAL WEST	CP-NOP	693164.96	4297283.00	162.76	2014	46.11
2918300110	ZOLTEK CORPORATION WELDON SPRINGS	CP-NOP	701432.03	4285877.66	179.84	2016	9.96
2918300129	WOODBRIDGE CORPORATION ST. PETERS	INT	704461.64	4298235.04	150.13	2017	8.06
2918300130	BLASTCO INC	CP-NOP	690213.84	4297755.23	166.62	2012	32.23
2918300131	SUPERIOR HOME PRODUCTS INC	P70	688266.36	4296854.61	194.48	2018	0.03
2918300143	ALPLA, INC WOODBRIDGE SITE - ST. PETERS	CP-NOP	704579.75	4298266.33	148.26	2016	0.92
2918300183	ST. CHARLES COUNTY HUMANE SERVICES COTTLEVILLE	CP-NOP	705392.66	4292481.08	146.24	2018	5.85
2918300184	TRUE MANUFACTURING CO O'FALLON	INT	702777.57	4297737.78	150.94	2018	67.21
2918300189	CRAFTSMEN INDUSTRIES INC ELM POINT PLANT	CP-NOP	716108.25	4299844.40	134.44	2012	0.28
2918300196	SEYER INDUSTRIES INC	CP-NOP	709684.88	4297541.98	162.85	2018	2.54
2918300201	T AND J REALTY LLC KIENSTRA READY MIX OF FORISTELL, LLC	CP-NOP	678377.07	4297944.62	213.79	2012	0.03
2918300217	EASTERN MISSOURI CONCRETE ST. CHARLES PLANT	CP-NOP	717056.43	4291933.73	138.56	2017	2.63
2918300223	CHEMICO SYSTEMS WENTZVILLE	CP-NOP	688080.92	4298911.66	195.38	2012	16.63
2918300241	PITMAN CREMATION SERVICES WENTZVILLE	CP-NOP	684231.94	4299541.47	184.10	2018	0.09
2918300242	BAUE CARE AND CREMATION CENTER	CP-NOP	711083.11	4297080.45	161.62	2017	4.38
2918300244	HUTCHEN-STYGAR FUNERAL AND CREMATION CENTER	CP-NOP	705381.52	4291782.14	149.24	2016	0.04
2918300245	HANSEN'S TREE SERVICE O'FALLON	CP-NOP	697357.18	4298189.47	178.41	2016	89.75
2918300247	GARDNER DENVER NASH LLC ST. PETERS	CP-NOP	704289.02	4298324.33	151.91	2018	0.91
2918300248	BRODER CREMATION SERVICES EHMANN	CP-NOP	712311.97	4297924.40	146.28	2016	9.86
2918300257	UMI AEROSPACE, INC. FOUNTAIN LAKES	CP-NOP	714982.89	4300757.73	133.45	2014	3.98
2918300259	GROUND EFFECTS, LLC WENTZVILLE	CP-NOP	687833.12	4299669.99	190.21	2018	2.10
2918300262	KNAPHEIDE EQUIPMENT CO	CP-NOP	687499.37	4299688.07	182.92	2018	0.99
2918300263	SYNERGETICS	CP-NOP	698268.93	4288385.69	158.66	2018	1.21
2918300264	AMERISTAR ST. CHARLES	CP-NOP	718432.28	4294005.30	134.26	2018	47.23
2918300265	ST. CHARLES COUNTY POLICE DEPT.	CP-NOP	707525.38	4299647.56	151.79	2018	1.68
2918350015	NIKE HIM INC ST. CHARLES	CP-NOP	701677.83	4286267.70	189.75	2018	0.00
29183900I	EASTERN MISSOURI CONCRETE WENTZVILLE	CP-NOP	685114.53	4297599.45	196.96	2017	0.04
29183P211	WESTERN READY MIX WENTZVILLE	CP-NOP	690232.58	4298902.21	187.55	2014	0.21
2918900010	AMEREN MISSOURI MERAMEC ENERGY CENTER	P70	732736.78	4253752.81	127.46	2018	9043.38
2918900012	INTERNATIONAL PAPER- PLANT 7396	CP-NOP	720616.57	4269263.53	142.35	2016	7.34
2918900013	MISSOURI BAPTIST MEDICAL CENTER NORTH BALLAS	CP-NOP	727244.75	4279363.47	200.47	2016	298.20
2918900020	MONSANTO WORLD HEADQUARTERS LINDBERGH BLVD	INT	726258.11	4283348.63	710.39	2018	229.07
2918900021	U. S. SILICA COMPANY PACIFIC	CP-NOP	698244.91	4262010.04	142.69	2018	37.54
2918900022	ST. JOHNS MERCY MEDICAL CNTR/MAINTENANCE NEW BALLAS RD	CP-NOP	722224.73	4280418.48	732.68	2015	108.64
2918900032	MONSANTO CHESTERFIELD VILLAGE	INT	712608.90	4282124.50	178.67	2018	375.12

291890040	FRED WEBER, INC. JEFFERSON BARRICKS	CP-NOP	736875.29	4262156.73	128.55	2015	632.85
291890041	MIDWEST, LLC	CP-NOP	725259.72	4265458.11	125.19	2009	27.04
291890042	WASHINGTON UNIVERSITY DANFORTH CAMPUS	INT	734425.40	4261363.46	154.91	2017	609.86
291890057	ST. LOUIS POST-DISPATCH DUNLAP BND DR	NOP	723552.04	4288010.51	164.55	2017	1.80
291890064	SUNNEN PRODUCTS COMPANY MAPLEWOOD	INT	732332.04	4277122.52	152.33	2017	3.35
291890065	ST. LOUIS AIRPORT AUTHORITY LAMBERT INTERNATIONAL BLVD	INT	728947.29	4291571.16	164.29	2018	649.90
291890069	THE QUIKRETE COMPANIES, INC. VALLEY PARK	INT	719634.33	4269866.70	129.52	2018	46.53
291890101	BRECKENRIDGE MATERIAL CO PLANT 6A	CP-NOP	720634.29	4291120.10	140.92	2017	2.45
291890104	BRECKENRIDGE MATERIAL CO-PLANT 3	CP-NOP	710839.02	4282733.37	142.05	2017	1.10
291890111	MISSOURI ASPHALT PRODUCTS, LLC WEST LAKE QUARRY MATERIAL CO	INT	721914.39	4294042.31	140.97	2017	529.12
291890140	STOUT MARKETING JENNINGS	CP-NOP	738591.48	4288667.89	149.61	2013	4.42
291890201	FRED WEBER, INC. ANTIRE	CP-NOP	711291.07	4264547.49	134.72	2017	290.24
291890217	METROPOLITAN ST. LOUIS SEWER DISTRICT LEMAY WWTP	P70	737818.81	4268121.76	139.71	2018	9388.97
291890221	PM RESOURCES, INC. VIRBAC ANIMAL HEALTH	CP-NOP	722483.25	4294399.14	146.43	2018	5.33
291890230	THE BOEING COMPANY ST. LOUIS	P70	728742.77	4293777.11	167.09	2018	1964.21
291890283	GOLDEN TRIANGLE CONCRETE COMPANY ANTIRE QUARRY	CP-NOP	711341.68	4264539.67	136.17	2016	1.75
291890308	CHAMP LANDFILL COMPANY LLC	P70	720845.43	4291144.98	147.70	2018	709.56
291890310	ADVANCED DISPOSAL SERVICES OAK RIDGE LANDFILL	P70	715270.71	4270434.90	177.84	2018	260.96
291890312	BRIDGETON LANDFILL, LLC	P70	722107.35	4294454.70	139.99	2018	1195.83
291890315	FDL TAPE LLC FENTON	P70	722400.26	4269382.25	132.32	2018	0.33
291890318	SSM HEALTH ST MARYS HOSPITAL	INT	734075.92	4279544.88	181.84	2017	865.19
291890321	LHB INDUSTRIES BERKELEY	CP-NOP	731030.73	4293368.80	158.44	2015	0.74
291890326	AIR PRODUCTS-PRISM MEMBRANES DIV OF AIR PRODUCTS AND CHEMICALS	CP-NOP	724210.29	4286383.57	160.25	2017	4.86
291891012	BELTSERVICE CORP	P70	719386.00	4293877.45	134.24	2018	1.15
291891029	SSM HEALTH DEPAUL HOSPITAL - ST. LOUIS BRIDGETON	INT	723046.72	4292134.06	166.76	2018	202.81
291891040	VALHALLA CEMETERY CREMATORY AND MAUSOLEU ST. LOUIS	CP-NOP	733090.91	4285958.54	185.46	2012	0.65
291891052	VETERANS ADMIN MEDICAL CENTER JEFFERSON BARRACKS DRIVE	CP-NOP	736944.98	4264089.51	156.01	2015	419.14
291891059	CHRISTIAN HOSPITAL NORTHEAST DUNN ROAD	CP-NOP	739738.60	4295554.78	175.32	2016	171.73
291891093	BODINE ALUMINUM INC WALTON ROAD	CP-NOP	730791.15	4286068.83	187.38	2018	21.82
291891097	REICHHOLD LLC 2 VALLEY PARK	INT	718899.54	4269850.38	129.28	2017	27.18
291891101	ST. LUKE'S HOSPITAL WOODS MILL ROAD	INT	717334.17	4280934.01	155.10	2017	66.84
291891114	LOGAN UNIVERSITY CHESTERFIELD	CP-NOP	713945.76	4278742.22	194.89	2012	7.84
291891133	MEMORIAL PARK CREMATORY JENNINGS	CP-NOP	736164.03	4288282.79	186.25	2012	6.42
291891155	ST. ANTHONY'S MEDICAL CENTER KENNERLY ROAD	CP-NOP	728489.70	4265428.04	193.36	2017	101.22
291891172	MOUNT HOPE CEMETERY AND MAUSOLEUM CO LEMAY FERRY ROAD	CP-NOP	736020.58	4268202.21	151.94	2012	0.97
291891175	NEW ST MARCUS CEMETERY GRAVOIS	CP-NOP	735277.67	4271563.03	144.04	2017	1.29
291891205	MSD, MISSOURI RIVER WWTP MO RIVER WASTERWATER TREATMENT PLANT	P70	718533.79	4290583.38	136.51	2018	135.37
291891226	SIMPSON CONSTRUCTION MATERIALS LLC VALLEY PARK	INT	715996.20	4268469.87	127.91	2018	532.05
291891248	FRED WEBER INC. - SOUTH ASPHALT BATCH SOUTH ASPHALT	INT	732939.25	4259955.19	126.82	2017	737.61
291891249	FRED WEBER INC - NORTH ASPHALT H AND B NORTH ASPHALT	INT	720614.10	4290798.15	141.38	2017	345.96
291891250	FRED WEBER INC. - NORTH ASPHALT B-G NORTH ASPHALT, B-G	INT	720721.92	4290857.59	146.71	2017	556.67
291891251	MARK ANDY INC CHESTERFIELD	CP-NOP	705452.63	4282916.47	139.91	2012	0.33
291891259	MACLAN INDUSTRIES	CP-NOP	742056.49	4291436.76	152.04	2013	367.92
291891268	BRECKENRIDGE MATERIALS CO, PLANT 68	CP-NOP	720620.54	4291166.38	140.80	2017	2.45
291891269	GLIDEAWAY MFG COMPANY ST. JOHN	CP-NOP	731953.94	4287278.39	176.42	2016	0.40
291891289	MISSOURI AMERICAN WATER CENTRAL PLANT CHESTERFIELD	CP-NOP	715427.34	4284896.78	137.71	2018	72.77
291891299	I B M GLOBAL SERVICES HAZELWOOD	CP-NOP	728059.74	4294389.33	177.61	2015	432.58
291891301	RELIABLE BIOPHARMACEUTICAL WALTON ROAD	CP-NOP	730869.81	4285566.69	184.12	2015	2.83
291891474	SPIRE MISSOURI, EAST INC.	CP-NOP	736637.09	4302290.45	161.69	2018	738.55
291891476	MISSOURI AMERICAN WATER COMPANY MERAMEC BOTTOMS	CP-NOP	729844.61	4280421.67	135.93	2013	86.17
291891489	GKN AEROSPACE NORTH AMERICA, INC. BERKELEY	P70	729005.49	4293562.36	164.61	2018	113.40
291891507	PATHEON BIOLOGICS, LLC	CP-NOP	731393.21	4290195.85	189.51	2018	272.93
291891520	F AND S PRINTING ST. LOUIS	CP-NOP	726924.55	4285318.88	192.04	2017	1.47
291891521	FRED WEBER, INC FT BELLE	CP-NOP	739499.97	4302900.13	134.04	2015	254.29
291891533	BRECKENRIDGE MATERIAL COMPANY PLANT 15	CP-NOP	709604.72	4284148.10	137.86	2017	1.22
291891534	A.G. RECYCLING	CP-NOP	734844.18	4284158.21	160.30	2008	33.29
291891541	PACKAGING CONCEPTS INC GREEN PARK	CP-NOP	732664.82	4267539.09	150.56	2016	8.79
291891544	EDWARD JONES MANCHESTER	CP-NOP	722364.20	4275958.32	202.01	2010	60.98
291891546	SCHRADER FUNERAL HOME MANCHESTER	CP-NOP	713670.30	4274422.60	179.29	2012	0.13
291891562	ECO RECYCLING PAGE AVE	CP-NOP	734708.62	4284060.72	167.34	2012	12.09
291891564	JOST CHEMICAL CO.	CP-NOP	731957.52	4288080.73	167.12	2016	4.42
291891566	SPECGX, LLC WEBSTER GROVES	CP-NOP	731463.13	4276675.43	146.11	2013	3.64
291891585	MISSOURI-AMERICAN WATER CO FLORISSANT	CP-NOP	728394.88	4300010.04	141.06	2017	25.30
291891590	CENVEO - ST. LOUIS EUREKA	CP-NOP	703439.56	4264693.86	154.60	2017	7.03
291891591	AMEREN MISSOURI MARYLAND HEIGHTS ENERGY CENTER	CP-NOP	720783.03	4290953.26	146.57	2018	69.54
291891652	PROFESSIONAL FUNERAL DIRECTOR SERVICES JENNINGS	CP-NOP	738230.09	4288878.89	149.62	2016	0.13
291891685	THE HARPER COMPANY	CP-NOP	731184.93	4292013.86	176.46	2012	20.22
291891687	VI-JON INC PAGE	CP-NOP	731243.57	4285291.47	175.82	2016	8.19
291891698	LOVING HEARTS PET MEMORIAL SERVICES EUREKA	CP-NOP	704021.40	4264414.32	148.40	2018	12.59
291891706	INTERNATIONAL FOOD PRODUCTS CORP. AVIATOR	CP-NOP	729526.18	4294467.82	159.70	2016	3.83
291891720	MILLSTONE-WEBER AIRPORT CONCRETE PLANT 7002	CP-NOP	726087.98	4292518.43	176.78	2015	26.48
291891733	NESTLE PURINA SUPPORT CENTER LAKE BLUFF DRIVE	CP-NOP	732883.47	4267324.06	139.76	2017	0.06
291891739	UNITED INDUSTRIES CORP DBA CHEMSICO	CP-NOP	731399.10	4285753.76	186.33	2018	4.34
295100003	ANHEUSER-BUSCH INC ST. LOUIS	P70	743002.81	4275906.67	142.81	2018	703.07
295100017	MALLINCKRODT N SECOND	P70	744362.95	4283022.76	127.99	2018	620.31
295100027	PRECOAT METALS	P70	739365.77	4273999.59	144.48	2018	57.40
295100031	ADM GRAIN COMPANY ST. LOUIS	INT	744141.30	4284932.90	129.20	2018	17.11
295100036	BUCKEYE TERMINALS LLC SOUTH ST LOUIS-OLD CLARK TERMINAL	CP-NOP	741957.84	4273938.51	128.53	2018	7.57
295100038	ASHLEY ENERGY LLC	P70	745321.30	4280225.01	128.51	2018	287.71
295100040	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	P70	738259.22	4279906.98	154.64	2018	393.19
295100047	FRED WEBER INC KINGSHIGHWAY ASPHALT	INT	737928.10	4278514.12	140.93	2017	315.59
295100053	METROPOLITAN ST. LOUIS SEWER DISTRICT BISSELL POINT WWTP	P70	743783.86	4284552.97	131.19	2018	902.68

29510000054	NATIONAL GRAPHICS	CP-NOP	741348.81	4274954.64	163.86	2008	2.10
29510000056	VETERANS ADMIN MEDICAL CENTER JOHN COCHRAN DIV	CP-NOP	741647.52	4280704.99	163.99	2014	109.38
29510000057	PROCTER AND GAMBLE ST. LOUIS	INT	743507.63	4284424.63	128.96	2017	68.91
29510000063	HENKEL, ST. LOUIS	CP-NOP	741857.10	4286434.47	128.42	2017	21.01
29510000066	ELEMENTIS SPECIALTIES INC	PTO	737902.56	4276454.04	137.90	2018	32.32
29510000070	ICL SPECIALTY PRODUCTS INC CARONDELET PLANT	PTO	737985.63	4270043.56	126.75	2018	186.07
29510000096	CLANTAS PDG, INC. SECOND ST	PTO	743167.86	4284941.73	128.65	2018	38.37
29510001118	PW ALUMINUM ST. LOUIS	PTO	740063.39	4271318.74	129.21	2018	48.57
29510001159	ADM MILLING COMPANY ST. LOUIS MRL	CP-NOP	740179.22	4285287.05	144.53	2018	3.11
29510001179	ITALGRANI ELEVATOR USA US DURUM	CP-NOP	739217.80	4286466.53	129.09	2017	7.33
29510001181	INTERNATIONAL PAPER ST. LOUIS	CP-NOP	738918.10	4285784.09	151.65	2013	7.32
29510002001	ST. ALEXIUS HOSPITAL JEFFERSON CAMPUS	CP-NOP	741441.37	4274961.73	164.77	2016	44.31
29510002012	KOP-COAT INC.	CP-NOP	737445.96	4277202.22	161.51	2007	1.19
29510002041	BARNES JEWISH HOSPITAL	INT	738059.57	4279829.93	155.46	2016	693.66
29510002691	SENSIENT COLORS LLC	CP-NOP	742516.54	4281683.89	155.16	2017	90.01
29510003911	HERMANN OAK LEATHER CO	INT	744081.08	4283643.42	128.40	2017	11.94
29510004051	A&E RACK CO N BROADWAY	CP-NOP	741485.53	4286249.89	130.96	2006	0.03
29510004171	LOY-LANGE BOX CO ST. LOUIS	CP-NOP	743779.13	4276624.85	129.26	2015	7.91
29510004911	SPORTSPLAY EQUIPMENT	CP-NOP	737653.93	4285196.76	161.52	2015	0.03
29510005611	INDUSTRIAL CONTAINER SERVICES - MO, LLC MANCHESTER	CP-NOP	737686.12	4278652.89	140.26	2017	7244.31
29510006711	BEN HUR CONSTRUCTION AND STEELWORK LLC	CP-NOP	740305.24	4285378.12	139.62	2012	3.86
29510006741	STRATEGIC MATERIALS INC BRANCH 51	CP-NOP	744711.03	4282472.95	127.40	2017	1.77
29510006971	SIGMA - ALDRICH MFG LLC DEKALB FACILITY	PTO	742482.23	4274782.24	147.81	2018	761.63
29510008071	KIENSTRA MATERIALS COMPANY LLC TYLER	CP-NOP	745045.02	4281427.38	128.53	2012	2.57
29510008091	PQ CORPORATION -IHE	PTO	739053.43	4285317.19	150.58	2018	34.16
29510010111	MICROFINISH IPC LLC GRATIOT	CP-NOP	739565.05	4279341.23	147.63	2018	9.64
29510010771	MID WEST INDUSTRIAL CHEMICAL	PTO	735750.86	4278429.74	137.56	2018	0.18
29510010881	SCHAEFFER MFG	INT	743869.37	4276134.19	128.17	2018	7.38
29510010931	BRENNTAG MID-SOUTH INC	PTO	739817.63	4270970.59	127.40	2018	3.68
29510012041	BI-STATE DEVELOPMENT AGENCY DBA METRO MAIN REPAIR FACILITY	CP-NOP	741158.80	4279528.69	144.87	2018	3.56
29510012161	U S POLYMERS-ACCUREZ, LLC PRIMM STREET	CP-NOP	739971.86	4269685.75	138.29	2015	3.06
29510012791	HUMANE SOCIETY OF MISSOURI ST. LOUIS - MACKLIND AVE	CP-NOP	737152.32	4278817.48	145.02	2013	1.10
29510013491	ST. LOUIS UNIV HEALTH SCIENCES CENTER	CP-NOP	740464.71	4278467.32	166.05	2016	32.53
29510013571	WILLERT HOME PRODUCTS	CP-NOP	739541.55	4278373.73	145.79	2017	2.45
29510013631	ALSCO, INC ST. LOUIS	CP-NOP	743334.17	4275818.28	130.55	2015	11.66
29510013791	NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY ST LOUIS	CP-NOP	743107.71	4275132.40	131.72	2018	93.57
29510013981	ARTCO ST. LOUIS-AMERICAN RIVER TRANS CO ST. LOUIS	CP-NOP	741237.54	4273049.76	127.97	2018	45.89
29510014071	SOUTHERN METAL PROCESSING	INT	739807.53	4271091.77	130.00	2017	0.99
29510014211	PSE METALS, LLC	CP-NOP	744406.27	4283139.66	127.58	2018	0.27
29510015051	SSM HEALTH ST. LOUIS UNIVERSITY HOSPITAL	INT	740357.18	4278680.20	161.04	2018	182.08
29510015181	NIES/ARTCRAFT ST. LOUIS	CP-NOP	736298.80	4279120.42	150.70	2009	1.64
29510015211	RONROCO COFFEE	CP-NOP	739195.65	4279537.37	152.38	2017	144.54
29510015561	CONNECTOR CASTINGS	INT	745041.14	4281096.00	159.21	2017	6.78
29510016421	J S ALBERICI CONSTRUCTION	INT	736723.66	4285287.44	175.36	2017	213.27
29510017611	NESTLE PURINA PETCARE COMPANY ST. LOUIS	INT	743912.49	4276167.30	141.77	2017	196.46
29510018601	BRECKENRIDGE MATERIAL CO ST. LOUIS PLANT 7	CP-NOP	744774.97	4277468.00	124.39	2017	1.70
29510018751	RANKEN TECHNICAL COLLEGE	CP-NOP	739444.43	4281841.75	155.51	2014	9.93
29510022611	PAULO PRODUCTS COMPANY	CP-NOP	736597.70	4278776.67	151.74	2018	4.18
29510023141	CLASSIC METAL CRAFT INC	CP-NOP	739263.40	4276972.54	148.67	2015	9.01
29510023781	BRANDONVIEW, LLC GALLERY 720 BUILDING	PTO	744460.61	4279253.62	141.88	2018	899.76
29510024331	RIVIANA FOODS INC.	INT	736790.36	4280187.16	133.76	2017	12.07
29510024351	TRI RINSE INC	CP-NOP	744400.07	4277372.94	127.25	2018	21.58
29510024561	CHRISTY REFRACTORIES CO L.L.C.	CP-NOP	738223.37	4278216.85	147.31	2018	6.71
29510025031	WESTERN READY MIX, INC.	CP-NOP	744296.36	4283952.83	128.14	2015	8.21
29510025451	SOUTHWESTERN BELL TELEPHONE COMPANY	INT	744346.61	4279152.95	140.68	2017	788.24
29510025601	GP RECYCLING, LLC	CP-NOP	742830.86	4280034.28	128.30	2013	33.19
29510026201	ARTCO NORTH TERMINAL FIRST ST	CP-NOP	742163.68	4274112.09	129.89	2018	1.69
29510026441	LUXCO CORP	CP-NOP	737350.09	4276355.77	170.21	2009	113.38
29510026601	ST LOUIS CREMATION SERVICE	CP-NOP	742480.05	4278462.05	137.02	2018	7.29
29510026821	BKEP MATERIALS, LLC ST. LOUIS TERMINAL CO	CP-NOP	739532.17	4270413.67	127.78	2017	6.71
29510027101	AT AND T ST. LOUIS	CP-NOP	742329.53	4279815.47	160.86	2011	110.48
29510027111	SAINT LOUIS UNIVERSITY FACILITIES SERVICES	INT	740384.08	4280241.59	153.26	2017	116.42
29510027211	METRO ST. LOUIS PSYCHIATRIC CENTER	CP-NOP	737050.60	4281890.90	160.19	2015	4.15
29510027861	ASPEN INDUSTRIES ST. LOUIS	CP-NOP	738281.29	4278204.10	147.25	2016	0.04
29510028021	SSM CARDINAL GLENNON CHILDRENS HOSPITAL	CP-NOP	740376.29	4278334.05	166.57	2018	246.53
29510028491	HEARTLAND PET CREMATION PAPIN	CP-NOP	742496.24	4278542.52	137.34	2018	9.39
29510029591	KINDER MORGAN TRANSMIX CO ST. LOUIS	INT	741840.04	4273774.96	128.56	2018	5.41
29510029521	MIDWEST SHINGLE RECYCLING	CP-NOP	741553.45	4278439.32	129.30	2011	20.29
29510030221	INTERNATIONAL FOOD PRODUCTS PRAIRIE STATION	CP-NOP	743675.17	4285015.08	130.96	2015	6.03
29510030311	9 AIRWAY HOLDINGS INC	CP-NOP	742163.18	4274528.29	160.84	2018	0.85
29510030951	OBAX INFRASTRUCTURES	CP-NOP	740681.25	4285281.13	135.66	2018	0.16

**N/A indicates that the facility was removed before actual emissions were modeled due to PTE concentrations less than the 1-Hour Significant Impact Level.*

Kras, Kim

From: Carter, Sally
Sent: Wednesday, September 13, 2023 10:42 AM
To: Kras, Kim
Subject: FW: #BYPASS US Steel Corporation's Comments on the Notice of Intent
Attachments: USS Comments on draft PSD denial 9.11.23.pdf

From: Schnepp, Jason <Jason.Schnepp@Illinois.gov>
Sent: Tuesday, September 12, 2023 7:28 AM
To: Romaine, Chris <Chris.Romaine@Illinois.gov>
Cc: Carter, Sally <Sally.Carter@Illinois.gov>; Patel, Minesh <Minesh.Patel@Illinois.gov>
Subject: FW: #BYPASS US Steel Corporation's Comments on the Notice of Intent

From: Frost, Brad <Brad.Frost@Illinois.gov>
Sent: Tuesday, September 12, 2023 7:27 AM
To: Schnepp, Jason <Jason.Schnepp@Illinois.gov>
Subject: FW: #BYPASS US Steel Corporation's Comments on the Notice of Intent

Same as previously sent. Sending to you for the record

From: Lisa M. Fortner <Lisa.Fortner@heplerbroom.com>
Sent: Monday, September 11, 2023 1:32 PM
To: Frost, Brad <Brad.Frost@Illinois.gov>
Cc: LaDonna Driver <LaDonna.Driver@heplerbroom.com>
Subject: [External] #BYPASS US Steel Corporation's Comments on the Notice of Intent

Dear Mr. Frost:

Please find US Steel Corporation's -Granite City Works Comments on the Notice of Intent to deny. A hard copy will be hand delivered to you today as well.

Sincerely
Lisa Fortner

HEPLERBROOM LLC
Lisa M. Fortner
Legal Secretary
Lisa.Fortner@heplerbroom.com
Phone: 217-993-7153 Fax: 217-528-3964
4340 Acer Grove Drive, Springfield, IL 62711
www.HeplerBroom.com | vCard

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SPRINGFIELD, IL 62711
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September 11, 2023

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:

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[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

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[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.
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> For the reasons presented above, numeric CO emission standards are not feasible for the blast

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[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.

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[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

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[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

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[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

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[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.

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[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."

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[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

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[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.

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[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.

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[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.").

EXHIBIT 1

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

EXHIBIT 1

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

9 - 8 - 23
DATE

The above certification pertains to the application supplement signed, dated and previously submitted on October 3, 2022.

Pritchett, Jacob A.

From:	Carter, Sally
Sent:	Monday, September 17, 2018 5:23 PM
To:	Romaine, Chris; Smet, Robert
Subject:	FW: United States Steel Corporation - PCB 2013-53 and PCB 2013-62
Attachments:	B. Burlingham ltr - USS 9.17.18.PDF; 7JJ4305-Attachment 1 - 1996 Construction Permit.PDF; 7JB6562-Attachment 2 - Exhibit B to USS Petition.PDF; 7JK0072-Attachment 3 - White Paper.PDF; 7JJ7294-Attachment 4 - 7.9.18 IEPA Response to 2018 Stack Testing Schedule.PDF; 7JJ7306-Attachment 5 - 9.6.18 - USS ltr.PDF

From: Katie J. Ginest <Katie.Ginest@heplerbroom.com>
Sent: Monday, September 17, 2018 5:14 PM
To: Burlingham, Rebecca <RBurlingham@atg.state.il.us>
Cc: 'dwhacker@uss.com' <dwhacker@uss.com>; Carter, Sally <Sally.Carter@Illinois.gov>; Katherine D. Hodge <Katherine.Hodge@heplerbroom.com>; Joshua J. Houser <Joshua.Houser@heplerbroom.com>
Subject: [External] United States Steel Corporation - PCB 2013-53 and PCB 2013-62

Per Kathy, please see the attached correspondence and attachments.

Thank you,

HEPLER BROOM LLC
Katie J. Ginest
Paralegal
Katie.Ginest@heplerbroom.com
Phone: 217-993-6079 Fax: 217-528-3964
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September 17, 2018

CONFIDENTIAL:
FOR SETTLEMENT PURPOSES ONLY

VIA ELECTRONIC MAIL

Rebecca Burlingham, Esq.
Supervising Attorney
Illinois Attorney General's Office
Environmental Bureau
69 West Washington Street, 18th Floor
Chicago, IL 60602

Re: United States Steel Corporation
Illinois Pollution Control Board
PCB 2013-53 and PCB 2013-62

Dear Becky:

This letter is to follow up on our recent discussions regarding the above-referenced pending air permit appeals for United States Steel Corporation's ("USS") Granite City Works ("GCW"), i.e., *United States Steel Corporation v. Illinois Environmental Protection Agency,* PCB 2013-053, and *United States Steel Corporation v. Illinois Environmental Protection Agency,* PCB 2013-062, as well as to provide information for your review and consideration prior to our meeting set for September 19, 2018. As discussed, the meeting will be held at the Illinois Environmental Protection Agency's ("Illinois EPA") Springfield, Illinois offices, and we understand that Illinois EPA wishes to discuss both legal and technical issues involved with these pending matters.

Background/Summary

As you know, the primary issues involved in the pending CAAPP Permit appeal (PCB 2013-53) relate to Illinois EPA's inclusion of Condition 5.13 in the 2013 CAAPP Permit and explicit determination that "emission factors" included in the CAAPP Permit are, in fact, enforceable "emission limits." These emission factors were incorporated into the 2013 CAAPP Permit from the prior Construction Permit/Prevention of Significant Deterioration ("PSD")

Approval No. 95010001 ("PSD Permit")[1], issued to National Steel Corporation, the prior owner and operator of GCW, by Illinois EPA on January 25, 1996 (and subsequently revised and reissued on several occasions). Similarly, the primary issues involved in the pending Construction Permit appeal (PCB 2013-62) relate to Illinois EPA's inclusion of certain conditions from the 2013 CAAPP Permit, along with Illinois EPA's explicit determination that "emission factors" incorporated from the PSD Permit are enforceable "emission limits."

The PSD Permit granted authority for production increases at GCW that included increases in the allowable production rates of iron and steel. Apparently consistent with the federal PSD program and regulations in place in 1996, the PSD Permit issued by Illinois EPA established maximum production rates for the Blast Furnace Operations, BOF Shop, Continuous Casting Operations, as well as maximum annual emission limits for the related emission units and activities. The PSD Permit also included emission factors, by pollutant, for related emission units and activities. As detailed in USS's petition for review of the 2013 CAAPP Permit, USS contends that the emission factors, as carried over from the PSD Permit, are not enforceable emission limits. Exhibit B to USS's petition for review of the 2013 CAAPP Permit describes the contested conditions in detail.[2]

As set forth in USS's petition for review of the 2013 CAAPP Permit,[3] some of the emission factors that Illinois EPA refers to as limits by way of Condition 5.13 of the CAAPP Permit were derived from AP-42, Compilation of Air Pollutant Emission Factors. In AP-42, USEPA clearly states that AP-42 emission factors are "generally assumed to be representative of long-term averages for all facilities in the source category." USEPA, Emission Factors & AP-42, Compilation of Air Pollutant Emission Factors, *available at* https //www epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emissions-factors#5thed (last visited Sept. 17, 2018). In AP-42, USEPA also states that "[e]mission factors in AP-42 are neither EPA-recommended emission limits . . . nor standards . . . ." USEPA, Compilation of Air Pollutant Emissions Factors Volume I: Stationary Point and Area Sources, 5th ed., at 2 (Jan. 1995) (emphasis in original). USEPA clarifies:

> Use of [emission] factors as source-specific permit limits and/or as emission regulation compliance determinations is not recommended by EPA. Because emission factors essentially represent an average of a range of emission rates, approximately half of the subject sources will have emission rates greater than the emission factor and the other half will have emission rates less than the factor. As such, a permit limit using an AP-42 emission factor would result in half of the sources being in noncompliance.

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[1] A copy of the Construction Permit (Application No. 9501001) is attached to this letter as Attachment 1.
[2] A copy of Exhibit B to the petition for review is attached to this letter as Attachment 2. Note that Special Condition 7.5.6(b), as included in Exhibit B, addresses the Illinois EPA's failure to include a compliance schedule in the 2013 CAAPP Permit, and is not related to the emission factor issue.
[3] The positions and sources discussed in this portion of USS's petition for review of the 2013 CAAPP Permit, i.e., AP-42 and the USEPA Administrator Order in *Chevron*, were again reviewed and verified as part of the preparation of this letter.

Id. In short, USEPA clearly articulates that AP-42 emission factors are indeed emission estimates. This is consistent with how Illinois EPA determined some of the annual emission limits for GCW – by using the AP-42 emission factor as the average.

Moreover, the use of emission factors as limits is generally rejected by USEPA. In an administrator order responding to a petition to object to a Title V permit, USEPA plainly states:

> An AP-42 emission factor is a value that roughly correlates the quantity of a pollutant released to the atmosphere with an activity associated with the release of that pollutant. The use of these emission factors may be appropriate in some permitting applications, such as establishing operating permit fees. However, EPA has stated that AP-42 factors do not yield accurate emissions estimates for individual sources. *See In the Matter of Cargill, Inc.*, Petition IV-2003-7 (Amended Order) at 7, n.3 (Oct. 19, 2004). Because emission factors essentially represent an average of a range of facilities and of emission rates, they are not necessarily indicative of the emissions from a given source at all times; with a few exceptions, use of these factors to develop source-specific permit limits or to determine compliance with permit requirements is generally not recommended.

Order Denying in Part and Granting in Part a Petition for Objection to Permit, *In the Matter of Chevron Products Company, Richmond, California Facility,* Petition No. IX-2004-08, at 23-24 (Mar. 2005). In *Chevron*, USEPA also explains that a single emission factor that was developed to represent *long-term average emissions* is not necessarily predictive of determining compliance at any *specific* time. *Id.*

However, in an effort to resolve these issues, starting in 2013, USS and Illinois EPA met on multiple occasions to discuss the emission factor issues, including approaches for ensuring compliance with the existing annual emission limits for potential to emit ("PTE") established in the underlying PSD Permit, as well as USS's need for practically enforceable limits to allow for operational flexibility due to GCW's inherent and dynamically variable operations. For example, USS has repeatedly discussed with Illinois EPA how GCW is not like a power plant that operates continuously, but rather has expected variability in operations and process parameters. It is technologically infeasible and economically unreasonable for USS to compromise on the needed operational flexibility at GCW. According to information in our file, USS and Illinois EPA met for such discussions first on September 4, 2013, and then at least an additional 12 times, most recently on November 1, 2017. Note that the parties agreed to disagree, early on in these appeals, as to the compliance schedule issue.

Status of Operations at GCW

The iron and steel making operations at GCW were temporarily idled in late 2015 due to challenging market conditions beyond the control of USS, including global excess steel capacity and unfairly traded imports. Thereafter, on May 22, 2018, USS tendered notice to Illinois EPA that it intended to resume iron and steel making operations at GCW, because of improvements in

both the price and demand for such products. USS commenced operation of Blast Furnace B in early June, 2018 and anticipates commencing operation of Blast Furnace A in early October, 2018.

Prior Discussions Regarding Emission Factor Issues

Despite the temporary idling of the iron and steel making operations at GCW, USS continued to meet with Illinois EPA to discuss resolution of the emission factor issues. During such meetings, the parties reviewed and discussed the contested conditions, which fall into three categories: 1) emission units and activities with historic test data; 2) emission units and activities without historic test data; and 3) emission units and activities for which additional research is necessary. Unfortunately, neither the PSD Permit itself, nor the Illinois EPA record, nor the applications submitted by the former owner/operator provided sufficient detail on the development of the emission factors at issue. A summary status update is set forth below for the three categories of contested conditions.

1) Emission units and activities with historic test data

The following contested conditions fall into this category:

Special Condition 7.4.6(b) – Blast Furnace Casthouse Baghouse

Special Condition 7.4.6(f) – Blast Furnace Iron Spout Baghouse

Special Condition 7.5.6(c) – BOP ESP Stack (Charge, Refine, Tap)

Special Condition 7.5.6(e) – BOP Hot Metal Desulfurization and Hot Metal Transfer

Special Condition 7.5.6(f) – BOP Hot Metal Charging and Ladle Slag Skimming

Special Condition 7.5.6(g) – BOP Argon Stirring Station Material Handling Tripper

Special Condition 7.6.6(c) – Blast Furnace Caster Spray Chambers

The discussions on these emission units and activities involved review/evaluation by the parties of historic test data for the above-listed contested conditions. Then, it was necessary for USS to review production data and develop lbs/hr factors to be used for comparison with the prior lbs/ton production emission factors, which were included in the PSD Permit. However, the use of lbs/hr factors for compliance purposes, i.e., enforceable emission limits, resulted in the very same concerns as using the prior lbs/ton emission factors.

USS presented significant information on the variability of both production and operating scenarios for most of the above-listed emission units and activities, along with the need for alternative methods for ensuring compliance, i.e., methods other than merely replacing the lbs/ton emission factors with lbs/hr emission limits. At the last meeting held on November 1, 2017, USS proposed such alternative methods for the Blast Furnace Casthouse Baghouse, along with supporting information from federal guidance/EAB decisions. Illinois EPA summarily rejected USS's proposal as not "practically enforceable."

USS then offered to prepare a "white paper" addressing approaches approved by USEPA for ensuring compliance with annual emission limits for PTE. In that regard, please see the attached White Paper, Approaches for Ensuring Compliance with Annual Emission Limits for Potential to Emit (Sept. 17, 2018), attached to this letter as Attachment 3. USS anticipates discussion at the upcoming meeting of such approaches and, if the parties can reach conceptual agreement on this point, USS commits to submit additional specific proposals for the contested conditions set forth above in accordance with a mutually agreeable schedule.

2) Emission units and activities without historic test data

The following contested conditions fall into this category:

Special Condition 7.1.6(b)(i) – Material Handling and Processing Operations Emissions from Material HS and Deslagging Station

Special Condition 7.1.6(b)(ii) – BOP Additive System (Trackhopper Baghouse)

Special Condition 7.1.6(b)(iii) – Flux Conveyor and Transfer Points (Bin Floor Baghouse)

Special Condition 7.1.6(b)(iv) – Iron Pellet Screen

Special Condition 7.4.6(c) – Blast Furnace Uncaptured Fugitive Emissions

Special Condition 7.4.6(d) – Blast Furnace Charging

Special Condition 7.4.6(e) – Blast Furnace Slag Pits

Special Condition 7.5.6(d) – BOP Roof Monitor

Special Condition 7.6.6(a) – Continuous Casting Deslagging Station and Associated Material Handling System

Special Condition 7.6.6(b) – Continuous Casting Caster Molds (Casting)

Special Condition 7.6.6(c) – Continuous Casting Caster Spray Chambers

Special Condition 7.6.6(d) – Continuous Casting Slab Cut-off

Special Condition 7.6.6(e) – Continuous Casting Slab Ripping

The discussions on these emission units and activities involved considerable research of AP-42 factors and other resources available on the internet, as well as research/review of air permits for similar emission units and activities at other facilities. USS presented, and the parties discussed, the results of USS's research at several meetings with Illinois EPA. USS anticipates additional discussions will be necessary here too regarding approaches for ensuring compliance with annual emission limits for PTE. Again, if the parties can reach conceptual agreement, USS commits to submit additional specific proposals for the contested conditions set forth above in accordance with a mutually agreeable schedule. Finally, continued research may be necessary for some of the emission units and activities in this list.

3) Emission units and activities for which additional research is necessary

The following contested conditions include a subset from the second category above:

Special Condition 7.5.6(b) – BOP Shop Emissions (NOx and VOM Annual Emissions)

Special Condition 7.5.6(c) – BOP ESP Stack (Charge, Refine, Tap)

Special Condition 7.5.6(d) – BOP Roof Monitor

Additional research is necessary here for emissions of NOx and VOM and, as set forth above, is related as well to the compliance schedule issue.

Emission Testing Schedule

As referenced above, on May 22, 2018, USS tendered notice to Illinois EPA regarding resuming iron and steel making operations at GCW. At about the same time, USS engaged in discussions with Illinois EPA regarding an emissions testing schedule for certain emission units and activities at GCW.[4] (Note that the emissions testing schedule involves some of the emission units and activities set forth above, as well as additional emission units and activities at GCW.) Thereafter, USS proposed revisions to the schedule.[5] The emissions testing is anticipated to be completed before the end of 2018. Thus, USS expects additional discussions with Illinois EPA after receipt and review of the updated emission testing results for several emission units and

[4] See attached Letter from Kent Mohr, Illinois EPA, to Joe Hanning, USS (July 9, 2018), attached to this letter as Attachment 4.
[5] See attached Letter from Joe Hanning, USS, to Kent Mohr, Illinois EPA (Sept. 6, 2018), attached to this letter as Attachment 5.

activities covered in the pending appeal, which include the blast furnace casthouse baghouse, blast furnace iron spout baghouse, BOP ESP stack (charge, refine, tap), BOP hot metal desulfurization and hot metal transfer, and BOP hot metal charging and ladle slag skimming.

Conclusion

As you can see, both USS and Illinois EPA have invested significant resources in attempting to resolve the many and complex issues associated with these appeals, especially as to the emission factors that were incorporated from the prior PSD Permit and USS's need for practically enforceable emission limits that allow for operational flexibility due to GCW's inherent and dynamic variability in operations. It is technologically infeasible and economically unreasonable for USS to compromise on the needed operational flexibility at GCW. Overall, the parties have had productive discussions over the past several years. While discussions appear to have stalled as to the emission factor issue, USS urges Illinois EPA to meaningfully consider the current federal guidance and case law for appropriate and practically enforceable methods for ensuring compliance with annual emission limits for PTE. Again, if the parties can reach conceptual agreement on this point, USS commits to submit additional specific proposals for the Illinois EPA's review, in accordance with a mutually agreeable schedule.

USS is confident that agreement can be reached on some, if not all, of these issues, and that the parties could then move forward in a permitting action related to the reopening of the prior PSD Permit. We look forward to meeting with you and Illinois EPA representatives.

Sincerely,



Katherine D. Hodge

KDH:kjg
attachments
pc: Sally Carter, Esq. (via electronic mail, w/attachments)
David Hacker, Esq. (via electronic mail, w/attachments)

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

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:

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.

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 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

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

- 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
Certified Signature
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

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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

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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

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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

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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

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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

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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

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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)

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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.

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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

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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;

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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;

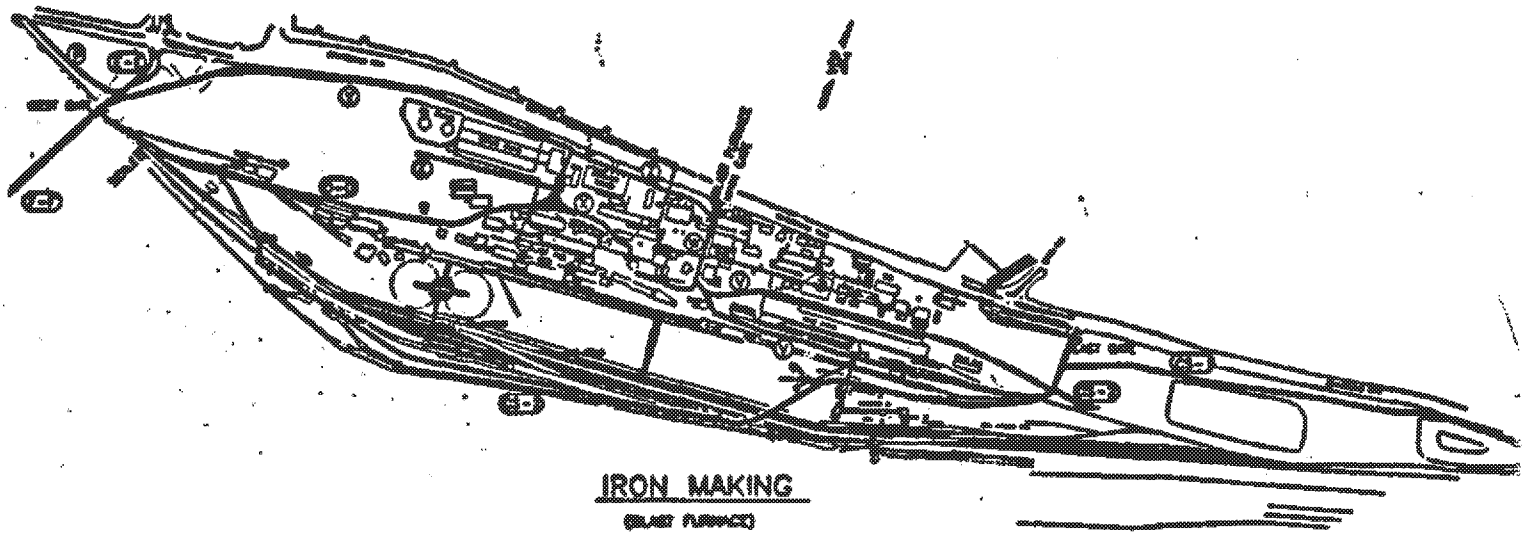
c. Use the most beneficial furnace tilt angle;

d. These procedures shall be posted in the crane operator booth.

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ATTACHMENT B

ON-SITE FUGITIVE DUST ROADWAY CONTROL MEASURES AND
MAPS SHOWING THE ROAD SEGMENTS



IRON MAKING

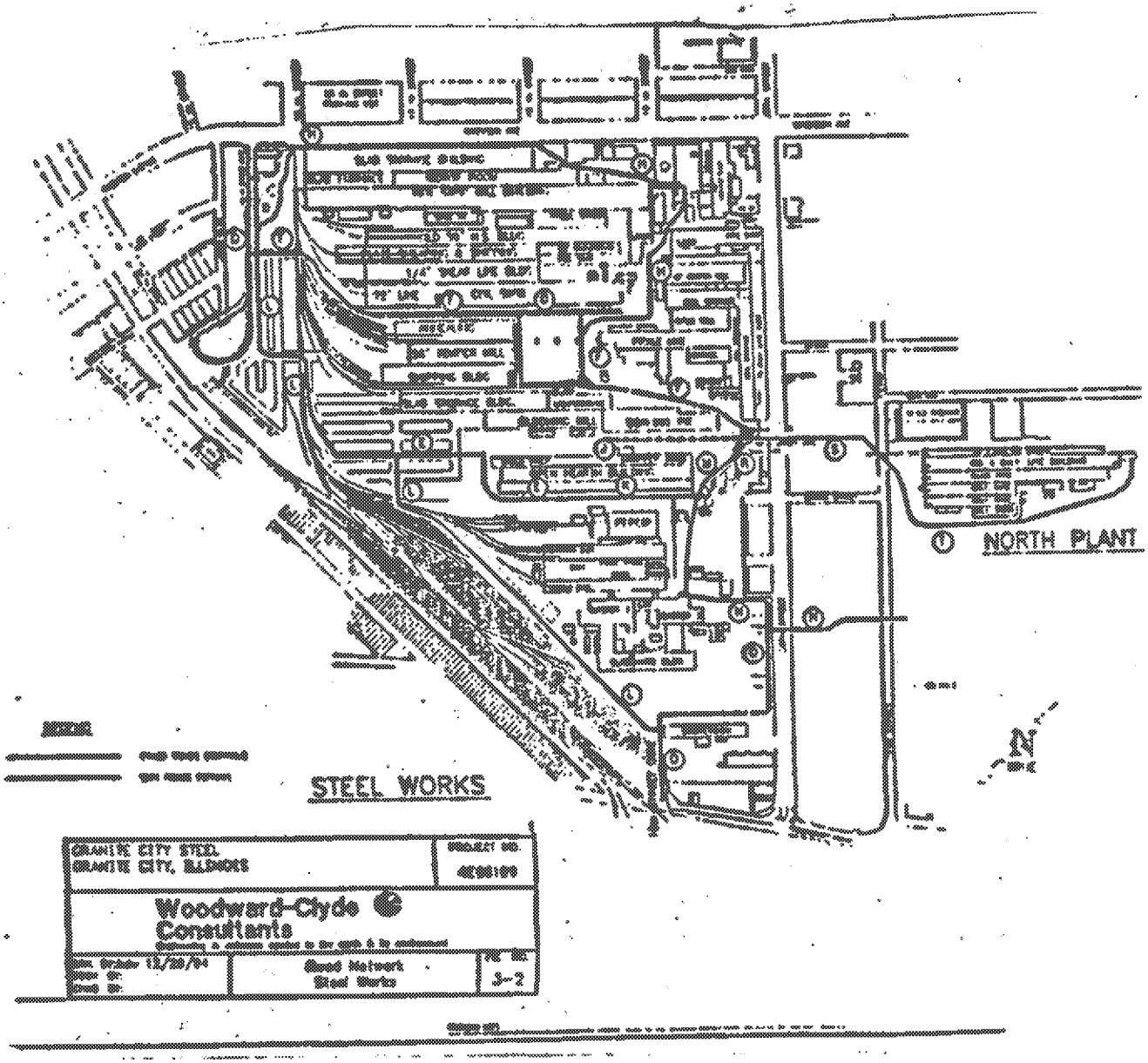
GRANITE CITY STEEL
GRANITE CITY, ILLINOIS

Woodward-Clyde Consultants

3-3

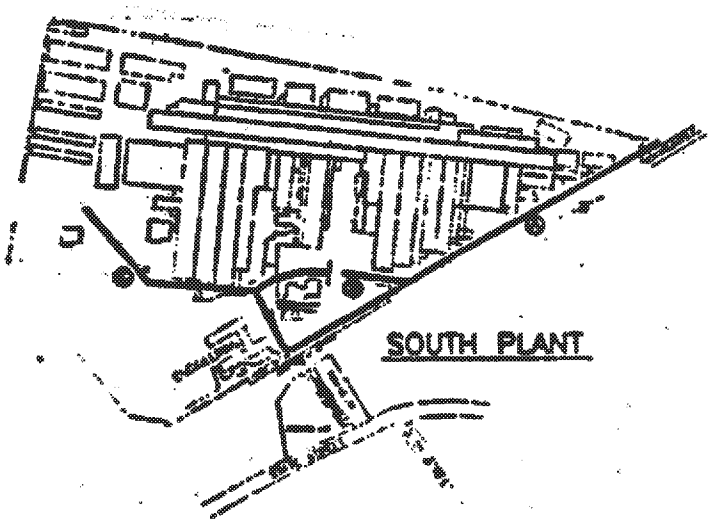
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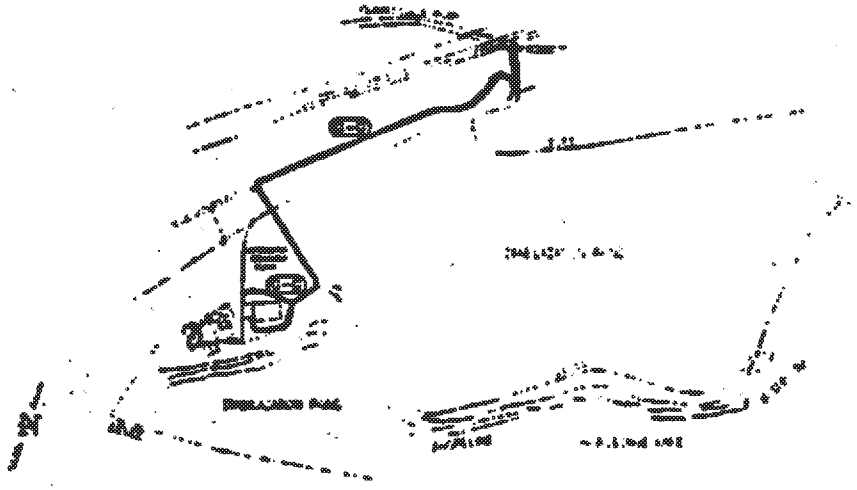
ATTACHMENT B (cont.)



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ATTACHMENT B (cont.)





WASTEWATER TREATMENT FACILITY

GRANITE CITY STEEL
GRANITE CITY, ILLINOIS

Woodward-Clyde Consultants

Road Network
South Plant & WWTP

3-4

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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

ATTACHMENT 2

CONTESTED CONDITIONS – CAAPP Permit Appeal (Permit issued March 4, 2013)

Contested Condition in CAAPP Permit	CAAPP Permit Page(s)	Emission Factor
5.13 – General Procedures for Certain Permit Limits on Emissions	45-47	NA
7.1 – Material Handling and Processing Operations		
7.1.6(b)(i) – Emissions from Material HS and Deslagging Station (See 7.6.6(a) below)	53	*PM*: 0.00355 lbs/ton *PM10*: 0.00355 lbs/ton
7.1.6(b)(ii) – BOF Additive System (Trackhopper Baghouse)	54	*PM*: 0.00032 lbs/ton *PM10*: 0.00032 lbs/ton
7.1.6(b)(iii) – Flux conveyor and transfer points (Bin Floor Baghouse)	54	*PM*: 0.0016 lbs/ton *PM10*: 0.0016 lbs/ton
7.1.6(b)(iv) – Iron Pellet Screen	54	*PM*: 0.00279 lbs/ton *PM10*: 0.00279 lbs/ton
7.4 – Blast Furnace		
7.4.6(b) – Casthouse Baghouse	158	*PM*: 0.0703 lbs/ton *PM10*: 0.0703 lbs/ton *SO2*: 0.2006 lbs/ton *NOx*: 0.0144 lbs/ton *VOM*: 0.0946 lbs/ton
7.4.6(c) – Blast Furnace uncaptured fugitive emissions	158	*PM*: 0.031 lbs/ton *PM10*: 0.0155 lbs/ton *SO2*: 0.0104 lbs/ton *NOx*: 0.0007 lbs/ton *VOM*: 0.0047 lbs/ton
7.4.6(d) – Blast Furnace Charging	158	*PM*: 0.0024 lbs/ton *PM10*: 0.0024 lbs/ton
7.4.6(e) – Slag Pits	158	*PM*: 0.00417 lbs/ton *PM10*: 0.00417 lbs/ton *SO2*: 0.0100 lbs/ton
7.4.6(f) – Iron Spout Baghouse	159	*PM*: 0.02548 lbs/ton *PM10*: 0.02548 lbs/ton *SO2*: 0.0073 lbs/ton

EXHIBIT B

Contested Condition in CAAPP Permit	CAAPP Permit Page(s)	Emission Factor
7.5 – Basic Oxygen Processes		
7.5.6 (b) – BOF Shop Emissions (tons/yr total) – (Only NOx and VOM annual emission limits)	191	**Annual Emissions:** *NOx*: 70 tpy *VOM*: 12 tpy
7.5.6(c) – BOF ESP Stack (charge, refine, tap)	191	*PM*: 0.16 lbs/ton *PM10*: 0.16 lbs/ton *NOx*: 0.0389 lbs/ton *VOM*: 0.0060 lbs/ton *CO*: 8.993 lbs/ton *Lead*: 0.1934 lbs/hr **Maximum Emissions**: *NOx*: 69.63 tpy *VOM*: 10.74 tpy
7.5.6(c) – BOF ESP Stack – Failure to include note regarding compliance schedule (See Condition 7.5.13)	191	NA
7.5.6(d) – BOF Roof Monitor	191	*PM*: 0.0987 lbs/ton *PM10*: 0.06614 lbs/ton *Lead*: 0.0129 lbs/hr
7.5.6(e) – Hot Metal Desulfurization and Hot Metal Transfer	192	*PM*: 0.03721 lbs/ton *PM10*: 0.03721 lbs/ton *VOM*: 0.0010 lbs/ton *Lead*: 0.0133 lbs/hr
7.5.6(f) – Hot metal charging and ladle slag skimming	192	*PM*: 0.0050 lbs/ton *PM10*: 0.0050 lbs/ton
7.5.6(g) – Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy Baghouse #2)	192	*PM*: 0.00715 lbs/ton *PM10*: 0.00715 lbs/ton
7.5.13 – Compliance Schedule and Current Enforcement Status – Failure to include compliance schedule for NOx and VOM emissions from the BOF Shop related to the VN issued November 30, 2012.	216	NA
7.6 – Continuous Casting		
7.6.6(a) – Deslagging Station and associated Material Handling System (See 7.1.6(b)(i) above)	220	*PM*: 0.00355 lbs/ton *PM10*: 0.00355 lbs/ton

Contested Condition in CAAPP Permit	CAAPP Permit Page(s)	Emission Factor
7.6.6(b) – Caster Molds - Casting	220	*PM*: 0.006 lbs/ton *PM10*: 0.006 lbs/ton *NOx*: 0.050 lbs/ton
7.6.6(c) – Caster Spray Chambers	220	*PM*: 0.00852 lbs/ton *PM10*: 0.00852 lbs/ton
7.6.6(d) – Slab Cut-off		*PM:* 0.0071 lbs/ton *PM10*: 0.0071 lbs/ton
7.6.6(e) – Slab Ripping	220	*PM:* 0.00722 lbs/ton *PM10*: 0.00722 lbs/ton

WHITE PAPER

Approaches for Ensuring Compliance with Annual Emission Limits for Potential to Emit

September 17, 2018

I. BACKGROUND

On November 1, 2017, United States Steel ("USS") met with the Illinois Environmental Protection Agency ("Illinois EPA") to discuss issues related to USS' pending Clean Air Act Permit Program permit ("CAAPP Permit") appeal and the pending Construction Permit (Subject to Integrated Processing) ("Construction Permit") appeal before the Illinois Pollution Control Board ("Board") in PCB Nos. 13-53 and 13-62 for USS' Granite City Works ("GCW") facility.

The primary issues involved in the pending CAAPP Permit appeal relate to Illinois EPA's inclusion of Condition 5.13 in the 2013 CAAPP Permit and explicit determination that "emission factors" included in the CAAPP Permit from the Construction Permit/Prevention of Significant Deterioration ("PSD") Approval No. 95010001 ("PSD Permit") issued to National Steel, the prior owner and operator of GCW, by Illinois EPA on January 25, 1996 (and subsequently revised and reissued on several occasions) are, in fact, enforceable "emission limits." Similarly, the primary issues involved in the pending Construction Permit appeal relate to Illinois EPA's inclusion of certain conditions from the 2013 CAAPP Permit, along with Illinois EPA's explicit determination that "emission factors" incorporated from the PSD Permit are enforceable "emission limits."

USS and Illinois EPA have met on multiple occasions since 2013 to discuss the approach for ensuring compliance with the existing annual emission limits for potential to emit ("PTE")

established in the underlying PSD Permit. The most recent discussions have involved whether some of the methods proposed by USS for ensuring compliance would be considered "practically enforceable." Unfortunately, Illinois EPA has been reluctant to accept USS' proposals to ensure that the annual emission limits were practically enforceable, despite the proposals being consistent with past as well as the most recent United States Environmental Protection Agency ("USEPA") guidance and decisions on ensuring that annual emission limits/requirements are practically enforceable.

USS remains committed to working with Illinois EPA on collaboratively resolving the above-referenced permit appeals by revising the permits so that they are not unnecessarily restrictive or precariously place USS in jeopardy of non-compliance (e.g., when AP-42 emission factors are revised, which could put USS in immediate non-compliance for existing limits that are AP-42 emission factors), while simultaneously ensuring the annual emission limits are practically enforceable. To address this issue, we researched and reviewed USEPA guidance, USEPA administrative orders, and Environmental Appeals Board ("EAB") decisions for discussion of what types of compliance methods USEPA and EAB have considered practically enforceable other than continuous emission monitoring systems ("CEMS").

II. SUMMARY OF "PRACTICALLY ENFORCEABLE" REQUIREMENT

USEPA's PSD regulations define PTE as "the maximum capacity of a stationary source to emit a pollutant under its physical and operational design" and further provides that "[a]ny physical or operational limitation on the capacity of the source to emit a pollutant . . . 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). The rule recognizes "air pollution control equipment" and "restrictions on hours of operation" as two such limits. *Id.* The requirement for federal

enforceability was vacated by the United States Court of Appeals for the D.C. Circuit in *Chemical Manufacturers Association v. EPA*, 70 F.3d 637 (D.C. Cir. 1995). Under current USEPA policy and case law, enforceability is interpreted as meaning "federally enforceable or legally and practicably enforceable by a state or local air pollution control agency." *See U.S. v. Questar Gas Management Company*, No. 2:08-cv-00167 (D. Utah, May 1, 2011). Thus, what is required is a determination of whether a permit's limits restricting annual PTE are practically enforceable.

III. COMPLIANCE DEMONSTRATIONS APPROVED BY USEPA AND EAB AS PRACTICALLY ENFORCEABLE

A. CEMS

In pre-1990 USEPA guidance, USEPA made policy statements that prohibited the use of annual emission limits to restrict PTE. USEPA has since recognized that those pre-1990 policy statements are inconsistent with the requirements of the regulation and are of no effect. For example, in *In re Orange Recycling and Ethanol Production Facility, Pencor-Masada Oxynol, LLC* (USEPA Adm. Order, Apr. 8, 2002), USEPA evaluated the appropriateness of a "365-day 'rolling cumulative total' emissions limit" of 246 tons/year and concluded that "this rolling cumulative methodology is a practically enforceable and effective means of limiting PTE." *Id.* at 5. The Administrator further stated that:

> [T]he 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. The key consideration throughout these policy and guidance documents is whether the terms and conditions that limit the potential emissions are, in fact, enforceable as a practical matter.
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> * * *
>
> In order to be considered practically enforceable, an emissions limit must be accompanied by terms and conditions that require a source to effectively constrain

> its operations so as to not exceed the relevant emissions threshold. These terms and conditions must also be sufficient to enable regulators and citizens to determine whether the limit has been exceeded and, if so, to take appropriate enforcement action.

Id. at 5, 7.

As in *Pencor-Masada*, USEPA has been consistently allowing annual emission limits to be used to limit PTE so long as those limits are practically enforceable. In *Pencor-Masada*, the annual emission limit was practically enforceable due to the use of a CEMS. Similarly, in a more recent USEPA Administrator decision, a CEMS was again allowed to demonstrate compliance. *See In re Piedmont Green Power, LLC* (USEPA Adm. Order, Dec. 13, 2016). In that case, the Administrator found that the permit's NO_X and CO annual emission limits of 249 tons/year were practically enforceable due to the permit requiring the use of CEMS and monthly calculations of rolling total emissions for each pollutant.

B. Alternatives to CEMS

In addition to the above decisions involving CEMS, the following guidance and USEPA/EAB decisions involve relevant practical enforceability discussions that go beyond just the use of CEMS, although some of these discussions involve statements that are more general in nature (note, too, that some of these guidance documents and decisions are cited in the above *Pencor-Masada* and *Piedmont Green Power* decisions):

i. USEPA, Use of Long-Term Rolling Averages to Limit [PTE] (Feb. 24, 1992)

In this guidance document, USEPA discusses factors involved when deciding whether to allow long-term rolling averages for nine specific source categories. These factors revolve

around seasonal or otherwise variable production/operations.[3] Although USS' Granite City Works facility does not fit within one of the nine categories discussed in this guidance, in the introductory discussion of the guidance, USEPA states "As you know, the potential to emit policy allows use of long-term rolling averages in any case where a source experiences 'substantial and unpredictable' annual variations in production. Thus, it is the burden of the source to demonstrate the need for flexibility. In no event shall a source be allowed longer than an annual average rolled less frequently than a month." *Id.* at 1.

ii. USEPA, Policy Determination on Limiting [PTE] for Koch Refining Company's Clean Fuels Project (Mar. 13, 1992)

In this guidance document, USEPA discusses the use of a CEMS or a CEMS alternative (determined on a case-by-case basis) to provide continuous monitoring of compliance with an annual emission limit taken to restrict PTE. USEPA also discusses using 365 consecutive day averaging periods with interim limits for the first year, again determined on a case-by-case basis. USEPA also mentions that variability in a facility's production throughout the year is a factor weighing in favor of using an annual rolling averaging period. *See id.* at 2-4.

iii. USEPA, 3M Tape Manufacturing Division Plant, St. Paul, Minnesota (July 14, 1992)

In this guidance document, USEPA states that "we agree that a federally enforceable emissions limit may be used in this case to limit the potential to emit as long as a continuous emissions monitor (CEM) or an acceptable alternative is used. A CEMs alternative is one that is demonstrated as providing information with the same precision, reliability, accessibility, and timeliness as that provided by CEMS." *Id.* at 2.

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[3] As later embraced by USEPA, Guidance on Enforceability Requirements for Limiting Potential to Emit through SIP and §112 Rules and General Permits (Jan. 25, 1995); USEPA, Options for Limiting the Potential to Emit (PTE) of a Stationary Source under Section 112 and Title V of the Clean Air Act (Act) (Jan. 25, 1995).

iv. *In re Bristol-Myers Squibb Co.* (USEPA Administrator Order, Feb. 18, 2005)

In this order on a petition to object to the issuance of a Clean Air Act Title V permit, the Administrator objected to the Title V permit because the emission limits lacked sufficient monitoring to be practically enforceable. Although the Administrator did not object to annual PTE limits on NOx and SO2, the Administrator stated that the PTE limits were unenforceable because "a limit on fuel consumption, along with the requirement to record fuel usage, is needed to ensure the practical enforceability of an annual emissions limit." *Id.* at 32. In addition, the permit did not specify the emission factor to be used. *Id.*

v. *In re Prairie State Generating Co.* (EAB, Aug. 24, 2006)

In this decision on an appeal of a PSD permit, EAB upheld a 12-month rolling average control efficiency limit (rolling frequency not given) and a 30-day average heat input limit (lb/mmBtu) for SO2. EAB rejected the petitioner's claim that a 98% control efficiency based on an annual rolling average was not practically enforceable because the averaging period was too long. Even though USEPA has expressed a preference for shorter term limits, EAB stated that this does not mean that longer term limits are not acceptable. *See id.* at 80-81.

vi. *In re Shell Offshore, Inc.* (EAB, Mar. 30, 2012)

In this decision on appeal of an outer continental shelf permit to construct and Clean Air Act Title V operating permit, EAB rejected the petitioner's characterization of the source-wide emission limits for NO2, CO, SO2, and GHG as blanket limits that were not practically enforceable. Rather, EAB found that USEPA had supported its reasoning for using a 365-day rolling limit. According to EAB:

> 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 NOx

> and CO was based in large part on the substantial and unpredictable variations in emissions based on the atypical nature of Shell's operations. 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 x operating parameters for some pollutants, such as NO and CO, that might typically be applied to limit a stationary source's PTE.
>
> * * *
>
> 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, 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.

Shell Offshore, at 23-25 (internal citations to USEPA's Response to Comments omitted). In particular, the emission factor units were in pounds/gallon, pounds/ton, or pounds/month depending on the particular emission unit. *See* USEPA Region 10 Outer Continental Shelf Permit to Construct and Title V Air Quality Operating Permit No. R10OCS030000, Shell Offshore Inc. (Oct. 21, 2011) ("Shell Offshore Permit"), at Tables D.2.1 & D.2.2 at 37-38; *see also* Condition D.2 at 36. As an example, compliance with the synthetic minor PTE limit for daily NOx emissions from Shell's Kulluk unit and associated fleet were determined by multiplying the appropriate emission factor (pounds/unit) specified in Tables D.2.1 – D.2.2 (until a test-derived emission factor has been determined according to Condition E.2) by the recorded daily operation rate (units/day) and dividing by 2000 pounds/ton. *See id.* at Condition D.4.1.1 at 40.

Also, Shell Offshore was required to measure continuously and record hourly, daily, and monthly total fuel combusted by each emission unit or group of emission units that combusts

fuel (with limited exceptions for certain emission units) using a fuel flow meter such that emissions could be calculated on the required time frames required by the permit. *See id.* at Condition F.2.2 at 57. Alternatively, Shell Offshore could continuously measure and record, on an hourly, daily, and monthly basis, the time the emission units operate using a non-resettable hour meter and then convert operating hours to volume of fuel combusted using a specified conversion calculation. *See id.* at Condition F.2.3 at 58. Shell Offshore had other monitoring requirements as well. *See id.* at remaining conditions in Section F, at 58-61. EAB also upheld the requirement to calculate emissions weekly because Shell would be collecting and recording data continuously. *See In re Shell Offshore, Inc.*, at 27.

vii. ***In re Yuhuang Chemical Inc. Methanol Plant, St. James Parish, Louisiana* (USEPA Administrator Order, Aug. 31, 2016) ("*Yuhuang I*")**

In this order responding to a request for objection to issuance of a Title V permit, the Administrator objected to the permit due to PTE emission limits not being practically enforceable. The Administrator found that the permit contained "blanket" TPY emission limits that had only yearly compliance requirements rather than ongoing compliance requirements. *See id.* at 16-17. Also, the Administrator found that the permit did not address how a five-year testing frequency was adequate and how the stack test results would be used to determine compliance (e.g., verify emission factors or direct compliance demonstration). *See id.* at 17-21. Although the permit was issued in reliance upon an oxygen trim monitor as a substitute for CEMs, the permit itself did not require installation of the oxygen trim monitor or explain how data from the monitor would be used for demonstrating compliance. *See id.*

viii. ***In re Yuhuang Chemical Inc. Methanol Plant, St. James Parish, Louisiana* (USEPA Administrator Order, Apr. 2, 2018) ("*Yuhuang II*")**

In this order denying petitions requesting objection to the issuance of a modification to Yuhuang Chemical Inc.'s ("Yuhuang") Title V permit made by the state permitting agency to address USEPA's objections in *Yuhuang I* discussed above, the Administrator rejected the petitioners' allegations that a number of the emission limits in the permit were still not enforceable as a practical matter. *See id.* at 7. In particular, the Administrator determined that the permit's requirements for using actual operating data to calculate monthly emissions in between annual stack tests, using annual stack tests to develop and update (as needed) rate-specific emission factors, and using those emission factors in conjunction with continuous monitoring of actual operating rates to calculate monthly emissions were adequate to assure compliance with the permit's emission limits. *See id.* at 9-12.

ix. ***In re Wheelabrator Frackville Energy, Inc., Schuylkill County, Pennsylvania* (USEPA Administrator Order, Apr. 6, 2018)**

In this order denying a petition requesting objection to the issuance of a Title V permit, the Administrator rejected the petitioners' allegations that the permit failed to include monitoring of PM emissions from a circulating fluidized bed boiler sufficient to assure compliance with the permit's applicable PM emission limits. *See id.* at 6. Specifically, the Administrator acknowledged that the use of a "multi-pronged approach for assuring compliance with emission standards without the use of CEMS" may be adequate:

> The Petitioners' challenge focuses on the frequency of the stack tests and the adequacy of the two baghouse operation performance indicators, pressure drop and opacity, in combination with the requirement to operate the baghouse at all times the CFB boiler is in operation. However, the Petitioners failed to demonstrate that these PM monitoring provisions, and other provisions of the Proposed Permit they did not discuss in their Petition, when viewed as a whole

and in the context of the entire permit, are inadequate to assure compliance with the PM emission limit for the CFB boiler. The above description of the applicable legal requirements makes clear that determining whether the monitoring requirements in a permit for a particular source, such as the Facility's CFB boiler, are adequate to assure compliance requires a context-specific inquiry that depends on a multi-factor assessment concerning the source's emissions and controls as well as its permit. The Petitioners who allege that monitoring requirements are not adequate carry the burden of demonstrating that inadequacy.

The EPA has previously determined a multi-pronged approach for assuring compliance with emission standards without the use of CEMS, such as what this permit contains, may be adequate. *See In the Matter of Gallatin Fossil Plant*, Order on Petition No. IV-2016-11 and IV-2017-17 at 14 (January 30, 2018) (*Gallatin Order*) (citing *In the Matter of Xcel Energy, Cherokee Station*, Order on Petition No. VIII-2010-XX at 11–12 (September 29, 2011)) (*Cherokee Station Order*) (finding adequate a three-pronged approach for assuring compliance including stack testing, proper operation and maintenance of the control device, and a CAM plan to assess performance of the control device on an ongoing basis). Similar to the Gallatin and Cherokee Station permits, the Proposed Permit requires a three-pronged approach for assuring compliance with the PM emissions limit including: (1) stack testing; (2) required continuous operation and maintenance of the control device, which is a baghouse; and (3) two mechanisms for assessing the performance of the baghouse on an ongoing basis using a continuous opacity monitoring system (COMS) and monitoring pressure differential.

* * *

The Petitioners do not demonstrate a flaw in [the state permitting agency's] reasoning that the requirement for operation of the baghouse coupled with parametric monitoring to confirm its proper operation, and combined with periodic stack testing of actual emissions, is not adequate to assure compliance with the PM emission limit. *See Gallatin Order* at 15.

* * *

Lastly, the Petitioners argue "installation and operation of a [CEMS] for PM is the proper means of accurately monitoring such emissions." However, the Petitioners have failed to identify any applicable requirement for the use of a PM CEMS for monitoring compliance with the PM limit. *See Gallatin Order* at 15; *Cherokee Station Order* at 13. As explained above, [the state permitting agency] requires Wheelabrator to continuously operate and maintain the control device and comply with a CAM plan, including monitoring of two secondary performance indicators, as well as conduct quarterly and biannual stack testing. Such multi-pronged monitoring regimes have been approved in the past as adequate for CAM

> purposes, and the Petitioners have not established a basis as to why such an approach is inadequate here.

Id. at 13-14, 17 (internal citations to petitioners' petition to object omitted).

x. PSD Permit Issued by the Pima County (Arizona) Department of Environmental Quality to Tucson Electric Power Company (Aug. 8, 2018)

Pima County Department of Environmental Quality ("PDEQ") issues PSD permits through a delegation agreement with USEPA. *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, Contract No. CTN-DE-18-15L (June 5, 2018); *see also* USEPA, Air Permit Delegation and PSD SIP Approval Status in EPA Region 9, at https://www.epa.gov/caa-permitting/air-permit-delegation-and-psd-sip-approval-status-epa-region-9 (last visited Aug. 24, 2018). Thus, PSD permits issued by PDEQ are considered federal permits rather than state permits.

On August 8, 2018, PDEQ issued a PSD permit to Tucson Electric Power Company ("TEP") for TEP's modernization of its Irvington Generating Station by replacing two 1950's-era steam units with ten high-efficiency, fast-responding, state-of-the-art reciprocating internal combustion engines ("RICE").[2] The project expected to trigger a major modification for CO, PM2.5/PM10, and VOCs subject to PSD permitting.

Among the public comments filed during public notice on the proposed permit, one commenter asserted that periodic source tests are insufficient to ensure the practical

[2] Although PDEQ issued TEP's PSD permit on August 8, 2018, the permit becomes effective 30 days after service of the notice of the final permit decision, unless a petition for review is properly and timely filed with the EAB. On September 7, 2018, Sierra Club filed a petition for review with the EAB. EAB's decision is pending.

enforceability of permit emission limits, and that PDEQ must require CEMS in order to ensure that permit emission limits are practically enforceable. *See* PDEQ, Responses to Public Comments on the Clean Air Act Prevention of Significant Deterioration of Air Quality Draft Permit for Tucson Electric Power (TEP) Irvington/H. Wilson Sundt Generating Station (IGS) (hereafter "PDEQ RTC"), at 9 (Aug. 8, 2018). In response, PDEQ disagreed with this commenter because, in addition to requiring annual source tests for NOx, CO, VOC, and PM10/PM2.5, the permit "requires additional monitoring and operating data collection to ensure compliance with the respective emission limits for these pollutants, as well as how compliance should then be demonstrated based on the data collected." *Id.* at 10. PDEQ elaborated as follows:

> First, we note that the proposed permit requires extensive monitoring of control device operating parameters to assure that the control devices are operating appropriately at all times. The proposed permit requires each engine to operate with a Selective Catalytic Reduction (SCR) system (Proposed Permit Specific Condition II.A.1.c) as an add-on control device for NOx, and includes monitoring, recordkeeping, and reporting requirements of multiple SCR operating parameters on a continuous basis. [(Explains how SCR systems work.)] . . . As a result, in addition to hours of operation of the engine, the proposed permit requires monitoring of the SCR ammonia injection rate and SCR outlet temperature, and also requires the use of an SCR process monitor that will calculate outlet NOx concentration (proposed permit specific condition II.A.1.c.iv).
>
> Similarly, the permit includes monitoring of operating parameters for the oxidation catalyst. The proposed permit requires the use of an oxidation catalyst (proposed permit specific condition II.A.2.b and 3.b) as an add-on control device for purposes of meeting CO and VOC BACT limits. [(Explains how oxidation catalysts work.)] . . . As a result, the proposed permit requires monitoring, reporting, and recordkeeping of oxidation catalyst temperature. It also requires monitoring of pressure drop across the oxidation catalyst, which is an indicator of adequate flow across the catalyst bed. Also, the proposed project triggers Compliance Assurance Monitoring (CAM) requirements with respect to CO. We have updated the proposed permit and TSD to include the applicable requirements from 40 CFR part 64, which includes development of a CAM plan which will establish specific indicator ranges for catalyst temperature and catalyst pressure drop based upon the initial performance test.

> Furthermore, to assure proper operation of the engines, the proposed permit requires the engines to operate in accordance with a site-specific monitoring plan and to install, operate, and maintain a continuous parameter monitoring system (CPMS) as required by NSPS subpart JJJJ and MACT subpart ZZZZ. The site specific monitoring plan is required to include elements such as performance criteria and design specifications for monitoring system equipment, and must establish measures for equipment performance evaluations, as well as ongoing operation, maintenance, and reporting and recordkeeping procedures. The CPMS is required to collect information on engine operating parameters in accordance with the site specific monitoring plan on a continuous basis. The specific contents and operating parameters established in site specific monitoring plans vary, but in general are established based upon a combination of manufacturer specification and upon conditions observed during the initial compliance test. Combined with the CPMS, these measures work to ensure that the engines operate properly in accordance with manufacturer specifications, and in a manner consistent with the initial compliance test.
>
> Finally, the Proposed Permit requires the data generated by the monitoring and testing requirements contained in Section II.B (PSD and BACT Monitoring Requirements) and Section II.D (PSD and BACT Testing Requirements) to be used to demonstrate compliance with the respective pollutant emission limits, including the NOx annual emission cap. As explained in greater detail in our response to Comment II.B.9 below, fuel usage records, source test results, and vendor startup emission rates shall be used to calculate NOx emissions from all ten RICE units on a monthly basis, and as a 12-monthly rolling total.

Id. at 10-11 (internal citations omitted).

xi. Use of Continuous Parametric Monitoring Systems/Compliance Assurance Monitoring

For some emission units, USS employs continuous parametric monitoring systems in which parametric monitoring is conducted to ensure proper operation of the control devices to ensure compliance with applicable annual emission limits. This is the primary basis of parametric monitoring. For many processes and emission units, USS conducts periodic stack tests, and regularly conducts parametric monitoring to ensure that annual emission limits are met. For example, for units with baghouses, USS may measure differential pressure, fan amperage, etc. These values are then compared with values generated during the compliance demonstration

in which the ranges were established. The use of the parametric monitoring has long been recognized by EPA as a proper means to ensure that annual emission limits are being met. In addition, federal NESHAP regulations define "monitoring," in relevant part, as follows:

> *"Monitoring" means the collection and use of measurement data or other information to control the operation of a process or pollution control device or to verify a work practice standard relative to* ***assuring compliance with applicable requirements. . .***"

See 40 C.F.R. § 63.5.

IV. CONCLUSION

As demonstrated above, USEPA and EAB have approved compliance methods, other than CEMS, as practically enforceable. In particular, the USEPA Administrator has upheld the use of a three-pronged approach for assuring compliance with an emissions limit that consisted of stack testing, continuous operation and maintenance of the control device, and two mechanisms for assessing the performance of the baghouse on an ongoing basis using a continuous opacity monitoring system and monitoring pressure differential. *See Wheelabrator*, at 13-14.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
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RETURN RECEIPT REQUESTED

JUL 09 2018

Joseph E. Hanning, P.E.
Director – Environmental Control
United States Steel Corporation
20th and State Streets
Granite City, Illinois 62040

RE: Emissions Testing Schedule
I.D. 119813AAI

Dear Mr. Hanning:

The Illinois Environmental Protection Agency ("Illinois EPA") has received and reviewed the proposed emissions testing schedule submitted by United States Steel Corporation (USS) for the Granite City Works via email May 21, 2018, and discussed via teleconference with Illinois EPA representatives Kevin Mattison and Andrew Jankowski on May 22, 2018.

The Illinois EPA agrees with the proposed testing schedule that includes emissions test dates for the HSM Slab Furnace #4 (RATA), #11 Boiler (RATA), Cogen (RATA), Pickle Line Scrubber, Controlled Silt Loading, Iron Spout Baghouse, Cast House Baghouse, #12 Boiler (RATA), BOF Furnaces ESP, Hot Metal Desulfurization Baghouse, Slag Skimmer Baghouse, LMF #2 Baghouse, and HSM Slab Furnace #3.

Please note, for each testing event, emissions testing shall be conducted in accordance with approved test methods set forth within a timely submitted emissions test protocol, timely submitted written test notifications, and timely submitted final emissions test reports as required by Conditions 7.4.7(a) and (c), 7.5.7 (a) and (b), 7.7.8(a), (d), and (e), 7.8.8(a) and (d), 7.13.7(d), 8.6.2, 8.6.3, and 8.6.4 of Clean Air Act Permit Program ("CAAPP") permit 96030056.

Additionally, Conditions 7.1.7(b) and 7.10.7-1(a) of CAAPP permit 96030056 required testing of the Coal Pulverizers and either Trackhooper Baghouse, Bin Floor Baghouse or Baghouse #1 and Boilers #11 or #12, respectively, within 30 months of the effective date of the CAAPP permit. Also, CAAPP permit Condition 7.10.7-1(b) requires testing of Power Boiler #1 at least every 5 years. To date, the Illinois EPA has not received emissions test protocol, test notifications or final test reports for these units. Nor has USS submitted information relative to planned

Emissions Test Schedule
I.D. 119813AAI
Page

emissions testing for these units. Within 60 days of the receipt of this letter, please provide a test schedule for these additional units.

Questions regarding the required testing or testing procedures should be directed to Kevin Mattison at 847-294-4019.

Sincerely,

Kent Mohr, Manager
Compliance Section
Bureau of Air

Granite City Works
United States Steel
20th & State Street
Granite City, IL 62040
(618) 451-3456

September 6, 2018

Mr. Kent Mohr
Illinois Environmental Protection Agency
Bureau of Air (Compliance Section Manager)
1021 North Grand Avenue East
Springfield, IL 62702
Certified Mail # 7015 0640 0006 9546 3022

Subject: U. S. Steel – Granite City Works: Reply to IEPA Stack Testing Schedule Letter – ID No. 119813AAI

Dear Mr. Mohr:

U.S. Steel received IEPA's letter regarding our proposed stack testing schedule on July 16, 2018. U.S. Steel's proposed stack test was previously discussed with Illinois EPA representative Andrew Jankowski at the Collinsville IEPA office and with Illinois EPA representative Kevin Mattison via teleconference on May 22, 2018. The proposed stack testing schedule was for those operations that had been idled since December 22, 2015 but have recently restarted. U.S. Steel's reply is being submitted by the date noted above, therefore it is being submitted timely.

In your letter, IEPA agreed with the originally proposed stack testing schedule that included emission testing of the HSM Slab Furnace # 4 (RATA), #11 Boiler (RATA), Cogen Boiler (RATA), Pickle Line Scrubber, Controlled Silt Loading, Iron Spout Baghouse, Cast House Baghouse, #12 Boiler (RATA), BOF Furnaces ESP, Hot Metal Desulfurization Baghouse, Slag Skimmer Baghouse, LMF #2 Baghouse, and HSM Furnace #3. U.S. Steel still plans to have all these emission tests completed by December 11, 2018, however, mainly due to the anticipated start-up of the A Blast Furnace in early October, some of the original stack test dates had to be changed (see the updated proposed stack testing schedule).

Condition 7.1.7(b) of CAAPP permit 96030056 requires the testing of the Coal Pulverizer and either the Tackhopper Baghouse, Bin Floor Baghouse, or Baghouse # 1 within 30 months of the effective date of the original CAAPP permit, that was issued on May 2, 2011; and then revised and reissued on March 4, 2013. A stack test was performed on the Coal Pulverizer on August 27 – 28, 2013. Note that the Coal Pulverizers were part of the Coke Production process which was permanently idled on March 3, 2015 and therefore no future testing of the Coal Pulverizer will be required. A test of the Bin Floor Baghouse was completed on August 29 and August 30, 2013; therefore, testing has been completed per condition 7.1.7(b) and within 30 months of the effective date of the CAAP permit.

Condition 7.10.7-1(a) of CAAP permit 96030056 requires the testing of either Boiler #11 or Boiler #12 within 30 months of the effective date of the CAAPP permit, which was originally issued on May 2, 2011; and then revised and reissued on March 4, 2013. Boiler # 12 was tested for CO on May 10-11, 2011 and for PM on February 21-22, 2012, therefore testing has been completed per condition 7.10.7-1(a) and within 30 months of the effective date of the CAAP permit.

CAAPP permit Condition 7.10.7-1(b) requires testing of Power Boiler #1 at least every 5 years. Based upon our discussions during the permitting process, the intent of the testing condition was to test when the Power Boiler #1 was burning at least 90% Blast Furnace Gas – as this was the most representative conditions of the facility since it would be during a two-furnace (or typical) operation, A stack test for Power Boiler #1 was performed during such conditions on April 6, 2010. However, subsequent to that test conducted during representative conditions, due to low steel demand, the site went from running a two Blast Furnace operation to running a one Blast Furnace operation around February 2015, necessitating the use of more natural gas and less blast furnace gas (i.e., <90%) in # 1 Power Boiler. These conditions were not necessarily representative conditions so no testing was performed. On December 22, 2015 GCW temporarily idled ironmaking and steelmaking operations; therefore, natural gas was the fuel used for the boiler; and no blast furnace gas was generated or used in the boiler. Because of this change, U. S. Steel installed a Continuous Emissions Monitoring System (CEMS) for nitrogen oxides on or about June 2016; and most recently completed a RATA evaluation of the unit on June 14, 2018.

From December 22, 2015 up until June 3, 2018 no blast furnace gas was being produced at GCW, necessitating the use of only natural gas in #1 Power Boiler. As of June 3, 2018, GCW has been operating one blast furnace and in early October 2018, the second blast furnace is expected to begin production. Based on the anticipated start-up of the second Blast Furnace, U.S. Steel has added testing of #1 Power Boiler to our stack testing schedule on November 26-28, 2018 (see the updated proposed stack testing schedule) under a two blast furnace operation in which the predominant (>90%) fuel for the boiler is expected to be blast furnace gas, as was originally contemplated for the testing conditoin.

If you, or anyone on your team, has any questions please don't hesitate to contact me by phone at (219) 888-4500 or via email at jehanning@uss.com.

Joseph E. Hanning

Joseph E. Hanning, P.E
Director – Environmental

9/6/18
Date

cc: Andy Jankowski
Illinois Environmental Protection Agency
Division of Air Pollution Control
2009 Mall Street
Collinsville, Illinois 62234
Certified Mail #. 7015 0640 0006 9546 3039

Kevin Mattison
Illinois Environmental Protection Agency
Division of Air Pollution Control
Attn: Source Emission Test Specialist
9511 West Harrison Street
Des Plaines, Illinois 60016
Certified Mail #. 7015 0640 0006 9546 3046

Kras, Kim

From: Carter, Sally
Sent: Monday, September 17, 2018 5:24 PM
To: Patel, Minesh
Subject: FW: United States Steel Corporation - PCB 2013-53 and PCB 2013-62
Attachments: B. Burlingham ltr - USS 9.17.18.PDF; 7JJ4305-Attachment 1 - 1996 Construction Permit.PDF; 7JB6562-Attachment 2 - Exhibit B to USS Petition.PDF; 7JK0072-Attachment 3 - White Paper.PDF; 7JJ7294-Attachment 4 - 7.9.18 IEPA Response to 2018 Stack Testing Schedule.PDF; 7JJ7306-Attachment 5 - 9.6.18 - USS ltr.PDF

From: Katie J. Ginest <Katie.Ginest@heplerbroom.com>
Sent: Monday, September 17, 2018 5:14 PM
To: Burlingham, Rebecca <RBurlingham@atg.state.il.us>
Cc: 'dwhacker@uss.com' <dwhacker@uss.com>; Carter, Sally <Sally.Carter@illinois.gov>; Katherine D. Hodge <Katherine.Hodge@heplerbroom.com>; Joshua J. Houser <Joshua.Houser@heplerbroom.com>
Subject: [External] United States Steel Corporation - PCB 2013-53 and PCB 2013-62

Per Kathy, please see the attached correspondence and attachments.

Thank you,

HEPLER BROOM LLC
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ATTACHMENT 2

CONTESTED CONDITIONS – CAAPP Permit Appeal (Permit issued March 4, 2013)

Contested Condition in CAAPP Permit	CAAPP Permit Page(s)	Emission Factor
5.13 – General Procedures for Certain Permit Limits on Emissions	45-47	NA
7.1 – Material Handling and Processing Operations		
7.1.6(b)(i) – Emissions from Material HS and Deslagging Station (See 7.6.6(a) below)	53	*PM*: 0.00355 lbs/ton *PM10*: 0.00355 lbs/ton
7.1.6(b)(ii) – BOF Additive System (Trackhopper Baghouse)	54	*PM*: 0.00032 lbs/ton *PM10*: 0.00032 lbs/ton
7.1.6(b)(iii) – Flux conveyor and transfer points (Bin Floor Baghouse)	54	*PM*: 0.0016 lbs/ton *PM10*: 0.0016 lbs/ton
7.1.6(b)(iv) – Iron Pellet Screen	54	*PM*: 0.00279 lbs/ton *PM10*: 0.00279 lbs/ton
7.4 – Blast Furnace		
7.4.6(b) – Casthouse Baghouse	158	*PM:* 0.0703 lbs/ton *PM10*: 0.0703 lbs/ton *SO2*: 0.2006 lbs/ton *NOx*: 0.0144 lbs/ton *VOM*: 0.0946 lbs/ton
7.4.6(c) – Blast Furnace uncaptured fugitive emissions	158	*PM*: 0.031 lbs/ton *PM10*: 0.0155 lbs/ton *SO2*: 0.0104 lbs/ton *NOx*: 0.0007 lbs/ton *VOM*: 0.0047 lbs/ton
7.4.6(d) – Blast Furnace Charging	158	*PM*: 0.0024 lbs/ton *PM10*: 0.0024 lbs/ton
7.4.6(e) – Slag Pits	158	*PM:* 0.00417 lbs/ton *PM10*: 0.00417 lbs/ton *SO2*: 0.0100 lbs/ton
7.4.6(f) – Iron Spout Baghouse	159	*PM*: 0.02548 lbs/ton *PM10*: 0.02548 lbs/ton *SO2*: 0.0073 lbs/ton

Contested Condition in CAAPP Permit	CAAPP Permit Page(s)	Emission Factor
7.5 – Basic Oxygen Processes		
7.5.6 (b) – BOF Shop Emissions (tons/yr total) – (Only NOx and VOM annual emission limits)	191	**Annual Emissions:** *NOx*: 70 tpy *VOM:* 12 tpy
7.5.6(c) – BOF ESP Stack (charge, refine, tap)	191	*PM*: 0.16 lbs/ton *PM10*: 0.16 lbs/ton *NOx*: 0.0389 lbs/ton *VOM*: 0.0060 lbs/ton *CO*: 8.993 lbs/ton *Lead*: 0.1934 lbs/hr **Maximum Emissions**: *NOx*: 69.63 tpy *VOM:* 10.74 tpy
7.5.6(c) – BOF ESP Stack – Failure to include note regarding compliance schedule (See Condition 7.5.13)	191	NA
7.5.6(d) – BOF Roof Monitor	191	*PM*: 0.0987 lbs/ton *PM10*: 0.06614 lbs/ton *Lead*: 0.0129 lbs/hr
7.5.6(e) – Hot Metal Desulfurization and Hot Metal Transfer	192	*PM*: 0.03721 lbs/ton *PM10*: 0.03721 lbs/ton *VOM*: 0.0010 lbs/ton *Lead*: 0.0133 lbs/hr
7.5.6(f) – Hot metal charging and ladle slag skimming	192	*PM*: 0.0050 lbs/ton *PM10*: 0.0050 lbs/ton
7.5.6(g) – Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy Baghouse #2)	192	*PM*: 0.00715 lbs/ton *PM10*: 0.00715 lbs/ton
7.5.13 – Compliance Schedule and Current Enforcement Status – Failure to include compliance schedule for NOx and VOM emissions from the BOF Shop related to the VN issued November 30, 2012.	216	NA
7.6 – Continuous Casting		
7.6.6(a) – Deslagging Station and associated Material Handling System (See 7.1.6(b)(i) above)	220	*PM:* 0.00355 lbs/ton *PM10*: 0.00355 lbs/ton

Contested Condition in CAAPP Permit	CAAPP Permit Page(s)	Emission Factor
7.6.6(b) – Caster Molds - Casting	220	*PM*: 0.006 lbs/ton *PM10*: 0.006 lbs/ton *NOx*: 0.050 lbs/ton
7.6.6(c) – Caster Spray Chambers	220	*PM*: 0.00852 lbs/ton *PM10*: 0.00852 lbs/ton
7.6.6(d) – Slab Cut-off		*PM*: 0.0071 lbs/ton *PM10*: 0.0071 lbs/ton
7.6.6(e) – Slab Ripping	220	*PM*: 0.00722 lbs/ton *PM10*: 0.00722 lbs/ton

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

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:

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.

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 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

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

- 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

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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

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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

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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

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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

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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

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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

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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)

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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 #9501O001

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

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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;

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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;

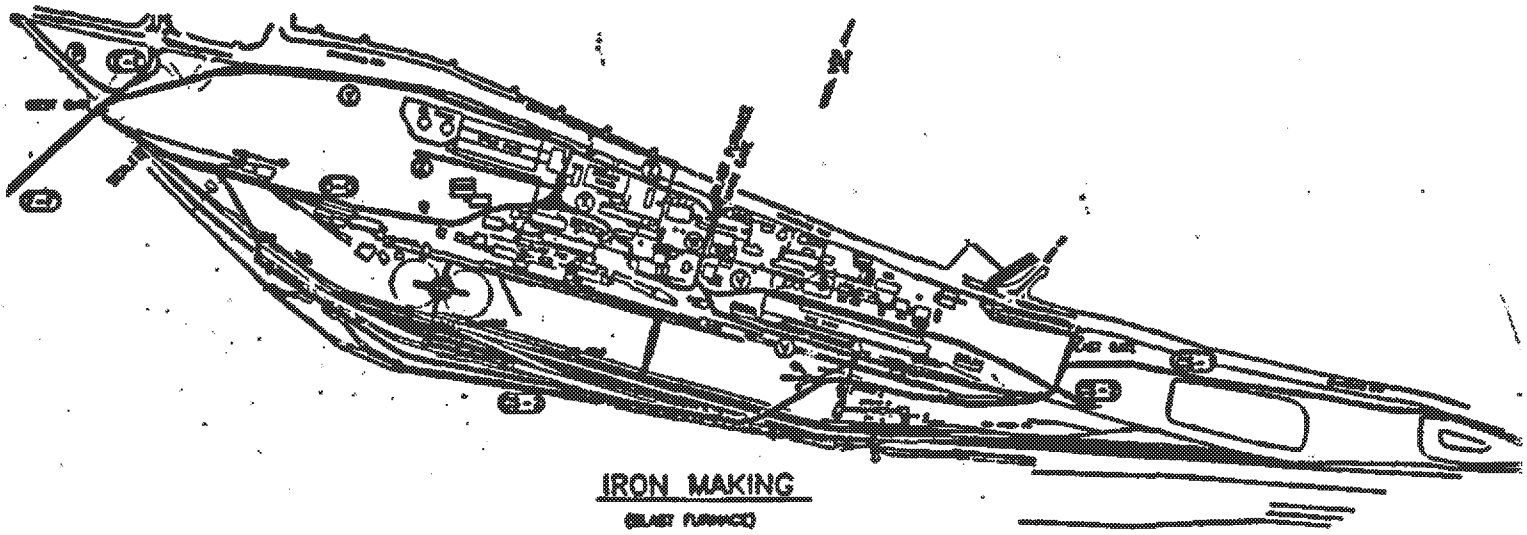
c. Use the most beneficial furnace tilt angle;

d. These procedures shall be posted in the crane operator booth.

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ATTACHMENT B

ON-SITE FUGITIVE DUST ROADWAY CONTROL MEASURES AND
MAPS SHOWING THE ROAD SEGMENTS



GRANITE CITY STEEL
GRANITE CITY, ILLINOIS

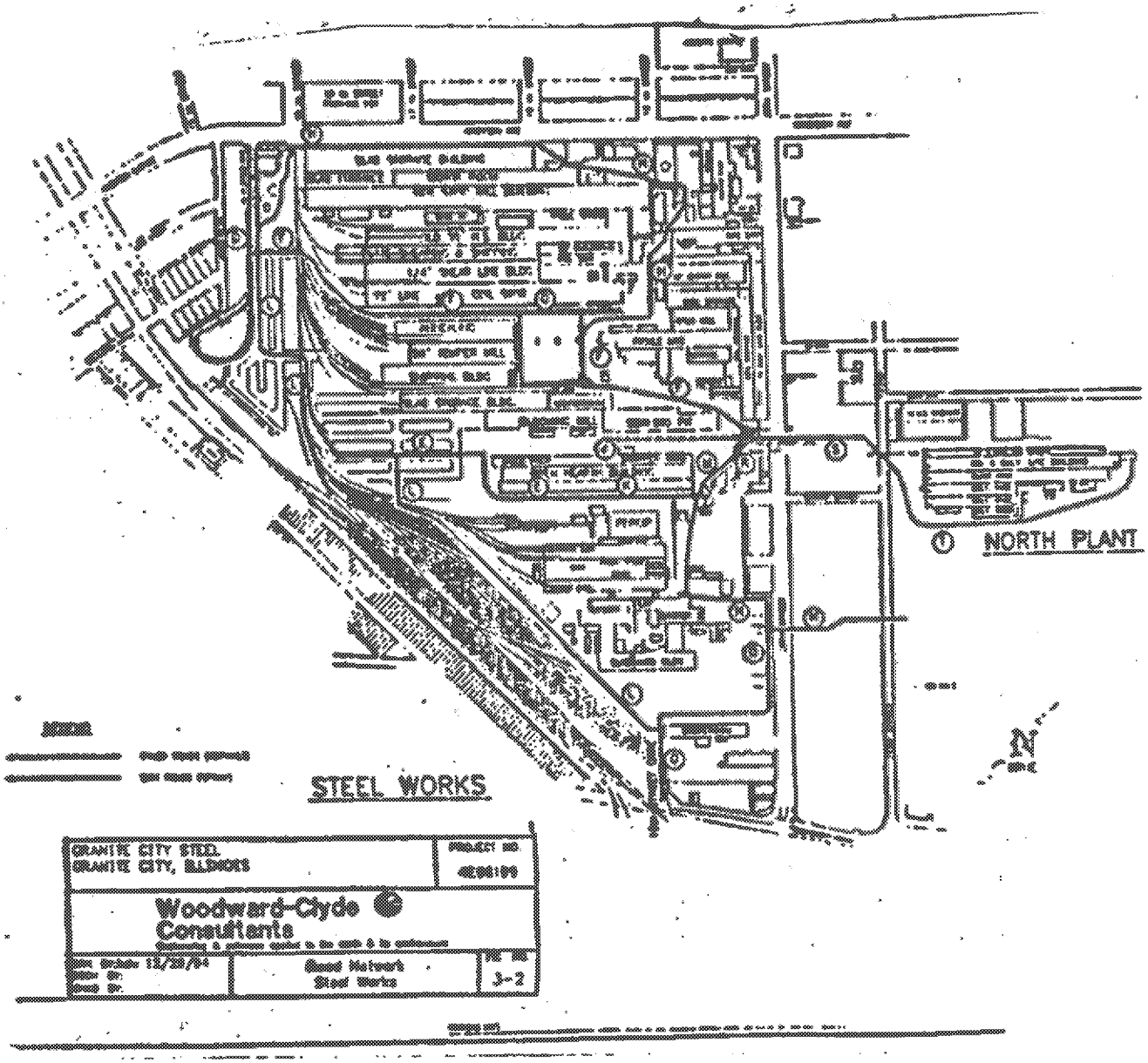
Woodward-Clyde Consultants

Paved Network
Iron Making Area

3-3

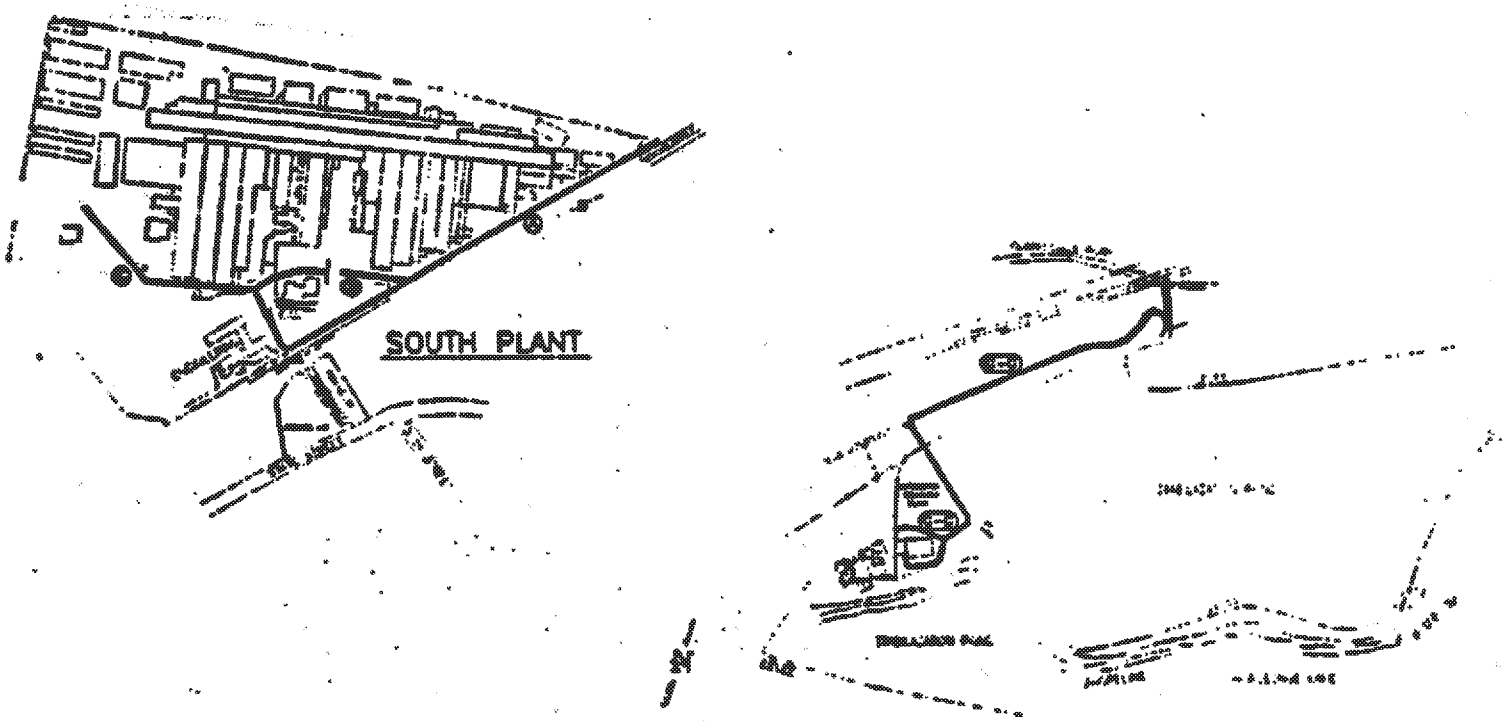
Permit Application #95010001

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.

JRR:jar

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-3397
BRUCE RAUNER, GOVERNOR ALEC MESSINA, DIRECTOR

CERTIFIED MAIL # 7014 2120 0002 3283 3307
RETURN RECEIPT REQUESTED

JUL 09 2018

Joseph E. Hanning, P.E.
Director – Environmental Control
United States Steel Corporation
20th and State Streets
Granite City, Illinois 62040

RE: Emissions Testing Schedule
I.D. 119813AAI

Dear Mr. Hanning:

The Illinois Environmental Protection Agency ("Illinois EPA") has received and reviewed the proposed emissions testing schedule submitted by United States Steel Corporation (USS) for the Granite City Works via email May 21, 2018, and discussed via teleconference with Illinois EPA representatives Kevin Mattison and Andrew Jankowski on May 22, 2018.

The Illinois EPA agrees with the proposed testing schedule that includes emissions test dates for the HSM Slab Furnace #4 (RATA), #11 Boiler (RATA), Cogen (RATA), Pickle Line Scrubber, Controlled Silt Loading, Iron Spout Baghouse, Cast House Baghouse, #12 Boiler (RATA), BOF Furnaces ESP, Hot Metal Desulfurization Baghouse, Slag Skimmer Baghouse, LMF #2 Baghouse, and HSM Slab Furnace #3.

Please note, for each testing event, emissions testing shall be conducted in accordance with approved test methods set forth within a timely submitted emissions test protocol, timely submitted written test notifications, and timely submitted final emissions test reports as required by Conditions 7.4.7(a) and (c), 7.5.7 (a) and (b), 7.7.8(a), (d), and (e), 7.8.8(a) and (d), 7.13.7(d), 8.6.2, 8.6.3, and 8.6.4 of Clean Air Act Permit Program ("CAAPP") permit 96030056.

Additionally, Conditions 7.1.7(b) and 7.10.7-1(a) of CAAPP permit 96030056 required testing of the Coal Pulverizers and either Trackhooper Baghouse, Bin Floor Baghouse or Baghouse #1 and Boilers #11 or #12, respectively, within 30 months of the effective date of the CAAPP permit. Also, CAAPP permit Condition 7.10.7-1(b) requires testing of Power Boiler #1 at least every 5 years. To date, the Illinois EPA has not received emissions test protocol, test notifications or final test reports for these units. Nor has USS submitted information relative to planned

Emissions Test Schedule
I.D. 119813AAI
Page

emissions testing for these units. Within 60 days of the receipt of this letter, please provide a test schedule for these additional units.

Questions regarding the required testing or testing procedures should be directed to Kevin Mattison at 847-294-4019.

Sincerely,

Kent Mohr, Manager
Compliance Section
Bureau of Air

Granite City Works
United States Steel
20th & State Street
Granite City, IL 62040
(618) 451-3456

September 6, 2018

Mr. Kent Mohr
Illinois Environmental Protection Agency
Bureau of Air (Compliance Section Manager)
1021 North Grand Avenue East
Springfield, IL 62702
Certified Mail # 7015 0640 0006 9546 3022

Subject: U. S. Steel – Granite City Works: Reply to IEPA Stack Testing Schedule Letter – ID No. 119813AAI

Dear Mr. Mohr:

U.S. Steel received IEPA's letter regarding our proposed stack testing schedule on July 16, 2018. U.S. Steel's proposed stack test was previously discussed with Illinois EPA representative Andrew Jankowski at the Collinsville IEPA office and with Illinois EPA representative Kevin Mattison via teleconference on May 22, 2018. The proposed stack testing schedule was for those operations that had been idled since December 22, 2015 but have recently restarted. U.S. Steel's reply is being submitted by the date noted above, therefore it is being submitted timely.

In your letter, IEPA agreed with the originally proposed stack testing schedule that included emission testing of the HSM Slab Furnace # 4 (RATA), #11 Boiler (RATA), Cogen Boiler (RATA), Pickle Line Scrubber, Controlled Silt Loading, Iron Spout Baghouse, Cast House Baghouse, #12 Boiler (RATA), BOF Furnaces ESP, Hot Metal Desulfurization Baghouse, Slag Skimmer Baghouse, LMF #2 Baghouse, and HSM Furnace #3. U.S. Steel still plans to have all these emission tests completed by December 11, 2018, however, mainly due to the anticipated start-up of the A Blast Furnace in early October, some of the original stack test dates had to be changed (see the updated proposed stack testing schedule).

Condition 7.1.7(b) of CAAPP permit 96030056 requires the testing of the Coal Pulverizer and either the Tackhopper Baghouse, Bin Floor Baghouse, or Baghouse # 1 within 30 months of the effective date of the original CAAPP permit, that was issued on May 2, 2011; and then revised and reissued on March 4, 2013. A stack test was performed on the Coal Pulverizer on August 27 – 28, 2013. Note that the Coal Pulverizers were part of the Coke Production process which was permanently idled on March 3, 2015 and therefore no future testing of the Coal Pulverizer will be required. A test of the Bin Floor Baghouse was completed on August 29 and August 30, 2013; therefore, testing has been completed per condition 7.1.7(b) and within 30 months of the effective date of the CAAP permit.

Condition 7.10.7-1(a) of CAAP permit 96030056 requires the testing of either Boiler #11 or Boiler #12 within 30 months of the effective date of the CAAPP permit, which was originally issued on May 2, 2011; and then revised and reissued on March 4, 2013. Boiler # 12 was tested for CO on May 10-11, 2011 and for PM on February 21-22, 2012, therefore testing has been completed per condition 7.10.7-1(a) and within 30 months of the effective date of the CAAP permit.

CAAPP permit Condition 7.10.7-1(b) requires testing of Power Boiler #1 at least every 5 years. Based upon our discussions during the permitting process, the intent of the testing condition was to test when the Power Boiler #1 was burning at least 90% Blast Furnace Gas – as this was the most representative conditions of the facility since it would be during a two-furnace (or typical) operation, A stack test for Power Boiler #1 was performed during such conditions on April 6, 2010. However, subsequent to that test conducted during representative conditions, due to low steel demand, the site went from running a two Blast Furnace operation to running a one Blast Furnace operation around February 2015, necessitating the use of more natural gas and less blast furnace gas (i.e., <90%) in # 1 Power Boiler. These conditions were not necessarily representative conditions so no testing was performed. On December 22, 2015 GCW temporarily idled ironmaking and steelmaking operations; therefore, natural gas was the fuel used for the boiler; and no blast furnace gas was generated or used in the boiler. Because of this change, U. S. Steel installed a Continuous Emissions Monitoring System (CEMS) for nitrogen oxides on or about June 2016; and most recently completed a RATA evaluation of the unit on June 14, 2018.

From December 22, 2015 up until June 3, 2018 no blast furnace gas was being produced at GCW, necessitating the use of only natural gas in #1 Power Boiler. As of June 3, 2018, GCW has been operating one blast furnace and in early October 2018, the second blast furnace is expected to begin production. Based on the anticipated start-up of the second Blast Furnace, U.S. Steel has added testing of #1 Power Boiler to our stack testing schedule on November 26-28, 2018 (see the updated proposed stack testing schedule) under a two blast furnace operation in which the predominant (>90%) fuel for the boiler is expected to be blast furnace gas, as was originally contemplated for the testing conditoin.

If you, or anyone on your team, has any questions please don't hesitate to contact me by phone at (219) 888-4500 or via email at jchanning@uss.com.

Joseph E. Hanning

Joseph E. Hanning, P.E
Director – Environmental

9/6/18
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WHITE PAPER

Approaches for Ensuring Compliance with Annual Emission Limits for Potential to Emit

September 17, 2018

I. BACKGROUND

On November 1, 2017, United States Steel ("USS") met with the Illinois Environmental Protection Agency ("Illinois EPA") to discuss issues related to USS' pending Clean Air Act Permit Program permit ("CAAPP Permit") appeal and the pending Construction Permit (Subject to Integrated Processing) ("Construction Permit") appeal before the Illinois Pollution Control Board ("Board") in PCB Nos. 13-53 and 13-62 for USS' Granite City Works ("GCW") facility.

The primary issues involved in the pending CAAPP Permit appeal relate to Illinois EPA's inclusion of Condition 5.13 in the 2013 CAAPP Permit and explicit determination that "emission factors" included in the CAAPP Permit from the Construction Permit/Prevention of Significant Deterioration ("PSD") Approval No. 95010001 ("PSD Permit") issued to National Steel, the prior owner and operator of GCW, by Illinois EPA on January 25, 1996 (and subsequently revised and reissued on several occasions) are, in fact, enforceable "emission limits." Similarly, the primary issues involved in the pending Construction Permit appeal relate to Illinois EPA's inclusion of certain conditions from the 2013 CAAPP Permit, along with Illinois EPA's explicit determination that "emission factors" incorporated from the PSD Permit are enforceable "emission limits."

USS and Illinois EPA have met on multiple occasions since 2013 to discuss the approach for ensuring compliance with the existing annual emission limits for potential to emit ("PTE")

established in the underlying PSD Permit. The most recent discussions have involved whether some of the methods proposed by USS for ensuring compliance would be considered "practically enforceable." Unfortunately, Illinois EPA has been reluctant to accept USS' proposals to ensure that the annual emission limits were practically enforceable, despite the proposals being consistent with past as well as the most recent United States Environmental Protection Agency ("USEPA") guidance and decisions on ensuring that annual emission limits/requirements are practically enforceable.

USS remains committed to working with Illinois EPA on collaboratively resolving the above-referenced permit appeals by revising the permits so that they are not unnecessarily restrictive or precariously place USS in jeopardy of non-compliance (e.g., when AP-42 emission factors are revised, which could put USS in immediate non-compliance for existing limits that are AP-42 emission factors), while simultaneously ensuring the annual emission limits are practically enforceable. To address this issue, we researched and reviewed USEPA guidance, USEPA administrative orders, and Environmental Appeals Board ("EAB") decisions for discussion of what types of compliance methods USEPA and EAB have considered practically enforceable other than continuous emission monitoring systems ("CEMS").

II. SUMMARY OF "PRACTICALLY ENFORCEABLE" REQUIREMENT

USEPA's PSD regulations define PTE as "the maximum capacity of a stationary source to emit a pollutant under its physical and operational design" and further provides that "[a]ny physical or operational limitation on the capacity of the source to emit a pollutant . . . 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). The rule recognizes "air pollution control equipment" and "restrictions on hours of operation" as two such limits. *Id.* The requirement for federal

enforceability was vacated by the United States Court of Appeals for the D.C. Circuit in *Chemical Manufacturers Association v. EPA*, 70 F.3d 637 (D.C. Cir. 1995). Under current USEPA policy and case law, enforceability is interpreted as meaning "federally enforceable or legally and practicably enforceable by a state or local air pollution control agency." *See U.S. v. Questar Gas Management Company*, No. 2:08-cv-00167 (D. Utah, May 1, 2011). Thus, what is required is a determination of whether a permit's limits restricting annual PTE are practically enforceable.

III. COMPLIANCE DEMONSTRATIONS APPROVED BY USEPA AND EAB AS PRACTICALLY ENFORCEABLE

A. CEMS

In pre-1990 USEPA guidance, USEPA made policy statements that prohibited the use of annual emission limits to restrict PTE. USEPA has since recognized that those pre-1990 policy statements are inconsistent with the requirements of the regulation and are of no effect. For example, in *In re Orange Recycling and Ethanol Production Facility, Pencor-Masada Oxynol, LLC* (USEPA Adm. Order, Apr. 8, 2002), USEPA evaluated the appropriateness of a "365-day 'rolling cumulative total' emissions limit" of 246 tons/year and concluded that "this rolling cumulative methodology is a practically enforceable and effective means of limiting PTE." *Id.* at 5. The Administrator further stated that:

> [T]he 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. The key consideration throughout these policy and guidance documents is whether the terms and conditions that limit the potential emissions are, in fact, enforceable as a practical matter.
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> * * *
>
> In order to be considered practically enforceable, an emissions limit must be accompanied by terms and conditions that require a source to effectively constrain

> its operations so as to not exceed the relevant emissions threshold. These terms and conditions must also be sufficient to enable regulators and citizens to determine whether the limit has been exceeded and, if so, to take appropriate enforcement action.

Id. at 5, 7.

As in *Pencor-Masada*, USEPA has been consistently allowing annual emission limits to be used to limit PTE so long as those limits are practically enforceable. In *Pencor-Masada*, the annual emission limit was practically enforceable due to the use of a CEMS. Similarly, in a more recent USEPA Administrator decision, a CEMS was again allowed to demonstrate compliance. *See In re Piedmont Green Power, LLC* (USEPA Adm. Order, Dec. 13, 2016). In that case, the Administrator found that the permit's NO_X and CO annual emission limits of 249 tons/year were practically enforceable due to the permit requiring the use of CEMS and monthly calculations of rolling total emissions for each pollutant.

B. Alternatives to CEMS

In addition to the above decisions involving CEMS, the following guidance and USEPA/EAB decisions involve relevant practical enforceability discussions that go beyond just the use of CEMS, although some of these discussions involve statements that are more general in nature (note, too, that some of these guidance documents and decisions are cited in the above *Pencor-Masada* and *Piedmont Green Power* decisions):

i. USEPA, Use of Long-Term Rolling Averages to Limit [PTE] (Feb. 24, 1992)

In this guidance document, USEPA discusses factors involved when deciding whether to allow long-term rolling averages for nine specific source categories. These factors revolve

around seasonal or otherwise variable production/operations.[8] Although USS' Granite City Works facility does not fit within one of the nine categories discussed in this guidance, in the introductory discussion of the guidance, USEPA states "As you know, the potential to emit policy allows use of long-term rolling averages in any case where a source experiences 'substantial and unpredictable' annual variations in production. Thus, it is the burden of the source to demonstrate the need for flexibility. In no event shall a source be allowed longer than an annual average rolled less frequently than a month." *Id.* at 1.

ii. USEPA, Policy Determination on Limiting [PTE] for Koch Refining Company's Clean Fuels Project (Mar. 13, 1992)

In this guidance document, USEPA discusses the use of a CEMS or a CEMS alternative (determined on a case-by-case basis) to provide continuous monitoring of compliance with an annual emission limit taken to restrict PTE. USEPA also discusses using 365 consecutive day averaging periods with interim limits for the first year, again determined on a case-by-case basis. USEPA also mentions that variability in a facility's production throughout the year is a factor weighing in favor of using an annual rolling averaging period. *See id.* at 2-4.

iii. USEPA, 3M Tape Manufacturing Division Plant, St. Paul, Minnesota (July 14, 1992)

In this guidance document, USEPA states that "we agree that a federally enforceable emissions limit may be used in this case to limit the potential to emit as long as a continuous emissions monitor (CEM) or an acceptable alternative is used. A CEMs alternative is one that is demonstrated as providing information with the same precision, reliability, accessibility, and timeliness as that provided by CEMS." *Id.* at 2.

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[8] As later embraced by USEPA, Guidance on Enforceability Requirements for Limiting Potential to Emit through SIP and §112 Rules and General Permits (Jan. 25, 1995); USEPA, Options for Limiting the Potential to Emit (PTE) of a Stationary Source under Section 112 and Title V of the Clean Air Act (Act) (Jan. 25, 1995).

iv. *In re Bristol-Myers Squibb Co.* (USEPA Administrator Order, Feb. 18, 2005)

In this order on a petition to object to the issuance of a Clean Air Act Title V permit, the Administrator objected to the Title V permit because the emission limits lacked sufficient monitoring to be practically enforceable. Although the Administrator did not object to annual PTE limits on NOx and SO2, the Administrator stated that the PTE limits were unenforceable because "a limit on fuel consumption, along with the requirement to record fuel usage, is needed to ensure the practical enforceability of an annual emissions limit." *Id.* at 32. In addition, the permit did not specify the emission factor to be used. *Id.*

v. *In re Prairie State Generating Co.* (EAB, Aug. 24, 2006)

In this decision on an appeal of a PSD permit, EAB upheld a 12-month rolling average control efficiency limit (rolling frequency not given) and a 30-day average heat input limit (lb/mmBtu) for SO2. EAB rejected the petitioner's claim that a 98% control efficiency based on an annual rolling average was not practically enforceable because the averaging period was too long. Even though USEPA has expressed a preference for shorter term limits, EAB stated that this does not mean that longer term limits are not acceptable. *See id.* at 80-81.

vi. *In re Shell Offshore, Inc.* (EAB, Mar. 30, 2012)

In this decision on appeal of an outer continental shelf permit to construct and Clean Air Act Title V operating permit, EAB rejected the petitioner's characterization of the source-wide emission limits for NO2, CO, SO2, and GHG as blanket limits that were not practically enforceable. Rather, EAB found that USEPA had supported its reasoning for using a 365-day rolling limit. According to EAB:

> 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 NOx

> and CO was based in large part on the substantial and unpredictable variations in emissions based on the atypical nature of Shell's operations. 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 x operating parameters for some pollutants, such as NO and CO, that might typically be applied to limit a stationary source's PTE.
>
> * * *
>
> 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, 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.

Shell Offshore, at 23-25 (internal citations to USEPA's Response to Comments omitted). In particular, the emission factor units were in pounds/gallon, pounds/ton, or pounds/month depending on the particular emission unit. *See* USEPA Region 10 Outer Continental Shelf Permit to Construct and Title V Air Quality Operating Permit No. R10OCS030000, Shell Offshore Inc. (Oct. 21, 2011) ("Shell Offshore Permit"), at Tables D.2.1 & D.2.2 at 37-38; *see also* Condition D.2 at 36. As an example, compliance with the synthetic minor PTE limit for daily NOx emissions from Shell's Kulluk unit and associated fleet were determined by multiplying the appropriate emission factor (pounds/unit) specified in Tables D.2.1 – D.2.2 (until a test-derived emission factor has been determined according to Condition E.2) by the recorded daily operation rate (units/day) and dividing by 2000 pounds/ton. *See id.* at Condition D.4.1.1 at 40.

Also, Shell Offshore was required to measure continuously and record hourly, daily, and monthly total fuel combusted by each emission unit or group of emission units that combusts

fuel (with limited exceptions for certain emission units) using a fuel flow meter such that emissions could be calculated on the required time frames required by the permit. *See id.* at Condition F.2.2 at 57. Alternatively, Shell Offshore could continuously measure and record, on an hourly, daily, and monthly basis, the time the emission units operate using a non-resettable hour meter and then convert operating hours to volume of fuel combusted using a specified conversion calculation. *See id.* at Condition F.2.3 at 58. Shell Offshore had other monitoring requirements as well. *See id.* at remaining conditions in Section F, at 58-61. EAB also upheld the requirement to calculate emissions weekly because Shell would be collecting and recording data continuously. *See In re Shell Offshore, Inc.*, at 27.

vii. *In re Yuhuang Chemical Inc. Methanol Plant, St. James Parish, Louisiana* (USEPA Administrator Order, Aug. 31, 2016) ("*Yuhuang I*")

In this order responding to a request for objection to issuance of a Title V permit, the Administrator objected to the permit due to PTE emission limits not being practically enforceable. The Administrator found that the permit contained "blanket" TPY emission limits that had only yearly compliance requirements rather than ongoing compliance requirements. *See id.* at 16-17. Also, the Administrator found that the permit did not address how a five-year testing frequency was adequate and how the stack test results would be used to determine compliance (e.g., verify emission factors or direct compliance demonstration). *See id.* at 17-21. Although the permit was issued in reliance upon an oxygen trim monitor as a substitute for CEMs, the permit itself did not require installation of the oxygen trim monitor or explain how data from the monitor would be used for demonstrating compliance. *See id.*

viii. *In re Yuhuang Chemical Inc. Methanol Plant, St. James Parish, Louisiana* (USEPA Administrator Order, Apr. 2, 2018) ("*Yuhuang II*")

In this order denying petitions requesting objection to the issuance of a modification to Yuhuang Chemical Inc.'s ("Yuhuang") Title V permit made by the state permitting agency to address USEPA's objections in *Yuhuang I* discussed above, the Administrator rejected the petitioners' allegations that a number of the emission limits in the permit were still not enforceable as a practical matter. *See id.* at 7. In particular, the Administrator determined that the permit's requirements for using actual operating data to calculate monthly emissions in between annual stack tests, using annual stack tests to develop and update (as needed) rate-specific emission factors, and using those emission factors in conjunction with continuous monitoring of actual operating rates to calculate monthly emissions were adequate to assure compliance with the permit's emission limits. *See id.* at 9-12.

ix. *In re Wheelabrator Frackville Energy, Inc., Schuylkill County, Pennsylvania* (USEPA Administrator Order, Apr. 6, 2018)

In this order denying a petition requesting objection to the issuance of a Title V permit, the Administrator rejected the petitioners' allegations that the permit failed to include monitoring of PM emissions from a circulating fluidized bed boiler sufficient to assure compliance with the permit's applicable PM emission limits. *See id.* at 6. Specifically, the Administrator acknowledged that the use of a "multi-pronged approach for assuring compliance with emission standards without the use of CEMS" may be adequate:

> The Petitioners' challenge focuses on the frequency of the stack tests and the adequacy of the two baghouse operation performance indicators, pressure drop and opacity, in combination with the requirement to operate the baghouse at all times the CFB boiler is in operation. However, the Petitioners failed to demonstrate that these PM monitoring provisions, and other provisions of the Proposed Permit they did not discuss in their Petition, when viewed as a whole

and in the context of the entire permit, are inadequate to assure compliance with the PM emission limit for the CFB boiler. The above description of the applicable legal requirements makes clear that determining whether the monitoring requirements in a permit for a particular source, such as the Facility's CFB boiler, are adequate to assure compliance requires a context-specific inquiry that depends on a multi-factor assessment concerning the source's emissions and controls as well as its permit. The Petitioners who allege that monitoring requirements are not adequate carry the burden of demonstrating that inadequacy.

The EPA has previously determined a multi-pronged approach for assuring compliance with emission standards without the use of CEMS, such as what this permit contains, may be adequate. *See In the Matter of Gallatin Fossil Plant*, Order on Petition No. IV-2016-11 and IV-2017-17 at 14 (January 30, 2018) (*Gallatin Order*) (citing *In the Matter of Xcel Energy, Cherokee Station*, Order on Petition No. VIII-2010-XX at 11–12 (September 29, 2011)) (*Cherokee Station Order*) (finding adequate a three-pronged approach for assuring compliance including stack testing, proper operation and maintenance of the control device, and a CAM plan to assess performance of the control device on an ongoing basis). Similar to the Gallatin and Cherokee Station permits, the Proposed Permit requires a three-pronged approach for assuring compliance with the PM emissions limit including: (1) stack testing; (2) required continuous operation and maintenance of the control device, which is a baghouse; and (3) two mechanisms for assessing the performance of the baghouse on an ongoing basis using a continuous opacity monitoring system (COMS) and monitoring pressure differential.

* * *

The Petitioners do not demonstrate a flaw in [the state permitting agency's] reasoning that the requirement for operation of the baghouse coupled with parametric monitoring to confirm its proper operation, and combined with periodic stack testing of actual emissions, is not adequate to assure compliance with the PM emission limit. *See Gallatin Order* at 15.

* * *

Lastly, the Petitioners argue "installation and operation of a [CEMS] for PM is the proper means of accurately monitoring such emissions." However, the Petitioners have failed to identify any applicable requirement for the use of a PM CEMS for monitoring compliance with the PM limit. *See Gallatin Order* at 15; *Cherokee Station Order* at 13. As explained above, [the state permitting agency] requires Wheelabrator to continuously operate and maintain the control device and comply with a CAM plan, including monitoring of two secondary performance indicators, as well as conduct quarterly and biannual stack testing. Such multi-pronged monitoring regimes have been approved in the past as adequate for CAM

> purposes, and the Petitioners have not established a basis as to why such an approach is inadequate here.

Id. at 13-14, 17 (internal citations to petitioners' petition to object omitted).

x. PSD Permit Issued by the Pima County (Arizona) Department of Environmental Quality to Tucson Electric Power Company (Aug. 8, 2018)

Pima County Department of Environmental Quality ("PDEQ") issues PSD permits through a delegation agreement with USEPA. *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, Contract No. CTN-DE-18-15L (June 5, 2018); *see also* USEPA, Air Permit Delegation and PSD SIP Approval Status in EPA Region 9, at https://www.epa.gov/caa-permitting/air-permit-delegation-and-psd-sip-approval-status-epa-region-9 (last visited Aug. 24, 2018). Thus, PSD permits issued by PDEQ are considered federal permits rather than state permits.

On August 8, 2018, PDEQ issued a PSD permit to Tucson Electric Power Company ("TEP") for TEP's modernization of its Irvington Generating Station by replacing two 1950's-era steam units with ten high-efficiency, fast-responding, state-of-the-art reciprocating internal combustion engines ("RICE").[3] The project expected to trigger a major modification for CO, PM2.5/PM10, and VOCs subject to PSD permitting.

Among the public comments filed during public notice on the proposed permit, one commenter asserted that periodic source tests are insufficient to ensure the practical

[3] Although PDEQ issued TEP's PSD permit on August 8, 2018, the permit becomes effective 30 days after service of the notice of the final permit decision, unless a petition for review is properly and timely filed with the EAB. On September 7, 2018, Sierra Club filed a petition for review with the EAB. EAB's decision is pending.

enforceability of permit emission limits, and that PDEQ must require CEMS in order to ensure that permit emission limits are practically enforceable. *See* PDEQ, Responses to Public Comments on the Clean Air Act Prevention of Significant Deterioration of Air Quality Draft Permit for Tucson Electric Power (TEP) Irvington/H. Wilson Sundt Generating Station (IGS) (hereafter "PDEQ RTC"), at 9 (Aug. 8, 2018). In response, PDEQ disagreed with this commenter because, in addition to requiring annual source tests for NOx, CO, VOC, and PM10/PM2.5, the permit "requires additional monitoring and operating data collection to ensure compliance with the respective emission limits for these pollutants, as well as how compliance should then be demonstrated based on the data collected." *Id.* at 10. PDEQ elaborated as follows:

> First, we note that the proposed permit requires extensive monitoring of control device operating parameters to assure that the control devices are operating appropriately at all times. The proposed permit requires each engine to operate with a Selective Catalytic Reduction (SCR) system (Proposed Permit Specific Condition II.A.1.c) as an add-on control device for NOx, and includes monitoring, recordkeeping, and reporting requirements of multiple SCR operating parameters on a continuous basis. [(Explains how SCR systems work.)] . . . As a result, in addition to hours of operation of the engine, the proposed permit requires monitoring of the SCR ammonia injection rate and SCR outlet temperature, and also requires the use of an SCR process monitor that will calculate outlet NOx concentration (proposed permit specific condition II.A.1.c.iv).
>
> Similarly, the permit includes monitoring of operating parameters for the oxidation catalyst. The proposed permit requires the use of an oxidation catalyst (proposed permit specific condition II.A.2.b and 3.b) as an add-on control device for purposes of meeting CO and VOC BACT limits. [(Explains how oxidation catalysts work.)] . . . As a result, the proposed permit requires monitoring, reporting, and recordkeeping of oxidation catalyst temperature. It also requires monitoring of pressure drop across the oxidation catalyst, which is an indicator of adequate flow across the catalyst bed. Also, the proposed project triggers Compliance Assurance Monitoring (CAM) requirements with respect to CO. We have updated the proposed permit and TSD to include the applicable requirements from 40 CFR part 64, which includes development of a CAM plan which will establish specific indicator ranges for catalyst temperature and catalyst pressure drop based upon the initial performance test.

> Furthermore, to assure proper operation of the engines, the proposed permit requires the engines to operate in accordance with a site-specific monitoring plan and to install, operate, and maintain a continuous parameter monitoring system (CPMS) as required by NSPS subpart JJJJ and MACT subpart ZZZZ. The site specific monitoring plan is required to include elements such as performance criteria and design specifications for monitoring system equipment, and must establish measures for equipment performance evaluations, as well as ongoing operation, maintenance, and reporting and recordkeeping procedures. The CPMS is required to collect information on engine operating parameters in accordance with the site specific monitoring plan on a continuous basis. The specific contents and operating parameters established in site specific monitoring plans vary, but in general are established based upon a combination of manufacturer specification and upon conditions observed during the initial compliance test. Combined with the CPMS, these measures work to ensure that the engines operate properly in accordance with manufacturer specifications, and in a manner consistent with the initial compliance test.
>
> Finally, the Proposed Permit requires the data generated by the monitoring and testing requirements contained in Section II.B (PSD and BACT Monitoring Requirements) and Section II.D (PSD and BACT Testing Requirements) to be used to demonstrate compliance with the respective pollutant emission limits, including the NOx annual emission cap. As explained in greater detail in our response to Comment II.B.9 below, fuel usage records, source test results, and vendor startup emission rates shall be used to calculate NOx emissions from all ten RICE units on a monthly basis, and as a 12-monthly rolling total.

Id. at 10-11 (internal citations omitted).

xi. Use of Continuous Parametric Monitoring Systems/Compliance Assurance Monitoring

For some emission units, USS employs continuous parametric monitoring systems in which parametric monitoring is conducted to ensure proper operation of the control devices to ensure compliance with applicable annual emission limits. This is the primary basis of parametric monitoring. For many processes and emission units, USS conducts periodic stack tests, and regularly conducts parametric monitoring to ensure that annual emission limits are met. For example, for units with baghouses, USS may measure differential pressure, fan amperage, etc. These values are then compared with values generated during the compliance demonstration

in which the ranges were established. The use of the parametric monitoring has long been recognized by EPA as a proper means to ensure that annual emission limits are being met. In addition, federal NESHAP regulations define "monitoring," in relevant part, as follows:

> *"Monitoring" means the collection and use of measurement data or other information to control the operation of a process or pollution control device or to verify a work practice standard relative to* ***assuring compliance with applicable requirements. . ."***

See 40 C.F.R. § 63.5.

IV. CONCLUSION

As demonstrated above, USEPA and EAB have approved compliance methods, other than CEMS, as practically enforceable. In particular, the USEPA Administrator has upheld the use of a three-pronged approach for assuring compliance with an emissions limit that consisted of stack testing, continuous operation and maintenance of the control device, and two mechanisms for assessing the performance of the baghouse on an ongoing basis using a continuous opacity monitoring system and monitoring pressure differential. *See Wheelabrator*, at 13-14.

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September 17, 2018

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VIA ELECTRONIC MAIL

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Re: United States Steel Corporation
Illinois Pollution Control Board
PCB 2013-53 and PCB 2013-62

Dear Becky:

This letter is to follow up on our recent discussions regarding the above-referenced pending air permit appeals for United States Steel Corporation's ("USS") Granite City Works ("GCW"), i.e., *United States Steel Corporation v. Illinois Environmental Protection Agency*, PCB 2013-053, and *United States Steel Corporation v. Illinois Environmental Protection Agency*, PCB 2013-062, as well as to provide information for your review and consideration prior to our meeting set for September 19, 2018. As discussed, the meeting will be held at the Illinois Environmental Protection Agency's ("Illinois EPA") Springfield, Illinois offices, and we understand that Illinois EPA wishes to discuss both legal and technical issues involved with these pending matters.

Background/Summary

As you know, the primary issues involved in the pending CAAPP Permit appeal (PCB 2013-53) relate to Illinois EPA's inclusion of Condition 5.13 in the 2013 CAAPP Permit and explicit determination that "emission factors" included in the CAAPP Permit are, in fact, enforceable "emission limits." These emission factors were incorporated into the 2013 CAAPP Permit from the prior Construction Permit/Prevention of Significant Deterioration ("PSD")

Approval No. 95010001 ("PSD Permit")[1], issued to National Steel Corporation, the prior owner and operator of GCW, by Illinois EPA on January 25, 1996 (and subsequently revised and reissued on several occasions). Similarly, the primary issues involved in the pending Construction Permit appeal (PCB 2013-62) relate to Illinois EPA's inclusion of certain conditions from the 2013 CAAPP Permit, along with Illinois EPA's explicit determination that "emission factors" incorporated from the PSD Permit are enforceable "emission limits."

The PSD Permit granted authority for production increases at GCW that included increases in the allowable production rates of iron and steel. Apparently consistent with the federal PSD program and regulations in place in 1996, the PSD Permit issued by Illinois EPA established maximum production rates for the Blast Furnace Operations, BOF Shop, Continuous Casting Operations, as well as maximum annual emission limits for the related emission units and activities. The PSD Permit also included emission factors, by pollutant, for related emission units and activities. As detailed in USS's petition for review of the 2013 CAAPP Permit, USS contends that the emission factors, as carried over from the PSD Permit, are not enforceable emission limits. Exhibit B to USS's petition for review of the 2013 CAAPP Permit describes the contested conditions in detail.[2]

As set forth in USS's petition for review of the 2013 CAAPP Permit,[3] some of the emission factors that Illinois EPA refers to as limits by way of Condition 5.13 of the CAAPP Permit were derived from AP-42, Compilation of Air Pollutant Emission Factors. In AP-42, USEPA clearly states that AP-42 emission factors are "generally assumed to be representative of long-term averages for all facilities in the source category." USEPA, Emission Factors & AP-42, Compilation of Air Pollutant Emission Factors, *available at* https //www epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emissions-factors#5thed (last visited Sept. 17, 2018). In AP-42, USEPA also states that "[e]mission factors in AP-42 are neither EPA-recommended emission limits . . . nor standards . . . ." USEPA, Compilation of Air Pollutant Emissions Factors Volume I: Stationary Point and Area Sources, 5th ed., at 2 (Jan. 1995) (emphasis in original). USEPA clarifies:

> Use of [emission] factors as source-specific permit limits and/or as emission regulation compliance determinations is not recommended by EPA. Because emission factors essentially represent an average of a range of emission rates, approximately half of the subject sources will have emission rates greater than the emission factor and the other half will have emission rates less than the factor. As such, a permit limit using an AP-42 emission factor would result in half of the sources being in noncompliance.

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[1] A copy of the Construction Permit (Application No. 9501001) is attached to this letter as Attachment 1.
[2] A copy of Exhibit B to the petition for review is attached to this letter as Attachment 2. Note that Special Condition 7.5.6(b), as included in Exhibit B, addresses the Illinois EPA's failure to include a compliance schedule in the 2013 CAAPP Permit, and is not related to the emission factor issue.
[3] The positions and sources discussed in this portion of USS's petition for review of the 2013 CAAPP Permit, i.e., AP-42 and the USEPA Administrator Order in *Chevron*, were again reviewed and verified as part of the preparation of this letter.

Id. In short, USEPA clearly articulates that AP-42 emission factors are indeed emission estimates. This is consistent with how Illinois EPA determined some of the annual emission limits for GCW – by using the AP-42 emission factor as the average.

Moreover, the use of emission factors as limits is generally rejected by USEPA. In an administrator order responding to a petition to object to a Title V permit, USEPA plainly states:

> An AP-42 emission factor is a value that roughly correlates the quantity of a pollutant released to the atmosphere with an activity associated with the release of that pollutant. The use of these emission factors may be appropriate in some permitting applications, such as establishing operating permit fees. However, EPA has stated that AP-42 factors do not yield accurate emissions estimates for individual sources. *See In the Matter of Cargill, Inc.*, Petition IV-2003-7 (Amended Order) at 7, n.3 (Oct. 19, 2004). Because emission factors essentially represent an average of a range of facilities and of emission rates, they are not necessarily indicative of the emissions from a given source at all times; with a few exceptions, use of these factors to develop source-specific permit limits or to determine compliance with permit requirements is generally not recommended.

Order Denying in Part and Granting in Part a Petition for Objection to Permit, *In the Matter of Chevron Products Company, Richmond, California Facility,* Petition No. IX-2004-08, at 23-24 (Mar. 2005). In *Chevron*, USEPA also explains that a single emission factor that was developed to represent *long-term average emissions* is not necessarily predictive of determining compliance at any *specific* time. *Id.*

However, in an effort to resolve these issues, starting in 2013, USS and Illinois EPA met on multiple occasions to discuss the emission factor issues, including approaches for ensuring compliance with the existing annual emission limits for potential to emit ("PTE") established in the underlying PSD Permit, as well as USS's need for practically enforceable limits to allow for operational flexibility due to GCW's inherent and dynamically variable operations. For example, USS has repeatedly discussed with Illinois EPA how GCW is not like a power plant that operates continuously, but rather has expected variability in operations and process parameters. It is technologically infeasible and economically unreasonable for USS to compromise on the needed operational flexibility at GCW. According to information in our file, USS and Illinois EPA met for such discussions first on September 4, 2013, and then at least an additional 12 times, most recently on November 1, 2017. Note that the parties agreed to disagree, early on in these appeals, as to the compliance schedule issue.

Status of Operations at GCW

The iron and steel making operations at GCW were temporarily idled in late 2015 due to challenging market conditions beyond the control of USS, including global excess steel capacity and unfairly traded imports. Thereafter, on May 22, 2018, USS tendered notice to Illinois EPA that it intended to resume iron and steel making operations at GCW, because of improvements in

both the price and demand for such products. USS commenced operation of Blast Furnace B in early June, 2018 and anticipates commencing operation of Blast Furnace A in early October, 2018.

Prior Discussions Regarding Emission Factor Issues

Despite the temporary idling of the iron and steel making operations at GCW, USS continued to meet with Illinois EPA to discuss resolution of the emission factor issues. During such meetings, the parties reviewed and discussed the contested conditions, which fall into three categories: 1) emission units and activities with historic test data; 2) emission units and activities without historic test data; and 3) emission units and activities for which additional research is necessary. Unfortunately, neither the PSD Permit itself, nor the Illinois EPA record, nor the applications submitted by the former owner/operator provided sufficient detail on the development of the emission factors at issue. A summary status update is set forth below for the three categories of contested conditions.

1) Emission units and activities with historic test data

The following contested conditions fall into this category:

Special Condition 7.4.6(b) – Blast Furnace Casthouse Baghouse

Special Condition 7.4.6(f) – Blast Furnace Iron Spout Baghouse

Special Condition 7.5.6(c) – BOP ESP Stack (Charge, Refine, Tap)

Special Condition 7.5.6(e) – BOP Hot Metal Desulfurization and Hot Metal Transfer

Special Condition 7.5.6(f) – BOP Hot Metal Charging and Ladle Slag Skimming

Special Condition 7.5.6(g) – BOP Argon Stirring Station Material Handling Tripper

Special Condition 7.6.6(c) – Blast Furnace Caster Spray Chambers

The discussions on these emission units and activities involved review/evaluation by the parties of historic test data for the above-listed contested conditions. Then, it was necessary for USS to review production data and develop lbs/hr factors to be used for comparison with the prior lbs/ton production emission factors, which were included in the PSD Permit. However, the use of lbs/hr factors for compliance purposes, i.e., enforceable emission limits, resulted in the very same concerns as using the prior lbs/ton emission factors.

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USS presented significant information on the variability of both production and operating scenarios for most of the above-listed emission units and activities, along with the need for alternative methods for ensuring compliance, i.e., methods other than merely replacing the lbs/ton emission factors with lbs/hr emission limits. At the last meeting held on November 1, 2017, USS proposed such alternative methods for the Blast Furnace Casthouse Baghouse, along with supporting information from federal guidance/EAB decisions. Illinois EPA summarily rejected USS's proposal as not "practically enforceable."

USS then offered to prepare a "white paper" addressing approaches approved by USEPA for ensuring compliance with annual emission limits for PTE. In that regard, please see the attached White Paper, Approaches for Ensuring Compliance with Annual Emission Limits for Potential to Emit (Sept. 17, 2018), attached to this letter as Attachment 3. USS anticipates discussion at the upcoming meeting of such approaches and, if the parties can reach conceptual agreement on this point, USS commits to submit additional specific proposals for the contested conditions set forth above in accordance with a mutually agreeable schedule.

2) Emission units and activities without historic test data

The following contested conditions fall into this category:

Special Condition 7.1.6(b)(i) – Material Handling and Processing Operations Emissions from Material HS and Deslagging Station

Special Condition 7.1.6(b)(ii) – BOP Additive System (Trackhopper Baghouse)

Special Condition 7.1.6(b)(iii) – Flux Conveyor and Transfer Points (Bin Floor Baghouse)

Special Condition 7.1.6(b)(iv) – Iron Pellet Screen

Special Condition 7.4.6(c) – Blast Furnace Uncaptured Fugitive Emissions

Special Condition 7.4.6(d) – Blast Furnace Charging

Special Condition 7.4.6(e) – Blast Furnace Slag Pits

Special Condition 7.5.6(d) – BOP Roof Monitor

Special Condition 7.6.6(a) – Continuous Casting Deslagging Station and Associated Material Handling System

Special Condition 7.6.6(b) – Continuous Casting Caster Molds (Casting)

Special Condition 7.6.6(c) – Continuous Casting Caster Spray Chambers

Special Condition 7.6.6(d) – Continuous Casting Slab Cut-off

Special Condition 7.6.6(e) – Continuous Casting Slab Ripping

The discussions on these emission units and activities involved considerable research of AP-42 factors and other resources available on the internet, as well as research/review of air permits for similar emission units and activities at other facilities. USS presented, and the parties discussed, the results of USS's research at several meetings with Illinois EPA. USS anticipates additional discussions will be necessary here too regarding approaches for ensuring compliance with annual emission limits for PTE. Again, if the parties can reach conceptual agreement, USS commits to submit additional specific proposals for the contested conditions set forth above in accordance with a mutually agreeable schedule. Finally, continued research may be necessary for some of the emission units and activities in this list.

3) Emission units and activities for which additional research is necessary

The following contested conditions include a subset from the second category above:

Special Condition 7.5.6(b) – BOP Shop Emissions (NOx and VOM Annual Emissions)

Special Condition 7.5.6(c) – BOP ESP Stack (Charge, Refine, Tap)

Special Condition 7.5.6(d) – BOP Roof Monitor

Additional research is necessary here for emissions of NOx and VOM and, as set forth above, is related as well to the compliance schedule issue.

Emission Testing Schedule

As referenced above, on May 22, 2018, USS tendered notice to Illinois EPA regarding resuming iron and steel making operations at GCW. At about the same time, USS engaged in discussions with Illinois EPA regarding an emissions testing schedule for certain emission units and activities at GCW.[4] (Note that the emissions testing schedule involves some of the emission units and activities set forth above, as well as additional emission units and activities at GCW.) Thereafter, USS proposed revisions to the schedule.[5] The emissions testing is anticipated to be completed before the end of 2018. Thus, USS expects additional discussions with Illinois EPA after receipt and review of the updated emission testing results for several emission units and

[4] See attached Letter from Kent Mohr, Illinois EPA, to Joe Hanning, USS (July 9, 2018), attached to this letter as Attachment 4.
[5] See attached Letter from Joe Hanning, USS, to Kent Mohr, Illinois EPA (Sept. 6, 2018), attached to this letter as Attachment 5.

activities covered in the pending appeal, which include the blast furnace casthouse baghouse, blast furnace iron spout baghouse, BOP ESP stack (charge, refine, tap), BOP hot metal desulfurization and hot metal transfer, and BOP hot metal charging and ladle slag skimming.

Conclusion

As you can see, both USS and Illinois EPA have invested significant resources in attempting to resolve the many and complex issues associated with these appeals, especially as to the emission factors that were incorporated from the prior PSD Permit and USS's need for practically enforceable emission limits that allow for operational flexibility due to GCW's inherent and dynamic variability in operations. It is technologically infeasible and economically unreasonable for USS to compromise on the needed operational flexibility at GCW. Overall, the parties have had productive discussions over the past several years. While discussions appear to have stalled as to the emission factor issue, USS urges Illinois EPA to meaningfully consider the current federal guidance and case law for appropriate and practically enforceable methods for ensuring compliance with annual emission limits for PTE. Again, if the parties can reach conceptual agreement on this point, USS commits to submit additional specific proposals for the Illinois EPA's review, in accordance with a mutually agreeable schedule.

USS is confident that agreement can be reached on some, if not all, of these issues, and that the parties could then move forward in a permitting action related to the reopening of the prior PSD Permit. We look forward to meeting with you and Illinois EPA representatives.

Sincerely,

Katherine D. Hodge

KDH:kjg
attachments
pc: Sally Carter, Esq. (via electronic mail, w/attachments)
David Hacker, Esq. (via electronic mail, w/attachments)

Pritchett, Jacob A.

Subject: FW: USS & IEPA Conference call
Location: https://secure-web.cisco.com/1M5Nk35_mhlWr9I32qVfk-QsS70IhsaaHOnO_2ojczohat4Aikg-LycbmleZXPZDtIEwZ0YgCacjlq9klXAkRRjFkPLh1_OxHZ8Ktk6PnHBcDxjtOon6A9kAfI3_npphnzNNxBB8Rpj5VFFv5Lxe5QMocSEN_-DbMp1hnRUSx_XZijVilP8FagrYfvI0GlCycr6YMOVfNn4Srs6pDkKi9Lg4P3fDfF_a2b

Start: Thu 10/28/2021 12:00 PM
End: Thu 10/28/2021 2:00 PM
Show Time As: Tentative

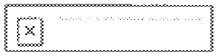
Recurrence: (none)

Meeting Status: Not yet responded

Organizer: LaDonna Driver

I have accepted this call.

-----Original Appointment-----
From: LaDonna Driver <LaDonna.Driver@heplerbroom.com>
Sent: Friday, September 17, 2021 10:54 AM
To: LaDonna Driver; 'Hacker, David W'; 'KDArmentrout@uss.com'; 'CWHardin@uss.com'; 'APiscitelli@uss.com'; 'saini@rtpenv.com'; 'campbell@rtpenv.com'; 'BJTunno@uss.com'; 'amespy@uss.com'; Carter, Sally; Romaine, Chris; Patel, Minesh
Subject: USS & IEPA Conference call
When: Thursday, October 28, 2021 12:00 PM-2:00 PM (UTC-06:00) Central Time (US & Canada).
Where: https://secure-web.cisco.com/1M5Nk35_mhlWr9I32qVfk-QsS70IhsaaHOnO_2ojczohat4Aikg-LycbmleZXPZDtIEwZ0YgCacjlq9klXAkRRjFkPLh1_OxHZ8Ktk6PnHBcDxjtOon6A9kAfI3_npphnzNNxBB8Rpj5VFFv5Lxe5QMocSEN_-DbMp1hnRUSx_XZijVilP8FagrYfvI0GlCycr6YMOVfNn4Srs6pDkKi9Lg4P3fDfF_a2b



Hi there,

LaDonna Driver is inviting you to a scheduled Zoom meeting.

Join Zoom Meeting

Phone one-tap: US: +13126266799,,85784390048#,,,,*225781# or +13017158592,,85784390048#,,,,*225781#

Meeting URL: https://heplerbroom.zoom.us/j/85784390048?pwd=c21GVENSQXRuNFBuaWtVdUprclV0UT09

Meeting ID: 857 8439 0048

Password:225781

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Meeting ID: 857 8439 0048

Password:225781

International numbers

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Kras, Kim

From: Carter, Sally
Sent: Tuesday, September 18, 2018 10:07 AM
To: Patel, Minesh; Romaine, Chris
Subject: FW: U.S. Steel
Attachments: In re Yuhuang Chemical II (USEPA Adm. Order, Mar. 19, 2018).pdf; In re Wheelabrator (USEPA Adm. Order, Apr. 6, 2018).pdf

The only two references in the White Paper that I thought may be of interest....

From: Burlingham, Rebecca <RBurlingham@atg.state.il.us>
Sent: Tuesday, September 18, 2018 10:06 AM
To: Carter, Sally <Sally.Carter@Illinois.gov>
Subject: [External] U.S. Steel

Sally,

Here are the two attachments.

Becky

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BEFORE THE ADMINISTRATOR
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

IN THE MATTER OF YUHUANG CHEMICAL INC. METHANOL PLANT ST. JAMES PARISH, LOUISIANA PERMIT NO. 2560-00295-V1 ISSUED BY THE LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY	PETITION NOS. VI-2017-5 AND VI-2017-13 ORDER RESPONDING TO PETITIONS REQUESTING OBJECTION TO THE ISSUANCE OF A TITLE V OPERATING PERMIT

ORDER DENYING A PETITION FOR OBJECTION TO PERMIT

I. INTRODUCTION

The U.S. Environmental Protection Agency (EPA) received two petitions, dated March 30, 2017, and August 3, 2017 (collectively, the Petitions) from the Sierra Club and Louisiana Environmental Action Network (the Petitioners), pursuant to section 505(b)(2) of the Clean Air Act (CAA or Act), 42 U.S.C. § 7661d(b)(2). The Petitions request that the EPA Administrator object to the modification of operating permit no. 2560-00295-V1 (the Permit) issued by the Louisiana Department of Environmental Quality (LDEQ) to the Yuhuang Chemical Inc. Methanol Plant (Yuhuang or the facility) in St. James Parish, Louisiana. The Permit is a combined preconstruction and operating permit. The operating permit was issued pursuant to title V of the CAA, CAA §§ 501–507, 42 U.S.C. §§ 7661–7661f, and Louisiana Administrative Code (LAC) 33.III.507. *See also* 40 C.F.R. part 70 (title V implementing regulations). This type of operating permit is also referred to as a title V permit or part 70 permit.

Based on a review of the Petitions and other relevant materials, including the Permit, the permit record, and relevant statutory and regulatory authorities, and as explained further below, the EPA denies the Petitions requesting that the EPA Administrator object to the Permit.

II. STATUTORY AND REGULATORY FRAMEWORK

A. Title V Permits

Section 502(d)(1) of the CAA, 42 U.S.C. § 766la(d)(1), requires each state to develop and submit to the EPA an operating permit program to meet the requirements of title V of the CAA and the EPA's implementing regulations at 40 C.F.R. part 70. The state of Louisiana submitted a title V program governing the issuance of operating permits on November 15, 1993, and revised this program on November 10, 1994, 40 C.F.R. part 70, Appendix A. The EPA granted full approval to Louisiana's title V operating permits program in 1995, 60 Fed. Reg. 47296 (September 12,

1995); 40 C.F.R. part 70, Appendix A. This program, which became effective on October 12, 1995, is codified in LAC, Title 33, Part III, Chapter 5.

All major stationary sources of air pollution and certain other sources are required to apply for title V operating permits that include emission limitations and other conditions as necessary to assure compliance with applicable requirements of the CAA, including the requirements of the applicable implementation plan. CAA §§ 502(a), 504(a), 42 U.S.C. §§ 7661a(a), 7661c(a). The title V operating permit program generally does not impose new substantive air quality control requirements, but does require permits to contain adequate monitoring, recordkeeping, reporting, and other requirements to assure the source's compliance with applicable requirements. 57 Fed. Reg. 32250, 32251 (July 21, 1992); *see* CAA § 504(c), 42 U.S.C. § 7661c(c). One purpose of the title V program is to "enable the source, States, the EPA, and the public to understand better the requirements to which the source is subject, and whether the source is meeting those requirements." 57 Fed. Reg. at 32251. Thus, the title V operating permit program is a vehicle for compiling the air quality control requirements as they apply to the source's emission units and for providing adequate monitoring, recordkeeping, and reporting to assure compliance with such requirements.

B. Review of Issues in a Petition

State and local permitting authorities issue title V permits pursuant to their EPA-approved title V programs. Under CAA § 505(a), 42 U.S.C. § 7661d(a), and the relevant implementing regulations found at 40 C.F.R. § 70.8(a), states are required to submit each proposed title V operating permit to the EPA for review. Upon receipt of a proposed permit, the EPA has 45 days to object to final issuance of the proposed permit if the EPA determines that the proposed permit is not in compliance with applicable requirements under the Act. CAA § 505(b)(1), 42 U.S.C. § 7661d(b)(1); *see also* 40 C.F.R. § 70.8(c). If the EPA does not object to a permit on its own initiative, any person may petition the Administrator, within 60 days of the expiration of the EPA's 45-day review period, to object to the permit. CAA § 505(b)(2), 42 U.S.C. § 7661d(b)(2); 40 C.F.R. § 70.8(d).

The petition shall be based only on objections to the permit that were raised with reasonable specificity during the public comment period provided by the permitting authority (unless the petitioner demonstrates in the petition to the Administrator that it was impracticable to raise such objections within such period or unless the grounds for such objection arose after such period). CAA § 505(b)(2), 42 U.S.C. § 7661d(b)(2); 40 C.F.R. § 70.8(d). In response to such a petition, the Act requires the Administrator to issue an objection if a petitioner demonstrates that a permit is not in compliance with the requirements of the Act. CAA § 505(b)(2), 42 U.S.C. § 7661d(b)(2); 40 C.F.R. § 70.8(c)(l).[1] Under section 505(b)(2) of the Act, the burden is on the petitioner to make the required demonstration to the EPA.[2]

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[1] *See also New York Public Interest Research Group, Inc. v. Whitman*, 321 F.3d 316, 333 n.11 (2d Cir. 2003) *(NYPIRG)*.

[2] *WildEarth Guardians v. EPA*, 728 F.3d 1075, 1081–82 (10th Cir. 2013); *MacClarence v. EPA*, 596 F.3d 1123, 1130–33 (9th Cir. 2010); *Sierra Club v. EPA*, 557 F.3d 401, 405–07 (6th Cir. 2009); *Sierra Club v. Johnson*, 541 F.3d 1257, 1266–67 (11th Cir. 2008); *Citizens Against Ruining the Environment v. EPA*, 535 F.3d 670, 677–78 (7th Cir. 2008); *cf. NYPIRG*, 321 F.3d at 333 n.11.

The petitioner's demonstration burden is a critical component of CAA § 505(b)(2). As courts have recognized, CAA § 505(b)(2) contains both a "discretionary component," to determine whether a petition demonstrates to the Administrator that a permit is not in compliance with the requirements of the Act, and a nondiscretionary duty to object where such a demonstration is made. *Sierra Club v. Johnson*, 541 F.3d at 1265–66 ("[I]t is undeniable [that CAA § 505(b)(2)] also contains a discretionary component: it requires the Administrator to make a judgment of whether a petition demonstrates a permit does not comply with clean air requirements."); *NYPIRG*, 321 F.3d at 333. Courts have also made clear that the Administrator is only obligated to grant a petition to object under CAA § 505(b)(2) if the Administrator determines that the petitioner has demonstrated that the permit is not in compliance with requirements of the Act. *Citizens Against Ruining the Environment*, 535 F.3d at 677 (stating that § 505(b)(2) "clearly obligates the Administrator to (1) determine whether the petition demonstrates noncompliance and (2) object *if* such a demonstration is made" (emphasis added)).[3] When courts have reviewed the EPA's interpretation of the ambiguous term "demonstrates" and its determination as to whether the demonstration has been made, they have applied a deferential standard of review. *See, e.g.*, *MacClarence*, 596 F.3d at 1130–31.[4] Certain aspects of the petitioner's demonstration burden are discussed below; however, a more detailed discussion can be found in *In the Matter of Consolidated Environmental Management, Inc., Nucor Steel Louisiana*, Order on Petition Nos. VI-2011-06 and VI-2012-07 at 4–7 (June 19, 2013) *(Nucor II Order)*.

The EPA has looked at a number of criteria in determining whether a petitioner has demonstrated noncompliance with the Act. *See generally Nucor II Order* at 7. For example, one such criterion is whether the petitioner has addressed the state or local permitting authority's decision and reasoning. The EPA expects the petitioner to address the permitting authority's final decision, and the permitting authority's final reasoning (including the state's response to comments, or RTC), where these documents were available during the timeframe for filing the petition. *See MacClarence*, 596 F.3d at 1132–33.[5] Another factor the EPA has examined is whether a petitioner has provided the relevant analyses and citations to support its claims. If a petitioner does not, the EPA is left to work out the basis for petitioner's objection, contrary to Congress's express allocation of the burden of demonstration to the petitioner in CAA § 505(b)(2). *See MacClarence*, 596 F.3d at 1131 ("[T]he Administrator's requirement that [a title V petitioner] support his allegations with legal reasoning, evidence, and references is reasonable and persuasive.").[6] Relatedly, the EPA has pointed out in numerous orders that, in particular cases,

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[3] *See also Sierra Club v. Johnson*, 541 F.3d at 1265 ("Congress's use of the word 'shall' . . . plainly mandates an objection *whenever* a petitioner demonstrates noncompliance." (emphasis added)).

[4] *See also Sierra Club v. Johnson*, 541 F.3d at 1265–66; *Citizens Against Ruining the Environment*, 535 F.3d at 678.

[5] *See also, e.g.*, *In the Matter of Noranda Alumina, LLC*, Order on Petition No. VI-2011-04 at 20–21 (December 14, 2012) (denying a title V petition issue where petitioners did not respond to the state's explanation in response to comments or explain why the state erred or the permit was deficient); *In the Matter of Kentucky Syngas, LLC*, Order on Petition No. IV-2010-9 at 41 (June 22, 2012) (denying a title V petition issue where petitioners did not acknowledge or reply to the state's response to comments or provide a particularized rationale for why the state erred or the permit was deficient); *In the Matter of Georgia Power Company*, Order on Petitions, at 9–13 (January 8, 2007) (*Georgia Power Plants Order*) (denying a title V petition issue where petitioners did not address a potential defense that the state had pointed out in the response to comments).

[6] *See also In the Matter of Murphy Oil USA, Inc.*, Order on Petition No. VI-2011-02 at 12 (September 21, 2011) (denying a title V petition claim where petitioners did not cite any specific applicable requirement that lacked

general assertions or allegations did not meet the demonstration standard. *See, e.g., In the Matter of Luminant Generation Co., Sandow 5 Generating Plant*, Order on Petition Number VI-2011-05 at 9 (January 15, 2013).[7] Also, the failure to address a key element of a particular issue presents further grounds for the EPA to determine that a petitioner has not demonstrated a flaw in the permit. *See, e.g., In the Matter of EME Homer City Generation LP and First Energy Generation Corp*, Order on Petition Nos. III-2012-06, III-2012-07, and III-2013-02 at 48 (July 30, 2014).[8]

The information that the EPA considers in making a determination whether to grant or deny a petition submitted under 40 C.F.R. § 70.8(d) on a proposed permit generally includes, but is not limited to, the administrative record for the proposed permit and the petition, including attachments to the petition. The administrative record for a particular proposed permit includes the draft and proposed permits; any permit applications that relate to the draft or proposed permits; the statement of basis for the draft and proposed permits; the permitting authority's written responses to comments, including responses to all significant comments raised during the public participation process on the draft permit; relevant supporting materials made available to the public according to 40 C.F.R. § 70.7(h)(2); and all other materials available to the permitting authority that are relevant to the permitting decision and that the permitting authority made available to the public according to § 70.7(h)(2). If a final permit and a statement of basis for the final permit are available during the agency's review of a petition on a proposed permit, those documents may also be considered as part of making a determination whether to grant or deny the petition.

III. BACKGROUND

A. The Yuhuang Facility

Yuhuang Chemical Inc. has proposed to construct and operate a new methanol manufacturing facility in St. James Parish, Louisiana. Among other air pollutants, the facility will emit carbon monoxide (CO), volatile organic compounds (VOC), and nitrogen oxides (NOx) from various emission units, including a steam methane reformer (SMR), an auxiliary boiler, a flare, fugitive emissions, loading operations, and methanol storage tanks. The Yuhuang facility is subject to various New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP), and is permitted as a minor source for New Source Review (NSR) purposes.

B. Permitting History

LDEQ issued an initial title V permit, along with a preconstruction permit, to the Yuhuang facility on May 5, 2015. Based on applications from Yuhuang requesting to modify its initial

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required monitoring); *In the Matter of Portland Generating Station*, Order on Petition, at 7 (June 20, 2007) (*Portland Generating Station Order*).

[7] *See also Portland Generating Station Order* at 7 ("[C]onclusory statements alone are insufficient to establish the applicability of [an applicable requirement]."); *In the Matter of BP Exploration (Alaska) Inc., Gathering Center #1*, Order on Petition Number VII-2004-02 at 8 (Apr. 20, 2007); *Georgia Power Plants Order* at 9–13; *In the Matter of Chevron Products Co., Richmond, Calif. Facility*, Order on Petition No. IX-2004–10 at 12, 24 (March 15, 2005).

[8] *See also In the Matter of Hu Honua Bioenergy*, Order on Petition No. IX-2011-1 at 19–20 (February 7, 2014); *Georgia Power Plants Order* at 10.

permit, on August 18, 2016, LDEQ published notice of a proposed permit modification. However, following a petition submitted by the Petitioners, the EPA objected to the facility's initial (2015) title V permit on August 31, 2016. *See In the Matter of Yuhuang Chemical Inc. Methanol Plant*, Order on Petition No. VI-2015-03 (August 31, 2016) (*2016 Yuhuang Order*). After the EPA's objection, LDEQ indicated that it would not finalize the August 2016 proposed permit modification. Instead, LDEQ issued a second proposed permit modification on December 15, 2016 (the December 2016 Permit), which was intended to address both Yuhuang's requested changes as well as the EPA's August 2016 objection. This second permit modification is the permit action implicated by the Petitions.

As noted above, LDEQ issued notice of the December 2016 Permit on December 15, 2016, subject to a public comment period that ended on January 30, 2017. The December 2016 Permit was transmitted to the EPA for review at the same time that it was released to the public for public comment. Accordingly, the EPA's public website initially indicated that the EPA's 45-day review of the title V permit would begin on December 15, 2016, and end on January 29, 2017, with a public petition period ending on March 30, 2017. The Petitioners submitted a petition on the December 2016 Permit on March 30, 2017 (the March 2017 Petition).

Subsequently, based on comments submitted during the public comment period, LDEQ made changes to the December 2016 Permit and submitted a revised version of the title V permit modification to the EPA on April 20, 2017 (the April 2017 Permit). Accompanying the April 2017 Permit was a document containing LDEQ's Public Comments Response Summary (RTC). The EPA updated its public website to indicate that the EPA's 45-day review of the April 2017 Permit began on April 20 and would end on June 4, 2017, with a public petition period beginning on June 5 and ending on August 3, 2017. The Petitioners submitted a petition on the April 2017 Permit on August 3, 2017 (the August 2017 Petition). LDEQ finalized the title V permit modification (Final Permit) on June 30, 2017.[9]

C. Timeliness of Petitions

Pursuant to the CAA, if the EPA does not object to a proposed permit during its 45-day review period, any person may petition the Administrator within 60 days after the expiration of the 45-day review period to object. 42 U.S.C. § 7661d(b)(2). As noted above, the EPA's 45-day review of the April 2017 Permit ended on June 4, 2017. Thus, a petition seeking objection to the April 2017 Permit was due by August 3, 2017. The August 2017 Petition was submitted and received on August 3, 2017, and, therefore, the EPA finds that the August 2017 Petition was timely submitted.

[9] Subsequent to the finalization of the permit modification at issue, Yuhuang submitted a request (finalized by LDEQ on December 14, 2017) to split the facility's title V permit into two separate permits—one delineating requirements applicable to the manufacturing portion of the facility and the other delineating requirements applicable to the product storage and truck and railcar loading portions of the facility. The EPA is not aware of any way in which this change in format resulted in any substantive changes to the permit terms. Therefore, for purposes of clarity, this Order responds to the claims in the Petition as they were raised with respect to the conditions contained in the April 2017 Permit and/or Final Permit, notwithstanding the fact that some of the permit terms are now numbered differently and contained in different permit documents.

Regarding the March 2017 Petition, the EPA acknowledges that it was initially not clear whether the December 2016 Permit might also have served as the "proposed permit" as that term is referenced in the Act and defined in the EPA's regulations,[10] and, as such, whether it was appropriate to submit a petition on the December 2016 Permit. As noted above, the EPA identified the December 2016 Permit on its public website as a proposed permit subject to an EPA review period that concluded on January 29, 2017, and a petition period that concluded on March 30, 2017.[11] However, the transmission of the April 2017 Permit to the EPA suggested that the December 2016 Permit, initially submitted to the EPA, may no longer be the "proposed permit" contemplated by CAA § 505(a)(1)—i.e., the permit that LDEQ "proposed to . . . issue[]"—subject to EPA's objection authority and the opportunity for a public petition. The December 2016 Permit may better be thought of as simply an early draft of the modification to Yuhuang's permit, subject to additional consideration and revision before it was formally proposed to the EPA.

The EPA need not decide the extent to which the December 2016 Permit should be treated as the "proposed permit" for purposes of CAA § 505(b). The April 2017 Permit effectively superseded the December 2016 Permit in its entirety, rendering the March 2017 Petition moot.[12] Each of the claims in the March 2017 Petition referred to permit terms reflected in the December 2016 Permit, many of which were updated in the April 2017 Permit. Additionally, the claims in the March 2017 Petition are essentially the same as those re-raised in the August 2017 Petition (although the August 2017 Petition claims include consideration of more of the permit record, including updates to the Permit as well as LDEQ's RTC). Therefore, the EPA's responses to the issues raised in the August 2017 Petition would also resolve the similar (but less up-to-date) claims in the March 2017 Petition, even if they were not moot. That is to say, any additional consideration of the specific claims raised in the March 2017 Petition with respect to the now-superseded December 2016 Permit would be redundant and, therefore, unnecessary.[13]

IV. DETERMINATIONS ON CLAIMS RAISED BY THE PETITIONERS

The August 2017 Petition requests that the EPA Administrator object to the proposed title V permit modification, permit no. 2560-00295-V1. August 2017 Petition at 1, 18. The Petitioners claim that this permit modification was issued in response to an EPA objection more than 90 days after the objection was issued, but that the permit modification "fails to resolve the bulk of EPA's objection." *Id.* at 1, 2. Therefore, in addition to requesting that the EPA object to the

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[10] *See* 42 U.S.C. § 7661d(a)(1)(B) (requiring that permitting authorities transmit to the EPA "each permit proposed to be issued"); § 7661d(a)(2), (b)(1) (characterizing the permit submitted to and reviewed by the EPA as the "proposed permit"); § 7661d(b)(2) (referring to the permit subject to the petition opportunity as the "permit" discussed in section (b)(1); i.e., the proposed permit); 40 C.F.R. § 70.8(c), (d) (mirroring terms used in 42 U.S.C. § 7661d(b)(1) and (2) to describe the EPA review and petition opportunities); § 70.2 (defining "proposed permit" as "the version of a permit that the permitting authority proposes to issue and forwards to the Administrator for review in compliance with § 70.8"); *compare id.* (defining "draft permit" as "the version of a permit for which the permitting authority offers public participation under § 70.7(h) or affected State review under §70.8 of this part").

[11] Therefore, to the extent the December 2016 Permit should be treated as a "proposed permit" for the purposes of CAA § 505(b), the EPA finds that the March 2017 Petition was timely filed.

[12] *See, e.g., In the Matter of Wheelabrator Frackville Energy, Inc.*, Order On Petition No. III-2016-17 at 4–9 (October 6, 2017) ("A title V petition may be rendered moot when the version of the permit on which it is based has been withdrawn, superseded, or otherwise no longer operative." (citations omitted)).

[13] *See id.* at 8.

permit modification, the Petitioners claim that the CAA requires that the Administrator take final action to modify and reissue the Permit, instead of remanding the objectionable Permit back to LDEQ. *Id.* at 1 (citing 42 U.S.C. § 7661d(c)).

The EPA, in its *2016 Yuhuang Order*, objected to the initial Yuhuang permit on the basis "that the Final Permit and permit record are inadequate to ensure that the unit-specific emission limits for CO, VOC, and NOx—which appear to be intended to restrict the facility's [potential to emit, or PTE] below the applicable 100 TPY threshold for PSD applicability purposes—are enforceable as a practical matter." *2016 Yuhuang Order* at 16. In the August 2017 Petition, the Petitioners now allege that, despite revisions by LDEQ intended to address the EPA's objection, a number of the emission limits in the Permit are still not enforceable as a practical matter, and, therefore, cannot be relied upon to restrict the facility's PTE below major source thresholds for PSD. *See* August 2017 Petition at 6–15. As described further below, the Petitioners challenge the monitoring associated with these permit limits and make other allegations concerning the facility's PTE. Ultimately, the Petitioners contend that the Yuhuang facility is "a major source of criteria pollutants subject to all PSD requirements under the [CAA] and the Louisiana SIP." *Id.* at 15.[14]

As the EPA has explained in two recent Petition Orders (which were issued after the EPA's *2016 Yuhuang Order*), the propriety of a state permitting authority's decisions undertaken in the course of issuing or modifying a duly issued preconstruction permit—including decisions concerning whether a facility is subject to major source PSD requirements—is not an issue that is appropriate to address through title V, including in a petition to object to a title V permit. *See In the Matter of PacifiCorp Energy Hunter Power Plant*, Order on Petition No. VIII-2016-4 at 8–21 (October 16, 2017) (*PacifiCorp-Hunter Order*); *In the Matter of Big River Steel, LLC*, Order On Petition No. VI-2013-10 at 8–20 (October 31, 2017) (*Big River Steel Order*). Duly made preconstruction permitting decisions reached by a permitting authority in issuing a preconstruction permit define the NSR-related "applicable requirements" for that construction or modification, and the terms and conditions of those permits should be incorporated into a source's title V permit without further review. *PacifiCorp-Hunter Order* at 8–11; *Big River Steel Order* at 9–11.[15] This holds true regardless of whether a permitting authority processes the

[14] For support, the Petitioners present two claims purporting to detail that the CO emissions from the SMR, as well as CO emissions from the flare, could exceed 100 tons per year (tpy). *See id.* at 15–17. With respect to the flare, the Petitioners specifically assert that enforceable restrictions on the number or duration of startups are necessary to limit the facility's PTE. *Id.* at 17. These claims are discussed in the following paragraph, as well as in sections IV.A and IV.G of this Order addressing CO emissions from the SMR, and CO emissions from the flare, respectively. *See infra* notes 22, 49.

[15] As the EPA has explained, "[A] decision by the EPA not to object to a title V permit that includes the terms and conditions of a title I permit does not indicate that the EPA has concluded that those terms and conditions comply with the applicable SIP or the CAA. However, until the terms and conditions of the title I permit are revised, reopened, suspended, revoked, reissued, terminated, augmented, or invalidated through some other mechanism, such as a state court appeal, the 'applicable requirement' remains the terms and conditions of the issued preconstruction permit and they should be included in the source's title V permit." *Big River Steel Order* at 19; *see PacifiCorp-Hunter Order* at 19; *id.* at 20 ("That the EPA views the incorporation of the terms and conditions of these preconstruction permits into the title V operating permit as proper for purposes of title V does not indicate that the EPA agrees that the state reached the proper decision when setting terms and conditions in the preconstruction permits. . . . The EPA's lack of objection to the inclusion of that requirement in the title V permit does not indicate

issuance or modification of a preconstruction permit separately from—or concurrently with—the issuance, modification, or renewal of a title V permit (including where both title I and title V requirements are contained within a single permit document). *See Big River Steel Order* at 11–12, 18. In this case, LDEQ's determination that the Yuhuang facility should not be considered a major stationary source for PSD applicability purposes, and the resulting decision to authorize the Yuhuang facility through a minor NSR permit, should have been challenged through the appropriate title I avenues or enforcement authorities. *See PacifiCorp-Hunter Order* at 14–19; La. R.S. 30:2050.11 (administrative adjudicatory hearings); La. R.S. 30:2050.21 (judicial review, appeal); 42 U.S.C. §§ 7413, 7477 (enforcement authorities). The Petitioners may not use the title V petition process to raise concerns over those PSD applicability decisions. Accordingly, to the extent that the August 2017 Petition claims that the Yuhuang facility is incorrectly characterized as a minor source for PSD purposes (including claims related to the calculation of PTE), it is denied.[16]

However, the majority of the individual claims raised by the Petitioners challenge the enforceability of emission limits contained within the Permit, through specific allegations regarding the adequacy of monitoring requirements associated with these limits. Inquiries concerning whether a title V permit contains enforceable permit terms, supported by monitoring sufficient to assure compliance with an applicable requirement or permit term (such as an emission limit established in a minor NSR permit), *are* properly reviewed during title V permitting. The statutory obligations to ensure that each title V permit contains "enforceable emission limitations and standards" supported by "monitoring . . . requirements to assure compliance with the permit terms and conditions," 42 U.S.C. § 7661c(a) and (c), apply independently from and in addition to the underlying regulations and permit actions that give rise to the emission limits and standards that are included in a title V permit.[17] Therefore, the EPA will address those portions of the August 2017 Petition that challenge the enforceability of emission limits and the sufficiency of monitoring conditions in the Permit.[18]

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that the EPA agrees that it is legal or complies with the Act; it merely indicates that a title V permit is not the appropriate venue to correct any such flaws in the preconstruction permit.").

[16] Here, the Petitioners have not alleged that LDEQ failed to properly incorporate the terms and conditions of a preconstruction permits "issued pursuant to regulations approved or promulgated through rulemaking under title I." 40 C.F.R. § 70.2 (definition of "applicable requirement"). The Petitioners have also not alleged that there has been construction or modification of the facility that has not been covered by a preconstruction permit. Therefore, the EPA will only consider whether the Petitioners have demonstrated that the title V permit is not in compliance with the requirements of Part 70.

[17] The EPA, in both the *PacifiCorp-Hunter* and *Big River Steel* Orders, expressly indicated that even where it is not appropriate to reevaluate NSR determinations in the title V context, title V permits must still include adequate monitoring, recordkeeping, and reporting to assure compliance with the applicable NSR requirements. *PacifiCorp-Hunter Order* at 17 ("In the case of a preconstruction permit, the EPA's oversight role under title V is to ensure that the terms and conditions of the preconstruction permit are properly included as 'applicable requirements,' and that the permit contains monitoring, recordkeeping, and reporting sufficient to assure compliance with those permit terms and conditions."); *id.* at 16, 18, 18 n.33, 19; *Big River Steel Order* at 17 n.30 ("The EPA's review of the title V permit will still consider whether the permit has adequate monitoring, recordkeeping, and reporting to assure compliance with all applicable requirements, including the preconstruction permit requirements."); *id.* at 17, 19 n.32, 20.

[18] The claims in the August 2017 Petition are not individually enumerated. Therefore, the headings contained in this Order do not correspond directly to a single claim raised in the August 2017 Petition. However, the EPA's analysis of the issues in the August 2017 Petition generally follows the order presented in the August 2017 Petition.

A. Claims Concerning SMR CO Emissions and Auxiliary Boiler CO Emissions.

Petitioners' Claims: The Petitioners raise a number of allegations challenging permit terms related to the monitoring of CO emissions from the auxiliary boiler and SMR. First, the Petitioners address annual stack test requirements contained in Specific Requirement (SR) 75 (SMR) and SR 117 (boiler),[19] claiming that "LDEQ's RTC 21 does not demonstrate that annual testing is sufficient to accurately estimate annual emissions." August 2017 Petition at 6; *see id.* at 9, 16.

The Petitioners acknowledge that SR 116 explains that performance tests will be used to calculate operating rate-specific emission factors for the auxiliary boiler. *Id.* at 7. However, the Petitioners claim that LDEQ does not specify the method for developing the operating rate-specific emission factors. *Id.* at 6, 9, 16. The Petitioners also claim that the Permit does not contain a requirement that the emission factors be reviewed and updated after each stack test, or that they must be derived from the most recent performance test, contrary to representations by LDEQ in its RTC. *Id.* at 7.

The Petitioners further claim that the Permit fails to require that monthly CO emissions be summed to calculate annual emissions from the boiler and SMR. *Id.* at 7, 10. The Petitioners acknowledge that the "Compliance Demonstration Methodologies" table in the Permit contains this requirement, but claim that this requirement must be included in the Specific Requirements section of the Permit. *Id.* (citing Permit, Compliance Demonstration Methodologies table, note 2).

The Petitioners allege that the Permit must be modified to require a continuous emissions monitoring system (CEMS) to continuously measure CO. *Id.* at 6, 9, 16. The Petitioners claim that a CO CEMS "is critically important because CO emissions are close to the major source threshold and the modification lowered the boiler CO concentration from 30 ppm to 10 ppm, which is very aggressive." *Id.* at 6–7, 16.

Further, the Petitioners challenge SR 113, which requires an oxygen trim system to be equipped and used on the auxiliary boiler. The Petitioners claim that SR 113 does not specify that the oxygen trim system shall be continuous, and that neither LDEQ's RTC nor the Compliance Demonstration Methodologies table in the Permit explain how the system will be used to actually demonstrate or determine compliance. *Id.* at 7–8. The Petitioners also briefly allege that "a 5-yr tune-up schedule does not ensure proper ongoing operations" of the boiler. *Id.* at 6, 9, 16.

EPA's Response: For the following reasons, the EPA denies the Petitioners' request for an objection on the claims related to the auxiliary boiler and SMR CO emissions.[20]

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[19] Where a permit condition is identically numbered and identical in substance in both the April 2017 and Final Permits, this Order provides a citation to the Permit generally, along with the SR number. Where a provision is differently numbered or different in substance between the April 2017 and Final Permits, this Order provides separate citations to each permit term.

[20] The Petitioners also raised claims alleging that the Yuhuang facility has the potential to emit more than 100 tpy of CO, including arguments regarding predicted CO emissions from the SMR based on average and maximum operating rates. *See* August 2017 Petition at 15–16. However, as discussed above, *supra* note 16 and accompanying

The SMR is subject to an emission limit of 38.15 tons/year CO; the auxiliary boiler is subject to an emission limit of 16.87 tons/year CO.[21] The Petitioners challenge the monitoring provisions associated with these CO emission limits.[22]

Among other provisions, the permit terms most relevant to these emission limits appear to be SRs 74 and 75 (governing the SMR) and SRs 116 and 117 (governing the auxiliary boiler). SR 74 states:

> Compliance demonstration method: The permittee shall conduct performance tests at four evenly-spaced points over the anticipated operating range of the SMR, ranging from the lowest operating rate associated with routine operations to 100 percent of design capacity (or the highest operating rate achievable during the performance test), and develop operating rate-specific emission factors (in terms of lb/MM Btu) for each range. CO and VOC emissions shall be calculated monthly based on the actual operating rates of the SMR during the calendar month and the emission factors corresponding to each operating range. Alternatively, the permittee may base emissions on the highest emission factor derived from the performance test results."

SR 75 mandates specific test methods, reproduces some of the language from SR 74, and requires "For CO and VOC, repeat the performance tests annually (plus or minus 1 calendar month)." The auxiliary boiler is governed by SRs 116 and 117, which mirror SRs 74 and 75.

Other portions of the Permit and permit record provide further clarification of the monitoring and compliance demonstration methodology associated with the CO limits on the SMR and auxiliary boiler. *See* April 2017 Permit at pdf p. 31, 32 (describing compliance demonstration methods for annual CO limits on the SMR and boiler); *id.* at pdf p. 37 n.2 ("This table replicates the compliance demonstration methodology set forth in the "Specific Requirements" section of this permit for the listed emission units. Monthly emissions shall be summed, and the resultant annual (or 12-month rolling) total shall be compared to the applicable ton per year limit to verify compliance. Where performance test(s) are required, actual emissions shall be based on the

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text, the EPA is not responding to the Petitioners' arguments concerning the calculation of the facility's PTE for purposes of determining PSD applicability in this title V petition order. As noted above, this does not indicate that the EPA necessarily agrees with the conclusions reached by LDEQ regarding these preconstruction permitting decisions. *See supra* note 15.

[21] April 2017 Permit at pdf p. 44 (Emission Rates for Criteria Pollutants and CO2e).

[22] To the extent that, in the course of challenging the source's PTE calculations for CO from the SMR, *see* August 2017 Petition at 15–16, the Petitioners also intended to question whether the short-term emission rates reflected in the table titled "Emission Rates For Criteria Pollutants and CO2e" (i.e., the 8.69 lb/hr average rate and 78.80 lb/hr maximum rate) are enforceable as a practical matter, these claims are denied. The Petitioners have provided no analysis expressly challenging the enforceability of these short-term limits embodied in the permit. As such, the EPA is not making a judgment regarding the enforceability of these short-term limits in this response, nor should this response be interpreted explicitly or implicitly as an approval of the enforceability of these limits. Similarly, because the EPA is evaluating the Petitioners' other claims regarding the enforceability of the longer-term emission limits in light of the Petitioners' burden to demonstrate a flaw in a permit, the EPA's response below should not be interpreted as a judgment regarding the enforceability of those limits either.

results of the most recent test(s)."); RTC at 30–33 (explaining the compliance demonstration methods for CO limits on the SMR and boiler). LDEQ summarized these requirements, stating: "The compliance assurance monitoring scheme required here — annual performance tests conducted over the entire operational ranges of the units followed by proper maintenance and continuous monitoring of relevant operating parameters — is adequate to assure compliance with permit limits." RTC at 31.

Turning to the Petitioners' claims, the Petitioners first challenge the annual stack test requirements in SR 75 and SR 117.[23] However, the Petitioners provide no justification in support of their contention that annual stack testing is insufficient. Instead, the August 2017 Petition includes a single sentence alleging that LDEQ did not demonstrate why annual stack testing is sufficient. In so doing, the Petitioners have attempted to shift the demonstration burden in the Petition to LDEQ, rather than demonstrating themselves why the annual stack testing is not sufficient. As discussed above, the CAA places the burden on the Petitioners to demonstrate to the EPA that a flaw in the Permit warrants an objection, supported by adequate citation and analysis.[24] The Petitioners' unsupported, one-sentence claim concerning the frequency of stack testing does not satisfy this burden.

The Petitioners' concerns regarding the stack test frequency are particularly unwarranted given the context in which these stack tests operate. Annual stack tests are not the sole means by which the facility demonstrates compliance. Rather, the Permit specifies that actual operating data will be used to calculate monthly emissions in between stack tests. Specifically, SRs 74, 75, 116, and 117 indicate that the annual stack tests will be used to develop operating rate-specific emission factors. These emission factors, in conjunction with monitored actual operating rates, will be used to calculate monthly CO emissions from the SMR and auxiliary boiler. Permit SRs 74, 116.

The Petitioners acknowledge that the annual stack tests would be used to calculate operating rate-specific emission factors, but claim that the Permit does not specify the method for developing these emission factors. This contention is incorrect: SRs 74, 75, 116, and 117 all clearly state that the performance tests will be conducted at four operating rates to develop rate-specific CO emission factors in terms of lb/MMBtu.[25] The Petitioners, who provide no support for their contention, have not demonstrated why it would be necessary for the Permit to include any more detail concerning the method for developing the relevant emission factors.

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[23] The Petitioner raised a similar claim with respect to annual stack testing for VOC from the SMR, discussed below. The EPA's response here applies to that claim as well.

[24] *See supra* notes 6, 7, and accompanying text.

[25] As noted above, these conditions specify the following: "The permittee shall conduct performance tests at four evenly-spaced points over the anticipated operating range of the [SMR and boiler], ranging from the lowest operating rate associated with routine operations to 100 percent of design capacity (or the highest operating rate achievable during the performance test), and develop operating rate-specific emission factors (in terms of lb/MM Btu) for each range." Permit SR 74, 75, 116, 117.

The Petitioners also allege that the Permit does not contain a requirement that the emission factors be updated after each stack test to reflect the most recent test results.[26] This is also incorrect. The Permit explicitly states: "Where performance test(s) are required, actual emissions shall be based on the results of the most recent test(s)." April 2017 Permit at pdf p. 37 n.2 (Compliance Demonstration Methodologies table). The Petitioners do not acknowledge this provision. Moreover, the Petitioners provide no reason to believe that the performance tests from which the emission factors are derived, which are required to be performed annually, *see* SR 75, SR 117, would not be used to update the emission factors used in the compliance demonstration.

The Petitioners also claim that the Permit does not require that monthly CO emissions be summed to calculate annual emissions from the auxiliary boiler and SMR.[27] However, as the Petitioners acknowledged, August 2017 Petition at 7, the Permit explicitly states that "Monthly emissions shall be summed, and the resultant annual (or 12-month rolling) total shall be compared to the applicable ton per year limit to verify compliance." April 2017 Permit at pdf p. 37 n.2 (Compliance Demonstration Methodologies table). The Petitioners claim that this provision must be listed in the Specific Requirements section, rather than the Compliance Demonstration Methodologies table, because "[t]he table serves as a summary for compliance methods that are in the Specific Requirements." August 2017 Petition at 7. However, the Petitioners have not demonstrated why this level of detail must necessarily be included in the Specific Requirements section. The Specific Requirements section clearly requires monthly emission calculations in order to assure compliance with CO emission limits from the SMR and Boiler. *See* Permit SR 74 and SR 75. As LDEQ stated, "the need to sum monthly CO emissions for comparison to the annual limit is self-evident." RTC at 32. The additional clarification provided by the Compliance Demonstration Methodology table (quoted above), as well as LDEQ's RTC, resolve any ambiguity as to how the monthly emissions data would be used when demonstrating compliance with the annual limits. *See* RTC at 32.

Overall, the Petitioners have not demonstrated that the monitoring established by the Permit is inadequate to assure compliance with the CO emission limits on the SMR and auxiliary boiler. As such, the Petitioners have not demonstrated that any additional monitoring is necessary.[28]

The Petitioners also challenge two permit requirements that apply to the auxiliary boiler: the requirement to conduct a tune-up every 5 years (SR 100) and the requirement to install and operate an oxygen trim system (SR 113). These permit terms are derived from and implement applicable requirements contained in the Subpart DDDDD NESHAP (also known as the major

[26] It is unclear whether the Petitioners intended for the allegations discussed in this paragraph to encompass both the boiler and SMR, or only the boiler; the only provision specifically cited by the Petitioners (SR 116) relates to the boiler.

[27] This claim refers to both the boiler and SMR. *See* August 2017 Petition at 10 (referencing SR 74 (SMR CO) and SR 116 (boiler CO)). The Petitioners also make the same allegations with respect to VOC emissions from the auxiliary boiler. *See id.* at 9, 10 (referencing SR 115 (boiler VOC)). The EPA's response here applies to that claim as well.

[28] It is unclear whether the Petitioners intended for the allegations regarding CEMS to encompass both the boiler and SMR, or only the boiler; this portion of the August 2017 Petition only directly references the boiler. *See* August 2017 Petition at 6–7. The EPA's response applies equally to both the boiler and SMR.

source Boiler MACT). *See* 40 C.F.R. § 63.7540(a)(12) and 63.7575.[29] Contrary to the Petitioners' suggestions, these requirements are not "used to actually demonstrate or determine compliance" with the CO emission limit on the auxiliary boiler. August 2017 Petition at 8.[30] Rather, as the Permit states and as LDEQ explained in its RTC, these requirements serve to optimize combustion efficiency and minimize the products of incomplete combustion, such as CO. *See* April 2017 Permit at pdf p. 32 (Compliance Demonstration Methodologies table); RTC at 31, 33. In sum, these operation and maintenance requirements derived from the Subpart DDDDD NESHAP help assure that CO emissions are well-controlled, but LDEQ has not identified them as part of the methodology involved with quantifying CO emissions from the auxiliary boiler.

For the foregoing reasons, the EPA denies the Petitioners' request for an objection on these claims.

B. Claims Concerning SMR VOC Emissions

Petitioners' Claims: The Petitioners also briefly allege that annual testing of VOC from the SMR is not sufficient to assure compliance. August 2017 Petition at 9.

EPA's Response: The compliance demonstration requirements for VOC from the SMR are identical to the CO compliance demonstration methodology for the SMR, and both are contained in SRs 74 and 75 (as detailed above). The Petitioners again attempt to shift the burden to LDEQ to demonstrate that the monitoring is sufficient rather than meeting their burden in a petition to demonstrate that the monitoring is inadequate. The Petitioners have not demonstrated that the compliance demonstration methodology in the Permit—annual stack testing along with continuous monitoring of operating rates—is inadequate to assure compliance with relevant VOC emission limits on the SMR. Therefore, this brief, one-sentence claim is denied for the same reasons as discussed above concerning annual stack testing of CO from the SMR and auxiliary boiler.[31]

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[29] The Petitioners appear to challenge the sufficiency of these operation and maintenance standards established by the EPA through rulemaking. However, a title V petition is not the appropriate venue to challenge the substance of permit terms that simply reflect requirements contained in duly promulgated federal standards. *See PacifiCorp-Hunter Order* at 18 ("For instance, the EPA would not allow a permitting authority to revise the substantive requirements of [NSPS] established under section 111, or [NESHAP] established under section 112. These substantive requirements have already been established pursuant to a process that included public notice and comment and the opportunity for judicial review. It would, therefore, be inappropriate to reevaluate these standards in title V permitting."); *Big River Steel Order* at 19 (same); *cf. In the Matter of Piedmont Green Power*, Order on Petition No. IV-2015-2 at 28–29 (December 13, 2016) (explaining that a permit term reflecting the language of an EPA-approved SIP provision should be included in the title V permit as an "applicable requirement"). In any case, the Petitioners provide no explanation as to why they believe a tune-up every five years is inadequate for boilers equipped with an oxygen trim system. Regarding the Petitioners' argument that the Permit does not specify that the oxygen trim system be "continuous," the EPA notes that the Subpart DDDDD standard refers to an "oxygen trim system" and a "continuous oxygen trim system" interchangeably, so the EPA finds no fault with the lack of the term "continuous" in the Permit. *See* 40 C.F.R. § 63.7540(a)(12)

[30] The Petitioners raise similar claims with respect to VOC emissions from the auxiliary boiler, as discussed below. The EPA's response here applies to that claim as well.

[31] *See supra* notes 6–7, 23–24, and accompanying text. Additionally, it is unclear whether any of the Petitioners' other arguments concerning CO emissions from the SMR or boiler (as discussed in the previous subsection), or

C. Claims Concerning Auxiliary Boiler VOC Emissions

Petitioners' Claims: The Petitioners raise multiple issues concerning VOC emissions from the auxiliary boiler. The Petitioners claim that the Permit does not require any testing for VOC emissions from the auxiliary boiler. August 2017 Petition at 8, 9. The Petitioners challenge LDEQ's RTC, and assert that "[t]he auxiliary boiler is a combustion source, which means it emits pollutants to the atmosphere. Therefore, to assure that the emission limits on this boiler are enforceable as a practical matter, performance tests must be performed." *Id.* at 8.

The Petitioners also challenge the Permit's reliance on an emission factor of 5.5 lb/MMscf (pounds per million standard cubic feet), derived from AP-42,[32] to demonstrate compliance with VOC emission limits on the boiler. *Id.* at 8 (citing SR 115). The Petitioners quote text from the introduction of AP-42 stating that "[u]se of these factors as . . . emission regulation compliance determinations is not recommended by EPA." *Id.* (quoting AP-42, Introduction, p.2). The Petitioners address LDEQ's RTC, and claim that in a proposed EPA rule that LDEQ referenced, "EPA did not state that it supports the use of emission factors to determine compliance with permit limits." *Id.*

Similar to claims discussed above concerning CO emissions from the boiler and SMR, the Petitioners allege that the Permit fails to require that monthly VOC emissions be summed to calculate annual emissions from the auxiliary boiler. *See id.* at 9. Additionally, the Petitioners claim that LDEQ does not explain how the oxygen trim system (discussed above relative to CO emissions) will be used to demonstrate compliance with VOC emission limits on the boiler. *See id.* at 7–8.

The Petitioners also claim that "[t]he permit does not require that all emissions from the boiler, including during startup, shutdown, and maintenance be monitored or estimated, as feasible, and reported." *Id.* at 10. The Petitioners acknowledge the reporting requirements in April 2017 Permit SR 372 (Final Permit SR 374), but claim that the Specific Conditions in the Permit "must provide that VOC emissions from the boiler during SSM be included when determining compliance with the annual emission limit for the boiler." *Id.* at 11.

EPA's Response: For the following reasons, the EPA denies the Petitioners' request for an objection on the claims related to the auxiliary boiler VOC emissions.

SR 115 specifies the compliance demonstration method for VOC from the auxiliary boiler, requiring: "The permittee shall record the amount of natural gas combusted each day as required

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VOC emissions from the boiler (as discussed in the next subsection), might have also been intended to apply to VOC emissions from the SMR. Although the Petitioners' failure to clearly and expressly lay out any such claims and analysis is sufficient reason to deny any such inchoate claims, to the extent that the Petitioners intended any of the arguments discussed above or below to also apply to VOC emissions from the SMR, those claims are denied for the same reasons discussed above and below.

[32] AP-42 is the EPA's compilation of air pollutant emission factors and process information for more than 200 air pollution source categories. *See https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emission-factors.*

by 40 CFR 60.49b(d)(1). VOC emissions shall be calculated monthly using an emission factor of 5.5 lb/MM scf (AP-42 Section 1.4, Table 1.4-2)."

In responding to public comments concerning the lack of stack testing for VOC from the auxiliary boiler, LDEQ provided the following explanation: "VOC emissions from the Auxiliary Boiler are due to incomplete combustion; it does not serve as a control device for any process vent streams. For this reason, LDEQ did not require [Yuhuang] to conduct a performance test." RTC at 33. The Petitioners, instead of challenging LDEQ's justification, simply assert that it was "incorrect." August 2017 Petition at 8. However, the Petitioners provided no information or analysis refuting any of LDEQ's assertions.[33] Rather, the Petitioners' sole argument is that, because the boiler is a combustion source that "emits pollutants to the atmosphere," performance tests must be performed to assure that the emission limits are enforceable as a practical matter. August 2017 Petition at 8. Essentially, the Petitioners' argument is that stack testing is always necessary for all sources of pollution. Yet the Petitioners cite no authority to support this assertion. While stack testing may be necessary to confirm the emission profiles of many combustion sources, the Petitioners have made no attempt to demonstrate why it is necessary for VOC emissions from the natural gas-fired auxiliary boiler at the Yuhuang facility. Therefore, the Petitioners have not met their burden to demonstrate that the Permit is deficient due to the lack of stack testing for VOC from the boiler.

The Petitioners also challenge the Permit requirement to use the AP-42 emission factor of 5.5 lb/MMscf—in lieu of a stack test—to calculate VOC emissions from the boiler. The Petitioners claim that the EPA does not recommend the use of AP-42 emission factors for compliance demonstration purposes. *See* August 2017 Petition at 8. On the other hand, LDEQ contends that the "EPA has recognized that 'the use of emission factors has expanded . . . to . . . determining compliance with emissions standards.'" RTC at 33 (quoting 74 FR 52724 (October 14, 2009)). LDEQ is correct that emission factors are often used in compliance demonstrations. In some cases, as in the case of the CO emissions from the auxiliary boiler and SMR discussed above, source-specific emission factors are developed through stack testing; in other cases, emission factors are supplied and guaranteed by a product manufacturer; and in other cases, emission factors may be based on scientific literature, including the EPA's AP-42 publications. As with other considerations concerning title V monitoring and compliance assurance provisions, the determination of whether it is necessary to develop a source-specific emission factor to calculate emissions of a particular pollutant from a particular unit for compliance demonstration purposes is a highly fact-specific inquiry. Here, LDEQ determined, in its professional judgement, that it was appropriate to adopt the EPA's AP-42 emission factor for VOC emissions from natural gas-fired boilers. The Petitioners have offered no information or analysis to rebut this determination other than their generalized concerns with the use of AP-42 emission factors. For example, the Petitioners have not explained why they believe the specific emission factor adopted by LDEQ—5.5 lbs/MMscf—is either inaccurate, unreliable, or inappropriate for this particular application (auxiliary boiler VOC emissions). In order to demonstrate a flaw in the Permit, general allegations are not enough. The EPA expects petitioners to provide the requisite citations and

[33] The Petitioners have not, for example, attempted to demonstrate that LDEQ's assertion that VOC emissions are due to incomplete combustion was incorrect, nor that LDEQ's contention that the boiler does not serve as a control device for any process streams was inaccurate.

analyses in support of their claims.[34] Here, the Petitioners have not demonstrated that LDEQ's decision to rely on the 5.5 lbs/MMscf AP-42 emission factor was inappropriate, or that the Permit lacks adequate monitoring to assure compliance with the VOC emission limit on the auxiliary boiler.[35]

Regarding the Petitioners' claim concerning the need to sum monthly emissions in order to demonstrate compliance with annual emissions limits, this claim is denied for the same reasons as discussed above relative to CO emissions from the SMR and auxiliary boiler.[36]

Finally, the Petitioners assert that the Permit does not require that all emissions—including those during startup, shutdown, and maintenance—be monitored or estimated and reported for purposes of demonstrating compliance with the annual VOC emission limit on the boiler.[37] As the Petitioners acknowledge, April 2017 Permit SR 372 (Final Permit SR 374) incorporates LAC 33:III.919.F.1.b, which requires annual reporting of actual emissions, including emissions during maintenance, startup-ups, shutdowns, upsets, and downtime. The Air Permit Briefing Sheet attached to the April 2017 Permit also explicitly states that "*all actual emissions* must be reported and compared to the permit's emission limitations for purposes of determining compliance." April 2017 Permit at pdf p. 8 (emphasis in original). Moreover, LDEQ, in its RTC, explained that the annual VOC emission limit on the boiler accounts for startup, shutdown, and maintenance emissions. RTC at 35. These provisions in the Permit and permit record indicate that all emissions, including emissions during maintenance, startups, shutdowns, and maintenance, will be accounted for in demonstrating compliance with the relevant emission limits. The Petitioners have provided no analysis to support their conclusory assertion that the requirement to include startup, shutdown, and malfunction emissions in compliance demonstrations must be included in the Specific Requirements. The Petitioners do not explain why this is necessary or why the existing permit terms are inadequate. Therefore, the Petitioners have not demonstrated why any additional clarification must be included in the Specific Requirements section of the Permit.

For the foregoing reasons, the EPA denies the Petitioners' request for an objection on these claims.

D. Claims Concerning Fugitive CO Emissions

Petitioners' Claim: The Petitioners challenge the adequacy of monitoring for fugitive CO emissions contained in Final Permit SR 247. The Petitioners claim that this condition "requires CO emissions to be estimated using EPA protocols assuming CO gas stream composition based only on 'process engineering knowledge' or 52%." August 2017 Petition at 11. The Petitioners

[34] *See supra* notes 6, 7, and accompanying text.
[35] The EPA is not, in this Order, making any determination as to whether it is appropriate for Yuhuang to rely on the AP-42 emission factor at issue for compliance demonstration purposes.
[36] *See supra* note 27 and accompanying text.
[37] The scope of this claim is unclear because although the text of the Petition refers only to VOC emissions from the boiler, the header to the table row containing this claim also references CO emissions. August 2017 Petition at 10–11. It is also unclear whether the Petitioners intended for this claim to apply other emission units beyond the auxiliary boiler. In any case, the EPA's response would apply to any other pollutants or emission units to the extent that they are implicated by this claim.

assert that this condition, and LDEQ's RTC, are inadequate, because there is no requirement to measure actual CO concentrations in the gas streams, and because LDEQ does not provide the "engineering knowledge" referenced in SR 247, which the Petitioners contend should be currently knowable and contained in the permit record. *Id.*

EPA's Response: For the following reasons, the EPA denies the Petitioners' request for an objection on the claims related to fugitive CO emissions.

The April 2017 Permit SR 246 (Final Permit SR 247) states the method for demonstrating compliance with fugitive CO emissions:

> Fugitive CO emissions shall be calculated using EPA's Protocol for Equipment Leak Emission Estimates (EPA-453/R-95-017), actual monitoring data as required by 40 CFR 63 Subpart H, and the percent CO gas stream composition. CO gas stream composition may be based on process engineering knowledge for the gas stream being serviced by the fugitive components or may be assumed to be 52%.

The Petitioners claim that the Permit does not contain a requirement to measure actual CO concentrations in equipment, such as pipes and flanges, that are sources of fugitive emissions. However, the Petitioners do not explain why this direct measurement would be necessary, rather than the existing permit terms for demonstrating compliance. The Petitioners also do not offer any explanation of why they believe it is inappropriate for Yuhuang to calculate the CO concentrations based either on 52 percent or on process engineering knowledge, as the Permit currently allows.[18] The Petitioners claim that engineering knowledge should be currently knowable and contained in the permit record. However, the Petitioners provide no reasoning or analysis of why, if the facility uses engineering knowledge to calculate the CO gas stream composition, this engineering knowledge must be included in the Permit or permit record, particularly when LDEQ has provided a number to use in lieu of one based on engineering knowledge, i.e., 52 percent. Overall, the Petitioners' brief, conclusory allegations do not establish any basis to conclude that LDEQ's approach to allow CO concentration calculations to be based on process engineering calculations or the 52 percent assumption does not assure compliance with applicable CO fugitive emission limit.

For the foregoing reasons, the EPA denies the Petitioners' request for an objection on these claims.

E. Claims Concerning Truck, Railcar, and Marine Loading VOC Emissions

Petitioners' Claims: The Petitioners claim various conditions related to truck, railcar, and marine loading operations (April 2017 Permit SR 253–255; Final Permit SR 255–257) are insufficient. The Petitioners assert that "Pressure must be continuously monitored and recorded." *Id.* at 11–12. The Petitioners argue that the requirement that Yuhuang load methanol under negative pressure is "not practical or enforceable" because the loading system is not designed to automatically shut down under positive pressure. *Id.* at 12.

[18] The Petitioners do not expressly challenge the use of the 52 percent CO assumption as an alternative to process engineering knowledge, which LDEQ described as "very conservative." RTC at 37.

The Petitioners also assert that LDEQ did not resolve the EPA's August 2016 objection because the Permit "does not include any enforceable throughput limits." *Id.* The Petitioners additionally claim that the Permit does not contain annual limits for PM, NOx, CO, or VOCs and no hourly limits for PM or NOx from marine, railcar, and truck loading. *Id.* The Petitioners, addressing LDEQ's RTC, claim that "it remains unclear how the figures in the 'Inventories' section [of the Permit] apply as enforceable limits." *Id.*

EPA's Response: For the following reasons, the EPA denies the Petitioners' request for an objection on the claims related to the loading VOC emissions.[39]

The Permit contains the following term specifying the compliance demonstration method for VOC emissions from marine loading:

> Compliance demonstration method for M LOAD: VOC emissions shall be calculated monthly using Equation 1 of AP-42 Section 5.2, the volume of methanol loaded into barges and ships as recorded per 40 CFR 63.567(j) of Subpart Y, the saturation factor from Table 5.2-1 applicable to the specific type of loading performed, the average daily temperature of the methanol stored in the methanol product tanks during the calendar month in which the loading occurs, and the control efficiency of the vapor combustion unit determined in accordance with 40 CFR 63.563(b)(1) and 63.565(d) of Subpart Y.

April 2017 Permit SR 253; Final Permit SR 255. The Permit contains similar provisions for Rail and Truck Loading. *See* April 2017 Permit SR 254; Final Permit SR 256 (similar, but referencing Subpart G instead of Subpart Y). Additionally, the Permit specifies:

> For each loading operation, install a pressure/vacuum gauge on the suction side of the blower system(s) to verify a vacuum in the vessel being loaded. Record gauge readings every 15 minutes during loading activities. Loading must be discontinued if positive pressure readings are observed.

April 2017 Permit SR 256; Final Permit SR 258. The Permit also contains numerous other requirements on the loading operations derived from the Subpart Y and Subpart G NESHAP standards. *See* April 2017 Permit SR 151-192, Final Permit SR 152-193 (relevant Subpart Y requirements for marine loading); April 2017 Permit SR 305-326, Final Permit SR 307-328) (relevant Subpart G requirements for truck and railcar loading). The Compliance Demonstration Methodologies Table summarizes some of these NESHAP requirements. *See* April 2017 Permit at pdf p. 33-34; Final Permit at pdf p. 32-33.

[39] Although the Petitioners cite Final Permit SRs 255–257, which specify the compliance demonstration methodologies for both loading (SR 256 and 256) and tank (SR 257) emissions, the Petitioners' claims only directly discuss loading emissions. As such, the EPA's response only considers the provisions associated with loading. However, a similar rationale would apply to the extent that the Petitioners had claimed defects with the tank compliance demonstration methodologies.

The Petitioners broadly assert that the Permit's "requirements are insufficient," Petition at 11, but offer no citation or analysis in support of this assertion. Notably, the Petitioners failed to address or evaluate the provisions discussed above, all of which are clearly relevant to how compliance is assured and demonstrated from the truck, railcar, and marine loading operations. Instead of evaluating these provisions and explaining why they are allegedly insufficient, the Petitioners argue that two specific additional requirements are necessary. First, the Petitioners claim that pressure must be continuously monitored and reported. The Petitioners fail to acknowledge that the Permit clearly requires monitoring and recording of pressure every 15 minutes during all loading activities. April 2017 Permit SR 256; Final Permit SR 258. Moreover, the Petitioners have provided no explanation for why monitoring pressure every 15 minutes is inadequate, such that more frequent monitoring is necessary. Second, the Petitioners suggest that the loading system must automatically shut down on any occurrence of positive pressure. However, contrary to the Petitioners' assertions, the Permit already contains enforceable conditions to support the requirement that loading be conducted under negative pressure. *See* April 2017 Permit SR 256; Final Permit SR 258 ("Loading must be discontinued if positive pressure readings are observed."). The Petitioners provide no explanation for why the existing shutoff requirement is inadequate, or why an automatic shutoff mechanism is necessary.

Regarding the lack of throughput limits associated with the loading operations, LDEQ explained why the Permit does not contain any throughput limits, stating "Throughput limits are not necessary because emission limits for each loading operation – railcar, tank truck, and marine – are based on a throughput of 567,864,224 gallons per year of methanol (i.e., the full annual design capacity of the plant)." RTC at 40. The Petitioners offer no explanation for why this response is unreasonable, or why a throughput limit must be included in the Permit.

Regarding the other emission limits that the Petitioner claims are absent from the Permit, Petition at 12, the Petitioners are simply incorrect. Contrary to the Petitioners assertions, the Permit does contain hourly as well as annual limits for each of the pollutants identified by the Petitioners. Final Permit at pdf p. 44–45 (Emission Rates for Criteria Pollutants table); *see* RTC at 40 (clearly explaining that the Permit contains the aforementioned limits). The hourly limits are identified for each type of loading operation, and the annual limits are specified under the Methanol Transfer and Product Cap (which covers all of the loading operations). The Petitioners' claims, therefore, have no merit.

For the foregoing reasons, the EPA denies the Petitioners' request for an objection on these claims.

F. Claims Concerning Storage Tank VOC and HAP Emissions

Petitioners' Claims: The Petitioners claim that permit terms addressing tank VOC emission calculations from the storage tanks (April 2017 Permit SR 252 and 255) are inadequate because "these and other conditions fail to require that tank temperature, vapor pressure, and vapor molecular weight be monitored and used in these calculations." August 2017 Petition at 13. The Petitioners challenge LDEQ's RTC, claiming that calculations based on "average daily

temperature of the methanol stored during the calendar month" is inadequate, because it does not require monitoring of actual temperatures, which will vary. *Id.*[40]

The Petitioners claim that monitoring vapor pressure and vapor molecular weight are especially important for tanks containing raw or crude methanol, because it "contains impurities, unconverted reactants, and traces of dissolved gases that would affect vapor pressure and hence VOC emissions." *Id.* at 14. The Petitioners claim that LDEQ's use of pure methanol as a surrogate for crude methanol is inappropriate because LDEQ does not substantiate its assertions about the concentration of typical impurities in crude methanol. *Id.*

The Petitioners also claim that April 2017 Permit SR 252 and SR 255 are silent on whether HAP emissions from the tanks would be included. *Id.* at 13. The Petitioners assert that the Permit must specify whether HAP emissions are included, because methanol contains various impurities that are HAP. *Id.*

EPA's Response: For the following reasons, the EPA denies the Petitioners' request for an objection on the claims related to the tank VOC and HAP emissions.

First, with regard to the Petitioners' concerns about the methanol product tanks, the Permit specifies the following compliance demonstration methodology:

> VOC emissions, including those attributed to roof landings, shall be calculated monthly using the equations set forth in AP-42 Section 7.1.3.2 (Total Losses From Floating Roof Tanks); the design parameters of the storage tanks, as constructed (e.g., tank dimensions, paint characteristics, rim-seal system, deck type, deck fittings, etc.); the actual throughput of methanol; and the average daily temperature of the methanol stored during the calendar month. Emissions from tank cleanings shall be calculated using API Technical Document 2568 (Evaporative Loss from the Cleaning of Storage Tanks).

April 2017 Permit SR 255; Final Permit SR 257. Among other conditions, the Permit also requires that the permittee "monitor and record the temperature of the methanol stored in each tank daily." April 2017 Permit SR 303, Final Permit SR 305. Thus, the Petitioners' claims that the Permit does not require that tank temperature be used to calculate VOC emissions, and that the Permit does not require monitoring of actual temperature, are plainly incorrect.

The Petitioners' other allegations concerning the methanol product tanks are similarly without merit. First, the AP-42 equations incorporated by the Permit clearly require the use of vapor pressure and vapor molecular weight (among many other variables) in the calculations to determine tank VOC emissions. *See* AP-42 Section 7.1.3.2. Regarding the Petitioners' claim that these variables must be directly monitored, LDEQ, in responding to comments, provided the following explanation:

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[40] The Petitioners later acknowledge that SR 302 (likely referring to April 2017 Permit SR 303, instead) requires daily monitoring and recording of the temperature of methanol stored in each tank, but again reiterate their claim that "monitoring is not required for vapor pressure and vapor molecular weight, which are key inputs for tank VOC and HAP emission calculations." *Id.* at 14.

> Because the tanks in question are dedicated to the storage of refined Grade AA (i.e., pure) methanol, the molecular weight of the product is known and the vapor pressure can be readily calculated using the temperature of the liquid; therefore, monitoring of these parameters is not necessary.

RTC at 41. The Petitioners have not attempted to refute this explanation, nor have the Petitioners provided any other evidence or argument in support of their claim that vapor pressure or vapor molecular weight must be directly monitored from the methanol product tanks. In fact, the Petitioners appear to later concede that this is unnecessary, claiming that these variables must be monitored "from all tanks containing any methanol product except pure methanol." August 2017 Petition at 14.

Regarding the Petitioners' concerns about the crude methanol tanks, as an initial matter, the Petitioners did not cite or evaluate any permit conditions governing emissions from the crude methanol tanks.[41] The Petitioners suggest that the presence of impurities would result in crude methanol having a different vapor pressure and vapor molecular weight than pure methanol, and, therefore, that it is inappropriate to rely on these characteristics of pure methanol as a surrogate for crude methanol. However, LDEQ explained in its RTC that various impurities in crude methanol "are usually present in concentrations of no more than several hundred parts per million. In addition, some, particularly the higher alcohols, have much lower vapor pressures than methanol. Further, methyl formate, methyl acetate, and acetone are not classified as VOCs per 40 CFR 51.100(s)(1). Thus, it is reasonable to calculate potential emissions from the Raw Methanol Tank using pure methanol as a surrogate." RTC at 43. Beyond alleging that LDEQ's assertions were "not substantiated," again attempting to shift the burden to LDEQ, the Petitioners have not attempted to actually refute LDEQ's conclusions. As the EPA has repeatedly stated, the EPA expects petitioners to address the permitting authority's reasoning when it is available during the timeframe for filing the petition.[42] The Petitioners have failed to demonstrate that LDEQ's justification was unreasonable, and the Petitioners have not provided any other analysis demonstrating that the Permit is deficient with respect to crude tank VOC emissions.

Regarding the Petitioners' brief claim that the Permit is "silent on whether HAP emissions would be included," August 2017 Petition at 13, it is unclear why the Petitioners believe such a silence results in a permit deficiency. The Petitioners have not attempted to explain why, for example, separate HAP emission limits on specific tanks might be required by an applicable requirement or to assure compliance with an applicable requirement, or why particular HAP emissions must otherwise be monitored. Moreover, LDEQ noted that the permit conditions are not silent regarding HAP emissions, explaining why April 2017 Permit SR 252 referenced both VOC and methanol (the only HAP emitted), and why April 2017 Permit SR 255 only referenced VOC. *See*

[41] Instead, each of the permit terms cited by the Petitioners govern emissions from the product tanks dedicated to the storage of refined methanol.

[42] *See supra* note 5 and accompanying text.

RTC at 41. The Petitioners have not attempted to refute these assertions or otherwise explain the Permit must account in any specific way for HAP emissions.[43]

For the foregoing reasons, the EPA denies the Petitioners' request for an objection on these claims.

G. Claims Concerning Flare VOC, PM, and CO Emissions

Petitioners' Claims: The Petitioners claim that, in addition to failing to resolve issues raised in the EPA's August 2016 objections, the Permit also "does not include sufficient compliance demonstration requirements for VOC or PM emissions from the flare." August 2017 Petition at 14. Regarding VOC, the Petitioners request that "VOC be continuously monitored in vent gases at the flare manifold and VOC emissions calculated form the volume of vent gas, VOC concentration, and vendor guaranteed flare combustion efficiency." *Id.* Regarding both PM and VOC, the Petitioners assert that the Permit's reliance on AP-42 emission factors (in SR 123) to demonstrate compliance is inappropriate for the same reasons as discussed above with respect to VOC emissions from the auxiliary boiler. *See id.* at 14–15. The Petitioners also briefly assert that there is no requirement that VOC or PM emissions be summed to estimate annual emissions. *Id.* at 15.

The Petitioners also claim that the Yuhuang facility has the potential to emit more than 100 tpy of CO from the flare, providing estimate of predicted CO emissions from the flare based on average and maximum operating rates. *See* August 2017 Petition at 16–18. The Petitioners also allege generally that "the permit must include limits that are practically enforceable," and that the Permit must include additional restrictions on the number or duration of startups. *Id.* at 17

EPA's Response: For the following reasons, the EPA denies the Petitioners' request for an objection on the claims related to the flare VOC, PM, and CO emissions.

Regarding the Petitioners' claim that VOC should be continuously monitored in vent gases and calculated from the volume of vent gas, VOC concentration, and vendor guaranteed flare combustion efficiency, the Petitioners provide no explanation for why this specific methodology is necessary, or why the current methodology is inadequate. The Petitioners, in arguing that it is inappropriate for the Permit to rely on AP-42 emission factors for VOC and PM emissions from the flare, present the same general, unsupported arguments as discussed above with respect to VOC emissions from the auxiliary boiler. Again, the Petitioners have provided no evidence or technical analysis to demonstrate that it was inappropriate to use the specific emission factors adopted by LDEQ for calculating flare VOC and PM emissions.[44]

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[43] Additionally, the scope of the current permit modification action (and thus, the scope of the petition opportunity) is limited to those portions of the Permit that LDEQ has proposed to modify in the current permit action. *See In the Matter of Hu Honua Bioenergy, LLC*, Order on Petition No. VI-2014-10 at 38–40 (September 16, 2016); *In the Matter of WPSC – Weston*, Order on Petition No. V-2006-4 at 5–7 (December 19, 2007). The current permit modification does not include changes to any provisions specifically dealing with HAP emissions from storage tanks. Therefore, issues concerning HAP emission limits or HAP emissions are beyond the scope of the current permit modification action.

[44] *See supra* note 35 and accompanying text (referring to entire paragraph).

Regarding the Petitioners' claim concerning the lack of a requirement to sum VOC and PM emissions in order to estimate annual flare emissions, the Petitioners are incorrect. The Permit clearly states that all emissions from the flare "shall be summed for purposes of determining compliance with applicable ton per year emission limits." Permit SR 123.[45]

Finally, regarding the Petitioners' claims concerning flare CO emissions, the Petitioners have not demonstrated a flaw in the Permit. While the Petition includes a brief, generic allegation that "the permit must include limits that are practically enforceable," August 2017 Petition at 17, it does not include any discussion regarding the flare CO emission limits that are currently in the Permit, much less any explanation of why these limits are allegedly not enforceable.[46] Instead of discussing why the existing permit terms are not adequate, the Petitioners instead allege that the Permit must include additional restrictions on the number or duration of startups. However, this claim is based either on the Petitioners' claims regarding the facility's PTE calculations (which the EPA is not reaching),[47] or the Petitioners' unsupported claims regarding the enforceability of existing emission limits (which the EPA is denying).[48] The Petitioners have not otherwise demonstrated why the existing permit terms are inadequate, or why additional restrictions are necessary, and have failed to address the substance of LDEQ's response on this issue. Therefore, the Petitioners have not demonstrated a basis for the EPA to object to this claim.

For the foregoing reasons, the EPA denies the Petitioners' request for an objection on these claims.

[45] The EPA's discussion above with respect to CO emissions from the SMR and auxiliary boiler and VOC emissions from the auxiliary boiler would also apply to the flare emissions at issue here. *See supra* notes 27 and 36 and accompanying text.

[46] To the extent that, in the course of challenging the source's PTE calculations for CO from the flare, the Petitioners also intended to question whether the short-term emission rates reflected in the table titled, "Emission Rates For Criteria Pollutants and CO2e" (i.e., the 6.56 lb/hr average rate and 739.60 lb/hr maximum rate) are enforceable as a practical matter, these claims are denied. Specifically, the Petitioners have provided no analysis expressly challenging the enforceability of the short-term (or long-term) flare CO limits in the permit.

[47] As discussed above, *supra* note 16 and accompanying text, the EPA is not responding to the Petitioners' arguments concerning the calculation of the facility's PTE for purposes of determining PSD applicability in this title V petition order. As noted above, this does not indicate that the EPA necessarily agrees with the conclusions reached by LDEQ regarding these preconstruction permitting decisions. *See supra* note 15.

[48] In denying these unsupported claims, the EPA is not making a judgment regarding the enforceability of the CO limits on the flare, nor should this response be interpreted explicitly or implicitly as an approval of the enforceability of these limits.

V. CONCLUSION

For the reasons set forth above and pursuant to CAA § 505(b)(2) and 40 C.F.R. § 70.8(d), I hereby deny the Petitions as described above.

Dated: APR 02 2018

E. Scott Pruitt
Administrator

BEFORE THE ADMINISTRATOR
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

IN THE MATTER OF	)	
	)	
WHEELABRATOR FRACKVILLE ENERGY, INC. SCHUYLKILL COUNTY, PENNSYLVANIA	)	PETITION NO. III-2017-19
	)	
PERMIT NO. 54-00005	)	ORDER RESPONDING TO THE PETITIONER'S REQUEST THAT THE ADMINISTRATOR OBJECT TO THE ISSUANCE OF A STATE OPERATING PERMIT
	)	
ISSUED BY THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION	)	
	)	

ORDER DENYING A PETITION FOR OBJECTION TO PERMIT

I. INTRODUCTION

On December 4, 2017, the U.S. Environmental Protection Agency (EPA) received a petition (Petition) from the Sierra Club and the Environmental Integrity Project (the Petitioners), pursuant to section 505(b)(2) of the Clean Air Act (CAA or Act), 42 U.S.C. § 7661d(b)(2). The Petitioners request that the EPA object to a proposed renewal of air pollution control operating permit no. 54-00005 (the Proposed Permit or Permit) prepared by the Pennsylvania Department of Environmental Protection (PADEP) for the operation of the Wheelabrator Frackville Energy, Inc. Facility (Wheelabrator or the Facility) in Schuylkill County, Pennsylvania. The Permit was proposed pursuant to title V of the CAA, CAA §§ 501–507, 42 U.S.C. §§ 7661–7661f, and 25 Pa. Code §§ 127.501–127.543. *See also* 40 C.F.R. part 70 (title V implementing regulations). This type of operating permit is also referred to as a title V permit or part 70 permit.

As explained further below, based on a review of the Petition and other relevant materials, including the Proposed Permit, the permit record, and relevant statutory and regulatory authorities, the EPA denies the Petition.

II. STATUTORY AND REGULATORY FRAMEWORK

A. Title V Permits

Section 502(d)(1) of the CAA, 42 U.S.C. § 766la(d)(1), requires each state to develop and submit to the EPA an operating permit program to meet the requirements of title V of the CAA and the EPA's implementing regulations at 40 C.F.R. part 70. The Commonwealth of Pennsylvania submitted a title V program governing the issuance of operating permits on May 18, 1995. The EPA granted full approval of Pennsylvania's title V operating permit program in 1996. *See* Clean

Air Act Final Full Approval of Operating Permits Program; Final Approval of Operating Permit and Plan Approval Programs Under Section 112(l); Final Approval of State Implementation Plan Revision for the Issuance of Federally Enforceable State Plan Approvals and Operating Permits Under Section 110; Commonwealth of Pennsylvania, 61 Fed. Reg. 39597 (July 30, 1996) (codified at 40 C.F.R. § 52.2020(c)). This program, which became effective on August 29, 1996, is codified at 25 Pa. Code §§ 127.501–127.543.

All major stationary sources of air pollution and certain other sources are required to apply for title V operating permits that include emission limitations and other conditions as necessary to assure compliance with applicable requirements of the CAA, including the requirements of the applicable implementation plan. CAA §§ 502(a), 504(a), 42 U.S.C. §§ 7661a(a), 7661c(a). The title V operating permit program generally does not impose new substantive air quality control requirements, but does require permits to contain adequate monitoring, recordkeeping, reporting and other requirements to assure sources' compliance with applicable requirements. 57 Fed. Reg. 32250, 32251 (July 21, 1992); *see* CAA § 504(c), 42 U.S.C. § 7661c(c). One purpose of the title V program is to "enable the source, States, the EPA, and the public to understand better the requirements to which the source is subject, and whether the source is meeting those requirements." *Id*. Thus, the title V operating permit program is a vehicle for ensuring that air quality control requirements are appropriately applied to facility emission units and for assuring compliance with such requirements.

B. Review of Issues in a Petition

State and local permitting authorities issue title V permits pursuant to their EPA-approved title V programs. Under CAA § 505(a), 42 U.S.C. § 7661d(a), and the relevant implementing regulations found at 40 C.F.R. § 70.8(a), states are required to submit each proposed title V operating permit to the EPA for review. Upon receipt of a proposed permit, the EPA has 45 days to object to final issuance of the proposed permit if the EPA determines that the proposed permit is not in compliance with applicable requirements under the Act. CAA § 505(b)(1), 42 U.S.C. § 7661d(b)(1); *see also* 40 C.F.R. § 70.8(c). If the EPA does not object to a proposed permit on its own initiative, any person may petition the Administrator, within 60 days of the expiration of the EPA's 45-day review period, to object to the permit. CAA § 505(b)(2), 42 U.S.C. § 7661d(b)(2); 40 C.F.R. § 70.8(d).

The petition shall be based only on objections to the permit that were raised with reasonable specificity during the public comment period provided by the permitting agency (unless the petitioner demonstrates in the petition to the Administrator that it was impracticable to raise such objections within such period or unless the grounds for such objection arose after such period). CAA § 505(b)(2), 42 U.S.C. § 7661d(b)(2); 40 C.F.R. § 70.8(d). In response to such a petition, the Act requires the Administrator to issue an objection if a petitioner demonstrates that a permit is not in compliance with the requirements of the Act. CAA § 505(b)(2), 42 U.S.C.

§ 7661d(b)(2); 40 C.F.R. § 70.8(c)(1).[1] Under section 505(b)(2) of the Act, the burden is on the petitioner to make the required demonstration to the EPA.[2]

The petitioner's demonstration burden is a critical component of CAA § 505(b)(2). As courts have recognized, CAA § 505(b)(2) requires that the Administrator (i) determine whether a petition "demonstrates" that a permit is not in compliance with the requirements of the Act, which the courts describe as a "discretionary duty"; and (ii) object when such a demonstration is made, which the courts describe as a nondiscretionary duty. *Sierra Club v. Johnson*, 541 F.3d at 1265-66 ("[I]t is undeniable that CAA § 505(b)(2) also contains a discretionary component: it requires the Administrator to make a judgment of whether a petition demonstrates a permit does not comply with clean air requirements."); *NYPIRG*, 321 F.3d at 333. Courts have also made clear that the Administrator is obligated to grant a petition to object under CAA § 505(b)(2) only if the Administrator determines that the petitioner has demonstrated that the permit is not in compliance with requirements of the Act. *Citizens Against Ruining the Environment*, 535 F.3d at 677 (stating that § 505(b)(2) "clearly obligates the Administrator to (1) determine whether the petition demonstrates noncompliance and (2) object *if* such a demonstration is made") (emphasis added).[3] When courts have reviewed the EPA's interpretation of the ambiguous term "demonstrates" and its determination as to whether the demonstration has been made, they have applied a deferential standard of review. *See, e.g.*, *MacClarence*, 596 F .3d at 1130–31.[4] Certain aspects of the petitioner's demonstration burden are discussed below; however, a more detailed discussion can be found in *In the Matter of Consolidated Environmental Management, Inc., Nucor Steel Louisiana*, Order on Petition Nos. VI-2011-06 and VI-2012-07 at 4–7 (June 19, 2013) (*Nucor II Order*).

The EPA has looked at a number of criteria in determining whether a petitioner has demonstrated noncompliance with the Act. *See generally Nucor II Order* at 7. For example, one such criterion is whether the petitioner has addressed the state or local permitting authority's decision and reasoning. The EPA expects the petitioner to address the permitting authority's final decision, and the permitting authority's final reasoning—including the Response to Comments (RTC) where these documents were available during the timeframe for filing the petition. *See MacClarence*, 596 F.3d at 1132-33.[5] Another factor the EPA has examined is whether a

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[1] *See also New York Public Interest Research Group, Inc. v. Whitman*, 321 F.3d 316, 333 n.11 (2d Cir. 2003) *(NYPIRG)*.

[2] *WildEarth Guardians v. EPA*, 728 F.3d 1075, 1081–82 (10th Cir. 2013); *MacClarence v. EPA*, 596 F.3d 1123, 1130–33 (9th Cir. 2010); *Sierra Club v. EPA*, 557 F.3d 401, 405–07 (6th Cir. 2009); *Sierra Club v. Johnson*, 541 F.3d 1257, 1266–67 (11th Cir. 2008); *Citizens Against Ruining the Environment v. EPA*, 535 F.3d 670, 677–78 (7th Cir. 2008); *cf. NYPIRG*, 321 F.3d at 333 n.11.

[3] *See also Sierra Club v. Johnson*, 541 F.3d at 1265 ("Congress's use of the word 'shall' . . . plainly mandates an objection *whenever* a petitioner demonstrates noncompliance.") (emphasis added).

[4] *See also Sierra Club v. Johnson*, 541 F.3d at 1265-66; *Citizens Against Ruining the Environment*, 535 F.3d at 678.

[5] *See also, e.g.*, *In the Matter of Noranda Alumina, LLC*, Order on Petition No. VI-2011-04 at 20-21 (December 14, 2012) (denying a title V petition issue where petitioners did not respond to the state's explanation in response to comments or explain why the state erred or the permit was deficient); *In the Matter of Kentucky Syngas, LLC*, Order on Petition No. IV-2010-9 at 41 (June 22, 2012) (denying a title V petition issue where petitioners did not acknowledge or reply to the state's response to comments or provide a particularized rationale for why the state erred or the permit was deficient); *In the Matter of Georgia Power Company*, Order on Petitions at 9-13 (January 8, 2007)

petitioner has provided the relevant analyses and citations to support its claims. If a petitioner has not, the EPA is left to work out the basis for petitioner's objection, contrary to Congress's express allocation of the burden of demonstration to the petitioner in CAA § 505(b)(2). *See MacClarence*, 596 F.3d at 1131 ("[T]he Administrator's requirement that [a title V petitioner] support his allegations with legal reasoning, evidence, and references is reasonable and persuasive.").[6] Relatedly, the EPA has pointed out in numerous orders that, in particular cases, general assertions or allegations did not meet the demonstration standard. *See, e.g., In the Matter of Luminant Generation Co., Sandow 5 Generating Plant*, Order on Petition No. VI-2011-05 at 9 (January 15, 2013).[7] Also, the failure to address a key element of a particular issue presents further grounds for the EPA to determine that a petitioner has not demonstrated a flaw in the permit. *See, e.g., In the Matter of EME Homer City Generation LP and First Energy Generation Corp.*, Order on Petition Nos. III-2012-06, III-2012-07, and III-2013-02 at 48 (July 30, 2014) (*EME Homer City Order*).[8]

The information that the EPA considers in making a determination whether to grant or deny a petition submitted under 40 C.F.R. § 70.8(d) on a proposed permit generally includes, but is not limited to, the administrative record for the proposed permit and the petition, including attachments to the petition. The administrative record for a particular proposed permit includes the draft and proposed permits; any permit applications that relate to the draft or proposed permits; the statement of basis for the draft and proposed permits; the permitting authority's written responses to comments, including responses to all significant comments raised during the public participation process on the draft permit; relevant supporting materials made available to the public according to 40 C.F.R. § 70.7(h)(2); and all other materials available to the permitting authority that are relevant to the permitting decision and that the permitting authority made available to the public according to § 70.7(h)(2). If a final permit and a statement of basis for the final permit are available during the agency's review of a petition on a proposed permit, those documents may also be considered as part of making a determination whether to grant or deny the petition.

III. BACKGROUND

A. Pollutants

The Petition concerns monitoring for particulate matter (PM or particulates) emissions from a boiler at the Facility. "Particulate matter" refers to a mixture of solid particles and liquid droplets

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(*Georgia Power Plants Order*) (denying a title V petition issue where petitioners did not address a potential defense that the state had pointed out in the response to comments).

[6] *See also In the Matter of Murphy Oil USA, Inc.*, Order on Petition No. VI-2011-02 at 12 (September 21, 2011) (denying a title V petition claim where petitioners did not cite any specific applicable requirement that lacked required monitoring); *In the Matter of Portland Generating Station*, Order on Petition at 7 (June 20, 2007) (*Portland Generating Station Order*).

[7] *See also Portland Generating Station Order* at 7 ("(C)onclusory statements alone are insufficient to establish the applicability of [an applicable requirement]."); *In the Matter of BP Exploration (Alaska) Inc. Gathering Center # 1*, Order on Petition Number VII-2004-02 at 8 (April 20, 2007); *Georgia Power Plants Order* at 9-13; *In the Matter of Chevron Products Co. Richmond, Calif. Facility*, Order on Petition No. IX-2004-10 at 12, 24 (March 15, 2005).

[8] *See also In the Matter of Hu Honua Bioenergy*, Order on Petition No. IX-2011-1 at 19-20 (February 7, 2014); *Georgia Power Plants Order* at 10.

found in the air. Three size-related indicators of PM are commonly used: Total Suspended Particulates (or TSP), which represents all sizes of PM; PM10, which includes inhalable particles with diameters that are generally 10 micrometers (μm) and smaller (by comparison, a human hair is, on average, about 70 μm in diameter); and PM2.5, which includes inhalable particles with diameters that are generally 2.5 μm and smaller.

PM can be emitted directly ("primary" particles) or formed in the atmosphere from chemical reactions involving primary gas emissions ("secondary" particles). Primary particles include, for example, elemental carbon from combustion sources. Secondary particles include sulfates formed from sulfur dioxide emissions and nitrates formed from nitrogen oxides released from power plants and other sources. Primary PM is referred to as the "filterable" fraction of PM, and secondary PM is referred to as the "condensable" fraction.

B. The Wheelabrator Frackville Energy Facility

The Facility is a 48-megawatt cogeneration power plant located in Schuylkill County, Pennsylvania. The Facility burns waste anthracite coal (culm) as its primary fuel in a circulating fluidized bed (CFB) boiler, which is referred to in the Proposed Permit and Petition as Source ID 031 (CFB boiler or Source 031). A turbine generator uses the steam created from the CFB boiler to generate electricity for sale to the local utility. A portion of the steam generated from the CFB boiler is sent to the Frackville Correctional Institution, where it is used for heating, cooking, and hot water. The unit is equipped with a fabric filter baghouse for control of PM emissions. The Facility is independently owned by Wheelabrator Technologies, Inc.

C. Permitting History

PADEP issued an initial title V operating permit for the Facility on May 7, 1999. The permittee operated under a renewal Title V permit issued November 28, 2007, until that permit was replaced by a renewal permit issued as final on December 22, 2017. This Petition concerns the proposed version of that permit submitted to EPA on September 1, 2017.

On September 14, 2009, PADEP received a Title V permit renewal application for the Facility, which was submitted pursuant to 40 C.F.R. § 70.8(a)(1) and 25 Pa. Code § 127.522(a). On May 21, 2016, PADEP initiated a 30-day public comment period on the draft renewal permit through publication of notice in the *Pennsylvania Bulletin*.[9] By letter dated June 20, 2016, the Petitioners submitted comments on the draft renewal permit. PADEP sent a draft of the permit to the EPA on July 6, 2016. On October 15, 2016, pursuant to section 505(b)(2) of the CAA, 42 U.S.C. § 7661d(b)(2), the Petitioners submitted to the EPA a petition (the 2016 Petition) to object to the July 6, 2016, version of the renewal permit. On September 1, 2017, after making some revisions to the July 6, 2016, version of the permit, PADEP submitted the Proposed Permit to the EPA, initiating a 45-day review period which ended on October 17, 2017. The Proposed Permit was accompanied by an Application Review Memo (ARM) dated August 31, 2017, setting forth PADEP's explanation and rationale for certain requirements contained in the Proposed Permit. On September 16, 2017, PADEP published notice of the Proposed Permit in

[9] 46 Pa.B. 2562 (May 21, 2016), *available at http://www.pabulletin.com/secure/data/vol46/46-21/868a.html*.

the *Pennsylvania Bulletin*.[10] By Order dated October 6, 2017, the EPA Administrator denied the 2016 Petition as moot on the basis of the superseding Proposed Permit submitted to EPA on September 1, 2017. *See In the Matter of Wheelebrator Frackville Energy, Inc.*, Order on Petition No. III-2016-17 at 10 (October 6, 2017). On October 11, 2017, the Petitioners submitted comments to PADEP on the Proposed Permit (October 2017 Comments). By letter dated January 11, 2018, PADEP responded to the Petitioners' October 2017 Comments (the Response to Comments or RTC document).[11] PADEP has issued a final Permit for the Facility, which became effective on December 22, 2017 (the Final Permit).

D. Timeliness of Petition

Pursuant to the CAA, if the EPA does not object to a proposed permit during its 45-day review period, any person may petition the Administrator within 60 days after the expiration of the 45-day period. CAA § 505(b)(2), 42 U.S.C. § 7661d(b)(2). The EPA's 45-day review period for the Proposed Permit expired on October 17, 2017. Thus, any petition seeking the EPA's objection to the Proposed Permit was due on or before December 18, 2017. The Petitioners filed their Petition on December 4, 2017. Therefore, the EPA finds that the Petitioners timely filed the Petition.

IV. DETERMINATION ON THE PETITION

The Petitioners have requested that the Administrator object to the Permit because, according to the Petitioners' contentions, the Permit does not comply with the CAA, the implementing regulations at 40 C.F.R. part 70, and related state regulations, in that the Permit fails to include monitoring of PM emissions from the CFB boiler sufficient to assure compliance with the Permit's applicable PM emission limitation. For the reasons explained below, the EPA denies the Petitioners' request for an objection on these claims.

A. Issues Raised in the Petition

The Petitioners raise three issues with the PM monitoring requirements in the Proposed Permit, relying on the "'periodic' and 'umbrella' monitoring rules" set forth at 40 C.F.R. §§ 70.6(a)(3)(i) and (c)(1). Petition at 3. The Petitioners cite to the "periodic" monitoring requirement of 40 C.F.R. § 70.6(a)(3)(i)(B), which requires that "the permit writer must develop terms directing 'periodic monitoring sufficient to yield reliable data from the relevant time period that are representative of the source's compliance with the permit.'" *Id.* The Petitioners contend that "if compliance with a given applicable requirement is a condition of the permit, the permit must contain monitoring of a frequency and type sufficient to assure compliance to the emitter, to the permitting authority, and to the public." *Id.* The Petitioners also cite the "umbrella" monitoring rule set forth at 40 C.F.R. § 70.6(a)(3)(i)(C) and assert such requirement makes clear that "permit writers must also correct 'a periodic monitoring requirement inadequate to the task of assuring compliance.'" *Id.* (quoting *Sierra Club v. EPA*, 536 F.3d 673, 675 (D.C. Cir. 2008)). Under this framework, the Petitioners raise three specific claims. Because these claims include substantially

[10] 47 Pa.B. 5795 (September 16, 2017), *available at http://www.pabulletin.com/secure/data/vol47/47-37/1522a.html*.
[11] The Petition asserts that "DEP has not provided an RTC document to Sierra Club and EIP responding to Petitioners' comments regarding the deficiencies in this revised 2017 Proposed Permit." Petition at 7. PADEP's January 11, 2018, RTC responds to such comments. Therefore, Petitioners' contention as to PADEP's failure to provide an RTC document is moot.

overlapping issues that all relate to the adequacy of PM monitoring at the CFB boiler. EPA's analysis and response in Section IV.B below will address all three issues together.

Claim 1: The Petitioners Claim That Biannual Stack Testing of PM Emissions From the CFB Boiler Is Inadequate

The Petitioners first take issue with the direct monitoring and testing requirement of PM emissions from the CFB boiler, identified as Source 031 in the Permit: "Permit Section D.II., Source 031, Condition #011 requires source testing to determine the post-control emissions of total PM from Wheelabrator's CFB boiler within 180 days after issuance of the permit and biannually thereafter." Petition at 2. The Petitioners assert that the biannual stack testing required in Condition #011 is "too infrequent and inadequate testing of PM emissions" from the CFB boiler to assure compliance with "the continuous 0.012 lbs/MMBtu PM emission limitation set forth in Permit Section D.I., Source 031, Condition #003." *Id.* at 2. The Petitioners assert that biannual stack testing of PM emissions from the CFB boiler "fails to satisfy the requirements of 40 C.F.R. part 70.6 because monitoring PM from the Plant's CFB boiler only once every two years is inadequate to assure compliance with the 0.012 lbs/MMBtu PM emission limit" set forth in the Permit.

Claim 2: The Petitioners Claim That Secondary Indicators of the CFB Boiler's Baghouse Operation Are Inadequate

Second, the Petitioners object to the adequacy of the "secondary performance indicators of proper baghouse operation." Petition at 2. These include a requirement that the Facility "operate and maintain its fabric filter baghouse," Petition at 2, and "the accompanying requirements to monitor opacity . . . and pressure drop differential." *Id.* The Petitioners assert that "(e)ven with the addition of these secondary indicators, the contemplated monitoring scheme for PM emissions from the Plant's boiler is inadequate." *Id.* The Petitioners claim that these other monitoring requirements fail to meet the requirements of 40 C.F.R. Part 70.6 because such requirements "are insufficient to yield reliable data from the relevant time period that are representative of compliance with the Permit's lbs/MMBtu PM limit for the Plant's CFB boiler." *Id.* at 4. According to the Petitioners, "although secondary performance indicators (e.g. opacity and pressure differential) *may* indicate whether the baghouse is performing optimally, they will not necessarily assure compliance with the applicable continuous emission limit for PM." *Id.* at 6. Specifically, Petitioner's challenge that "employing only one baghouse process parameter – pressure drop differential – is ineffective in assuring sufficient PM control and compliance with the permit's PM emissions limit." *Id.* at 4. The Petitioners argue that "monitoring of pressure drop does not guarantee compliance with Wheelabrator's PM emissions limit because not all baghouse malfunctions that would increase particulate emissions will be detected by monitoring pressure differential." *Id.* at 4–5. The Petitioners contend that the Permit should include additional parametric monitoring requirements "which would be most reflective of baghouse performance (e.g. fan amperage, gas flow rate, inlet temperature of the baghouses)." *Id.* at 5.

The Petitioners further argue that "the proposed *twenty-four hour averaging* period for the pressure drop indicator is far too long to ensure proper particulate control and compliance with the Plant's *continuous* PM emission limit." *Id.* Citing 40 C.F.R. § 70.6(a)(3)(i)(B), the Petitioners

contend that "the recorded pressure drop range should not be based on a 24-hour daily average as it is meant to assure compliance with an emissions limit applicable on a continuous basis." *Id.* Lastly, the Petitioners assert that the "the Proposed Permit's treatment of excursions from its secondary indicator ranges fails to assure compliance with, and enforcement of, the applicable PM emissions limit." *Id.* The Petitioners claim that "(a)ny excursion from the secondary indicator ranges should be considered a violation of the applicable PM emissions limit" and "additional PM stack testing should be promptly required following any excursion to determine actual compliance status of the source." *Id.*

Claim 3: The Petitioners Claim That Continuous, Direct PM Emissions Monitoring From the CFB Boiler Is Necessary

Third, the Petitioners argue that either: a) "installation and operation of a [CEMS] for PM is the proper means of accurately monitoring such emissions," Petition at 6; or b) "if direct continuous PM emissions monitoring is not required in the final permit, quarterly stack testing for the unit's PM emissions limits, combined with a more robust set of secondary performance indicator [sic] for the unit's fabric filter baghouse, must be required." *Id.* In support of their argument, the Petitioners cite the following five-factor analysis previously applied by the EPA for determining the adequacy of a Title V permit monitoring requirement: "(1) variability of emissions from the unit in question; (2) likelihood of violation of the requirements; (3) whether add-on controls are being used for the unit to meet the emission limit; (4) the type of monitoring, process, maintenance, or control equipment data already available for the emission unit, and (5) the type and frequency of the monitoring requirements for similar emission units at other facilities." Petition at 5–6 (citing *EME Homer City Order* at 45; *In the Matter of Tennessee Valley Authority, Bull Run, Clinton, Tennessee*. Order on Petition No. IV-2015-14 at 8 (November 10, 2016) (*Bull Run Order*). In applying this analysis, the Petitioners assert that considering "factors (1) and (3) together, the variability of emissions, especially as they relate to add-on controls used by Wheelabrator, strongly support more frequent stack testing and continuous PM monitoring from the Plant's CFB boiler." Petition at 6.

Specifically, the Petitioners point to alleged variability in the emissions from the unit in question, and the unit's use of add-on controls (in this case, a fabric filter baghouse) to meet its emission limit. *Id.* The Petitioners also claim, although without citing examples, that a continuous emissions monitoring system (CEMS) for PM is "increasingly employed" for similar emission units at other facilities. *Id.* Considering these factors, the Petitioners allege that installation and continuous operation of a PM CEMS, is the proper means of monitoring emissions from the CFB boiler. *Id.* at 6. The Petitioners further argue that "stack tests are mere snapshots in time which do not indicate system performance during periods outside of the tests." *Id.* Therefore, the biannual stack test requirement would be likely to miss variability in rates of emissions and operation of the add-on pollution control such that "the extreme infrequency of this already subpar testing method simply cannot assure compliance with the Plant's continuous PM emission limit." *Id.* As an alternative to direct, continuous PM emissions monitoring, the Petitioners argue that the Permit must require a combination of monitoring measures: quarterly stack testing to

determine the CFB boiler's PM emissions and "a more robust set" of secondary performance indicators for the CFB boiler's fabric filter baghouse. *Id.*

B. Analysis of Issues Raised in the Petition

1. Proposed and Final Permit Provisions

The Petitioners challenge the adequacy of the Proposed Permit provisions requiring PM emissions monitoring from the CFB Boiler. The Permit's Site Inventory List identifies the CFB boiler as Source 031. *See* Proposed Permit at 4. The source-specific provisions are set forth in Section D of the Permit.

The Petitioners' central argument is that the Proposed Permit provisions are inadequate to assure compliance with the continuous PM emissions limitation for the CFB boiler set forth at Permit Section D, Source 031, Section I (Restrictions, Emission Restrictions), Condition #003 (Permit Condition D, Source 031, #003):

> **# 003 [25 Pa. Code §127.441]**
> **Operating permit terms and conditions.**
> [Authority for this condition is also derived from 25 Pa. Code, Section 127.83 and 40 CFR Part 52, Section 52.21 (j)(2) for Control Technology Review. This condition also assures compliance with NSPS, Subpart 60.42Da(a) and 25 Pa. Code, Section 123.11(a)(2).]
> The concentration of Particulate Matter (expressed as TSP [total suspended particulates]) in the effluent gases from CFB boiler shall not exceed 0.012 pounds per million BTU heat input.
> When demonstrating source emission testing compliance with this limit, the Particulate Matter (expressed as TSP) is the "filterable" particulates (front-half) emissions.

Proposed Permit at 23.

PM emissions from the CFB boiler are controlled by a baghouse. Section D, Source 031, Section VI (Work Practice Requirements), Condition #046 (Operating permit terms and conditions) requires, "Control device C01 (baghouse) shall be operated at any time Source ID 031 is in use."

The biannual monitoring provision challenged by the Petitioners is found at Section D, Source 031, Section II (Testing Requirements), Condition #011 (Permit Condition D, Source 031, #011):

> **# 011 [25 Pa. Code §127.441]**
> **Operating permit terms and conditions.**
> 1. Within 180 days after issuance of this permit (or a letter or a notice), the permittee shall conduct source testing on the exhaust of Source ID 031 to determine the post-control emissions of total particulate matter (filterable and condensable).
> 2. Every two (2) years, the permittee shall conduct source testing to determine the post-control emissions of total particulate matter (filterable and condensable). (Note: if a permit limit exists for PM-10 and/or PM-2.5, the Department may require additional testing for PM-10 and/or PM-2.5 compliance demonstration.)

Proposed Permit at 29.

The Petition also challenges the secondary baghouse operation performance indicator provisions set forth in the Proposed Permit. The Proposed and Final Permit provisions establishing secondary baghouse operation performance indicators relating to opacity and pressure drop differential are in Section D, Source 031, Section IV (Recordkeeping Requirements), Condition #36(a)–(c) and Condition #48(a). After receiving the Petitioners' comments, PADEP revised the challenged provisions such that the excursion of the pressure drop is defined as an *8-hour* block average pressure drop outside of the pressure drop range rather than a *24-hour* block. This was the only material change between the Proposed and Final Permits relevant to the Petition. The Petition challenged the adequacy of these Permit conditions prior to this revision and the issuance of the RTC. The EPA will proceed to evaluate the Petition in this regard on the basis of the Final Permit and RTC, rather than the Proposed Permit, and presents the Final Permit provisions here:

> **#036 [25 Pa. Code §127.511]**
> **Monitoring and related recordkeeping and reporting requirements.**
> [Additional authority for permit conditions (a)-(d) is also derived from 40 CFR §64.9.]
> (a) The permittee shall continuously record opacity readings using the data acquisition system (DAS).
> (b) The permittee shall record the pressure drop range based on an 8-hour block average. The average will be recorded in the plant control room or CEM data system and the record will be maintained for a minimum five (5) year period.
> (c) The permittee shall record all excursions and corrective actions taken in response to an excursion and the time elapsed until the corrective actions have been taken. . . .

Final Permit at 43.

> **#048 [25 Pa. Code §127.511]**
> **Monitoring and related recordkeeping and reporting requirements.**
>
> [Additional authority for permit condition (a) is also derived from 40 CFR §64.3 & §64.6.]
> (a) The permittee shall adhere to the following ranges so that operation within the ranges shall provide reasonable assurance of compliance. A departure from the specified indicator range shall be defined as an excursion:
>
> > (1) The range of the COM [continuous opacity monitoring] is 0 to 100 percent (%) opacity. An excursion is defined as an hourly opacity average greater than 5%.
> > (2) Pressure drop range of 4-10 inches w.g. An excursion is defined as an 8-hour block average pressure drop outside of the pressure drop range.

Final Permit at 49.

> **#014 [25 Pa. Code §127.441]**

> **Operating permit terms and conditions.**
> §63.10005 What are my initial compliance requirements and by what date must I conduct them?
> (h) Low emitting EGUs. The provisions of this paragraph (h) apply to pollutants with emissions limits from new EGUs except Hg and to all pollutants with emissions limits from existing EGUs. You may pursue this compliance option unless prohibited pursuant to §63.10000(c)(1)(i).
> (1) An EGU may qualify for low emitting EGU (LEE) status for Hg, HCL, HF, filterable PM, total non-Hg HAP metals, or individual non-Hg HAP metals (or total HAP metals or individual HAP metals, for liquid oil-fired EGUs) if you collect performance test data that meet the requirements of this paragraph (h), and if those data demonstrate:
> (i) For all pollutants except Hg, performance test emissions results less than 50 percent of the applicable emissions limits in Table 1 or 2 to this subpart for all required testing for 3 consecutive years . . . .

Final Permit at 33.

> **#054 [25 Pa. Code §127.441]**
> **Operating permit terms and conditions.**
> §63.10000 What are my general requirements for complying with this subpart?
> (c)(1) For coal-fired units, IGCC units, and solid oil-derived fuel-fired units, initial performance testing is required for all pollutants, to demonstrate compliance with the applicable emission limits.
> (iv) If your coal-fired or solid oil derived fuel-fired EGU or IGCC EGU does not qualify as a LEE for total non-mercury HAP metals, individual non-mercury HAP metals, or filterable particulate matter (PM), you must demonstrate compliance through an initial performance test and you must monitor continuous performance through either use of a particulate matter continuous parametric monitoring system (PM CPMS), a PM CEMS, or, for an existing EGU, compliance performance testing repeated quarterly.

Final Permit at 50–51.

2. Legal Background for Monitoring Requirements

The EPA has described the title V monitoring requirements in detail in several orders, including recently in *In the Matter of Raven Power Fort Smallwood, LLC, Fort Smallwood Complex, Anne Arundel County, Maryland*, Order on Petition No. III-2017-3 at 12–13 (January 17, 2018) (*Fort Smallwood Order*). *See also Bull Run Order* at 7–9.

The applicable statutory and regulatory requirements are as follows: The CAA requires that "[e]ach permit issued under [title V] shall set forth . . . monitoring . . . requirements to assure compliance with the permit terms and conditions." CAA § 504(c), 42 U.S.C. § 7661c(c). The EPA's part 70 monitoring rules (40 C.F.R. §§ 70.6(a)(3)(i)(A), 70.6(a)(3)(i)(B), and 70.6(c)(1)) satisfy this statutory requirement. As the EPA stated in *In the Matter of CITGO Refining and Chemicals Co., L.P., West Plant, Corpus Christi, Tx.*, Order on Petition No. VI-2007-01 at 6–7 (May 28, 2009) (*CITGO Order*), and reaffirmed in the *Fort Smallwood Order*:

> As a general matter, authorities must take three steps to satisfy the monitoring requirements in EPA's part 70 regulations. First, under 40 C.F.R. § 70.6(a)(3)(i)(A), permitting authorities must ensure that monitoring requirements contained in applicable requirements are properly incorporated into the title V permit. Second, if the applicable requirement contains no periodic monitoring, permitting authorities must add "periodic monitoring sufficient to yield reliable data from the relevant time period that are representative of the source's compliance with the permit." 40 C.F.R. § 70.6(a)(3)(i)(B). Third, if there is some periodic monitoring in the applicable requirement, but that monitoring is not sufficient to assure compliance with permit terms and conditions, permitting authorities must supplement monitoring to assure such compliance. 40 C.F.R. § 70.6(c)(1). EPA notes that periodic monitoring that meets the requirements of 40 C.F.R. § 70.6(a)(3)(i)(B) will be sufficient to satisfy the requirements of 40 C.F.R. § 70.6(c)(1) (i.e., will be sufficient to assure compliance with permit terms and conditions). In addition, in many cases, monitoring from applicable requirements will be sufficient to assure compliance with permit terms and conditions. For example, monitoring established consistent with EPA's Compliance Assurance Monitoring (CAM) rule (40 C.F.R. part 64) will be sufficient to assure compliance with permit terms and conditions, thus meeting the requirements of 40 C.F.R. § 70.6(c)(1).

Fort Smallwood Order at 12. *See also In the Matter of Public Service of New Hampshire*, Order on Petition No. VI-2014-04 at 14 (July 28, 2015); *Homer City Order* at 45.

As the EPA further noted in the *Fort Smallwood Order*:

> In addition, the rationale for the monitoring requirements selected by a permitting authority must be clear and documented in the permit record. 40 C.F.R. § 70.7(a)(5). The determination of whether monitoring is adequate in a particular circumstance generally is a context-specific determination, made on a case-by-case basis. The analysis should begin by assessing whether the monitoring required in the applicable requirement is sufficient to assure compliance with permit terms and conditions. Some factors that permitting authorities may consider in determining appropriate monitoring are: (1) the variability of emissions from the unit in question; (2) the likelihood of a violation of the requirements; (3) whether add-on controls are being used for the unit to meet the emission limit; (4) the type of monitoring, process, maintenance, or control equipment data already available for the emission unit; and (5) the type and frequency of the monitoring requirements for similar emission units at other facilities. Other site-specific factors may also be considered.

Fort Smallwood Order at 12–13 (citing *Homer City Order* at 45; *CITGO Order* at 6–8).

3. EPA Response

For the following reasons, the EPA denies the Petitioners' request for an objection on the adequacy of the PM emissions monitoring requirements for the CFB boiler as set forth in the Permit.

The Petitioners' challenge focuses on the frequency of the stack tests and the adequacy of the two baghouse operation performance indicators, pressure drop and opacity, in combination with the requirement to operate the baghouse at all times the CFB boiler is in operation. However, the Petitioners failed to demonstrate that these PM monitoring provisions, and other provisions of the Proposed Permit they did not discuss in their Petition, when viewed as a whole and in the context of the entire permit, are inadequate to assure compliance with the PM emission limit for the CFB boiler. The above description of the applicable legal requirements makes clear that determining whether the monitoring requirements in a permit for a particular source, such as the Facility's CFB boiler, are adequate to assure compliance requires a context-specific inquiry that depends on a multi-factor assessment concerning the source's emissions and controls as well as its permit. The Petitioners who allege that monitoring requirements are not adequate carry the burden of demonstrating that inadequacy.

The EPA has previously determined a multi-pronged approach for assuring compliance with emission standards without the use of CEMS, such as what this permit contains, may be adequate. *See In the Matter of Gallatin Fossil Plant*, Order on Petition No. IV-2016-11 and IV-2017-17 at 14 (January 30, 2018) (*Gallatin Order*) (citing *In the Matter of Xcel Energy, Cherokee Station*, Order on Petition No. VIII-2010-XX at 11–12 (September 29, 2011)) (*Cherokee Station Order*) (finding adequate a three-pronged approach for assuring compliance including stack testing, proper operation and maintenance of the control device, and a CAM plan to assess performance of the control device on an ongoing basis). Similar to the Gallatin and Cherokee Station permits, the Proposed Permit requires a three-pronged approach for assuring compliance with the PM emissions limit including: (1) stack testing; (2) required continuous operation and maintenance of the control device, which is a baghouse; and (3) two mechanisms for assessing the performance of the baghouse on an ongoing basis using a continuous opacity monitoring system (COMS) and monitoring pressure differential.

Notably, the Petitioners do not provide a single example of another facility, much less a facility with a source or sources similar to this one, for which a compliance assurance monitoring regime, such as the one in this Permit, was found to be inadequate. *Cf.* Petition at 4–6; Sierra Club and EIP Comments at 3–5. Nor did the Petitioners cite any similar sources for which a CEMS is required for PM under the CAM regulations.

In evaluating the Petitioners' claims, EPA also considers the adequacy of the permitting authority's rationale in the permitting record, including the RTC document. 40 C.F.R. § 70.7(a)(5); *Fort Smallwood Order* at 14; *Bull Run Order* at 8. The Petitioners did not respond to the reasoning set forth by PADEP in the administrative record for the Proposed Permit. PADEP's ARM (August 31, 2017) provided the state agency's rationale for why the multi-pronged approach for PM emissions monitoring for Source 031 (i.e., the CFB boiler) was adequate. Each of the PM emission monitoring elements challenged by the Petitioners is explained in PADEP's ARM as follows:

> The CAM plan utilizes a three-pronged approach for assuring compliance with the BACT 0.012 lb/MMBtu particulate matter limit:
> (1) Performance testing to demonstrate that the specified limit is being met;
> (2) operation and maintenance of the fabric filter to ensure that is continues to operate properly; and,
> (3) a CAM plan, to provide a mechanism for assessing the performance of the fabric filter on an ongoing basis. The CAM monitoring sets specific indicators that are used to monitor the operation of the control device. Under the CAM requirements, ranges are specified for the indicators and operation of the unit outside of the indicator range is subject to investigation, and, if applicable, corrective action in addition to reporting requirements. For Source ID 031, these indicators are for opacity and pressure differential. The annual[12] stack test provides direct evidence of compliance and provided the fabric filter is properly operated and maintained, continued compliance with the standard is expected. All three prongs together are appropriate measures to assure compliance with the PM emission limitation.
>
> The baghouse pressure drop range and monitoring requirement is included as a secondary performance indicator in the existing CAM plan to ensure proper operation of the baghouse to ensure that particulate limit is being continuously achieved. A company review of pressure drop data for 2016 and 2017 indicated a 24 hour average pressure drop in the range of 4–10 inches water. Pressure drop will vary depending on boiler load, during soot blowing, with combustion air flow changes related to fuel quality (heating value) and baghouse cleaning cycle efficiency. Such pressure drop variability has no impact on baghouse performance or control efficiency-especially with the Gore-Tex Teflon membrane bags used in the baghouse. Therefore, the permittee has proposed a pressure drop range of 4–10 inches water based on 24 hour daily average. The daily average will be recorded in the plant control room or CEM data system and record maintained for minimum five (5) year period. A daily average pressure reading outside the range would be considered an excursion. Also, consistent with an opacity excursion in the existing CAM Plan, the permittee proposes that if there are 6 or more pressure drop excursions in 6 month period, a quality improvement plan (QIP) would be developed and implemented as soon as practical or within 60 days.

ARM at 3.

PADEP's ARM discusses its approach in developing PM monitoring for Source 031, which is based on the EPA's CAM Regulation, 40 C.F.R. part 64. The Petitioners do not demonstrate a flaw in PADEP's reasoning that the requirement for operation of the baghouse coupled with parametric monitoring to confirm its proper operation, and combined with periodic stack testing of actual emissions, is not adequate to assure compliance with the PM emission limit. *See Gallatin Order* at 15. The Petitioners assert that monitoring of pressure drop by itself is inadequate because "not all baghouse malfunctions that would increase particulate emissions will

[12] Proposed Permit Section D.II, Condition #11(2) specifies testing every two years. Therefore, the EPA will treat this statement in the ARM as a typographical error, and proceed on the assumption that the source testing in the permit is biannual after the initial 180-day test, rather than annual.

be detected by monitoring pressure differential." Petition at 5. However, the Petitioners do not provide examples of what such malfunctions might be. Further, this claim ignores that opacity is also being continuously monitored as a separate means of evaluating proper baghouse operation. Proposed Permit, Section D, Source 031, Section IV, Condition #48(a); ARM at 3.

The Petitioners assert that "the proposed *twenty-four hour averaging* period for the pressure drop indicator is far too long to ensure proper particulate control and compliance with the Plant's *continuous* PM emission limit." *See* Petition at 5. However, the Petitioners have not provided justification or analysis beyond a general assertion for why a 24-hour averaging period is inadequate especially considering the continuous opacity monitoring. *See Portland Generating Station Order* at 7. Nevertheless, addressing the Petitioners' claim in the Petition, PADEP revised two Permit Conditions (Source ID 031, page 43, Monitoring and Recordkeeping requirements, Condition #036 (b) and Source ID 031, page 49, Monitoring and Recordkeeping requirements, Condition #048 (2)) requiring: a) "The permittee shall record the pressure drop range based on an 8-hour block average. The average will be recorded in the plant control room or CEM data system and the record will be maintained for a minimum five (5) year period"; and b) "Pressure drop range of 4 - 10 inches w.g. An excursion is defined as an 8-hour block average pressure drop outside of the pressure drop range." RTC at 1.[13] Thus, the Petitioners' objection that the 24-hour averaging period for this indicator is too long has been addressed by PADEP reducing the averaging time to a third of that length. The EPA recognizes that the Final Permit and RTC were released after the Petition was due, and thus the Petitioners cannot be expected to have taken this change into account. Nonetheless, the Petition does not demonstrate that either the longer or shorter averaging time is inadequate to assure compliance.

The Petitioners also challenge the Proposed Permit on the basis that excursions from the opacity and pressure drop parameters should be treated *ipso facto* as violations of the PM emission limit. Petition at 5. PADEP's ARM addresses this contention:

> Pressure drop will vary depending on boiler load, during soot blowing, with combustion air flow changes related to fuel quality (heating value) and baghouse cleaning cycle efficiency. Such pressure drop variability has no impact on baghouse performance or control efficiency-especially with the Gore-Tex Teflon membrane bags used in the baghouse. . . . Also, consistent with an opacity excursion in the existing CAM Plan, the permittee proposes that if there are 6 or more pressure drop excursions in [a] 6 month period, a quality improvement plan (QIP) would be developed and implemented as soon as practical or within 60 days.

ARM at 3. PADEP has provided an adequate explanation for why an excursion from the secondary baghouse process parameters should not be used without further analysis as inherently a violation of the emissions limit. As PADEP indicates, pressure drop is a useful indicator of a problem with the baghouse (and which, along with other monitoring requirements, is a meaningful part of an overall CAM plan), but pressure drop variability may also be observed for reasons that do not signify that a violation of the emissions limit is occurring, as PADEP stated (e.g., boiler load, soot blowing, fuel quality, or cleaning cycle efficiency, *see* ARM at 3). The

[13] Note, "w.g." stands for water gauge, which is a measurement of inches of water and is a common measurement of pressure differential.

Petitioners do not address PADEP's explanation as to why excursions from secondary baghouse process parameters do not necessarily reflect an exceedance of the PM emission limit for Source 031.

The EPA further notes that treating an excursion from a monitoring parameter as a violation of an emission limit is not required by the title V or CAM regulations. For example, the EPA's CAM regulations specify certain steps that should be taken in response to excursion events. *See* 40 C.F.R. § 64.7(d) & (e). Whether an excursion signifies a violation of an emission limitation or standard is a matter that need not be addressed in the title V permit itself. The EPA has previously found that Part 70 does not require all indicator ranges in a title V permit to be considered direct evidence of compliance. *See In the Matter of Wisconsin Public Service Corporation's JP Pulliam Power Plant*, Order on Petition No. V-2012-01 at 15 (January 7, 2013). *Cf. Cherokee Station Order* at 12 (finding monitoring regime acceptable where it bears a "reasonable correlation" to the "specified PM emission rate"). Therefore, the EPA finds that the Petitioners' request for objection on the basis that the Proposed Permit must provide that an excursion constitutes a violation of the PM emission limitation is not based on an applicable requirement under the Act.

The Petitioners also challenge the adequacy of the Permit's biannual stack testing requirement. *See* Petition at 2, 4. As an alternative to direct continuous PM emissions monitoring, the Petitioners assert that "quarterly stack testing for the unit's PM emissions limits, combined with a more robust set of secondary performance indicator (sic) for the unit's fabric filter baghouse, must be required." Petition at 6. However, in addition to the above-described requisite biannual stack testing, the Facility also conducts quarterly PM stack testing in compliance with the Mercury and Air Toxics (MATS) rule. PADEP's ARM states: "MACT Subpart UUUUU PM monitoring (Quarterly Testing) is included in the permit and is presumptively equivalent monitoring for PM limits under 25 Pa. Code 123.11(a)(2) and NSPS Subpart Da." ARM at 3. The Petitioners fail to acknowledge or address all of the stack testing requirements that are already included in the Proposed Permit, including quarterly stack testing, required for Source 031 in accordance with the Permit. This failure is grounds for the EPA to deny the Petition for failing to demonstrate a flaw in the monitoring requirements. *See Georgia Power Plants Order* at 10.

PADEP's ARM further states that Source 031 is subject to the low-emitting electrical generating (LEE) unit qualification requirements, which require quarterly stack testing for PM for at least three consecutive years:

> Source ID 031 also shall be subject to LEE unit qualification requirements under 40 CFR 63, Subpart UUUUU.
> Subpart UUUUU (40 CFR 63.10006) Subsequent performance tests or tune-ups -The facility qualifies as a LEE unit for filterable PM and Hg. PM performance testing is being conducted quarterly for 3 consecutive years and annual 30-day Hg. Method 30B performance testing is conducted in accordance with LEE qualifying criteria under 63.10005(h). Since the facility qualifies as LEE unit for PM, and Hg neither a PM CPMS or Hg CEMS is required. Additionally, the facility is demonstrating compliance with the HCl limit using its Part 75 certified SO2 CEMS and demonstrating compliance with the

SO2 surrogate limit of 0.20 lbs./MMBtu. As such the following 40 CFR 63 Subpart UUUUU performance testing requirements apply:
40 CFR 63.10006 (b)(1) and (2). (f). (h)

ARM at 9. In accordance with such requirements, the Facility must demonstrate compliance with a filterable PM limit of 0.030 lbs/MMBtu. Proposed Permit, Section D, Source ID 031, Section I, Condition #009.

The results of the quarterly stack tests can provide credible evidence that the 0.012 lbs/MMBtu PM emission limit is or is not being met. Although this quarterly testing is not specifically required in relation to the PM emissions limit at issue in the Petition, it is relevant to, and can be used as an additional indication of, compliance with PM emissions limit for the CFB boiler. *See Gallatin Order* at 16. The Petitioners wholly fail to address the quarterly stack testing requirement in their argument that the PM monitoring requirements for the CFB boiler are deficient.

Lastly, the Petitioners argue "installation and operation of a [CEMS] for PM is the proper means of accurately monitoring such emissions." Petition at 6. However, the Petitioners have failed to identify any applicable requirement for the use of a PM CEMS for monitoring compliance with the PM limit. *See Gallatin Order* at 15; *Cherokee Station Order* at 13. As explained above, PADEP requires Wheelabrator to continuously operate and maintain the control device and comply with a CAM plan, including monitoring of two secondary performance indicators, as well as conduct quarterly and biannual stack testing. Such multi-pronged monitoring regimes have been approved in the past as adequate for CAM purposes, and the Petitioners have not established a basis as to why such an approach is inadequate here.

Based on the EPA's review of the record, including assessing the adequacy of the PM monitoring requirements for the CFB boiler to assure compliance with the PM emission limit set forth in Permit Condition D, Source 031, #003, the Petitioners have failed to demonstrate that the Permit's monitoring requirements for PM emissions from the CFB boiler are not adequate to assure compliance with such emission limit.

V. CONCLUSION

For the reasons set forth above and pursuant to CAA § 505(b)(2), and 40 C.F.R. § 70.8(d), I hereby deny the Petition as described above.

Dated: JUN 06 2018

E. Scott Pruitt
Administrator

Pritchett, Jacob A.

From: Carter, Sally
Sent: Thursday, September 20, 2018 11:13 AM
To: Joshua J. Houser (Joshua.Houser@heplerbroom.com); 'katherine.hodge@heplerbroom.com'; David W Hacker (DWHacker@uss.com)
Cc: RBurlingham@atg.state.il.us; Romaine, Chris
Subject: Requested Email
Attachments: Xerox Scan_09202018110328.pdf

Please find attached a copy of the historic email discussed and requested yesterday.

Sally

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Carter, Sally

From: Romaine, Chris
Sent: Monday, January 05, 2015 4:28 PM
To: BMKresak@uss.com
Cc: Carter, Sally; Reed, Michael; Patel, Minesh; Mattison, Kevin
Subject: US Steel, Granite City - NOx and VOM Emissions of the BOP Furnaces

This e-mail responds to the information that US Steel provided in June concerning the emissions of nitrogen oxides (NOx) and volatile organic material (VOM) from the two basic oxygen process (BOP) furnaces at the Granite City Works. This email follows up on our recent discussion in which the Agency expressed several concerns about this information, providing a brief summary of those concerns.

It is the Agency's understanding, considering the further explanation provided by US Steel during our meeting, that this emission data was collected and prepared in the following manner. Data for the concentrations of NOx, VOM and oxygen in the flue gas in the ESP stack was collected by portable continuous emission monitoring systems over a period of five days. During this period, data was collected for over 120 individual heats (total 2410 minutes). US Steel then derived values for the maximum emissions of NOx and VOM from the BOP furnaces, in pounds per ton and pounds per hour, from the average of the measured, minute-by-minute concentrations plus two standard deviations. Mass rates of NOx and VOM were calculated using average values for the exhaust flow rate and oxygen concentrations from previous emission tests. The data for steel production reflected the actual production during the period when monitoring was conducted.

As a general matter, the Agency appreciates the effort that US Steel has taken in collecting this data. Unfortunately, this data provides further confirmation that the NOx and VOM emissions of the BOP furnaces, in pounds per ton of steel produced, exceed the emission rates specified in Construction Permit 95010001. Thus, as anticipated when US Steel appealed CAAPP Permit 96030056 in April 2013, US Steel will need to apply for a revision to Construction Permit 95010001 so that it appropriately addresses emissions of NOx and VOM. The data that was recently collected may be part of the support for that application.

The Agency is concerned that the information US Steel provided in June included only raw data and the results of calculations. It did not include background information concerning the NOx and VOM emissions of BOP furnaces. It was not accompanied by supporting material, including narrative describing the methodology for emission monitoring and the calculation of emission rates. It also did not include the rationale for the manner in which the maximum values for emissions were derived. This supporting material will be needed if, based on the new emission data that US Steel has collected, it will apply for revisions to permit limits for the NOx and VOM emissions of the BOP furnaces. The absence of this material also means that the Agency can only provide limited comments on the emission data that has been provided.

By way of further explanation, background information on the NOx and VOM emissions of BOP furnaces is critical to ensure that emission data for these pollutants is appropriately collected and evaluated. It is important to confirm that there are not specific aspects of the operation of the BOP furnaces that affect emissions of these pollutants that, if not properly considered, could act to bias the collection and evaluation of emission

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data. In particular, while control equipment is not present on the BOP furnaces for NOx or VOM, are there other measures that act to reduce emissions of these pollutants? Background information is also critical for the selection of the time period over which emission data should be evaluated. US Steel has effectively assumed that emissions during heats are "constant" on a minute-by-minute basis. Emission data also only appears to have been provided for the melting and refining phase of each heat. However, even during melting and refining, it is possible that the rates of emissions vary, peaking at some point during these steps. Also, as the duration of heats varies, the duration of individual heats may need to be considered when calculating the mass of emissions from the BOP furnaces. In this regard, the calculation of emissions using historic data for exhaust flow rate from past testing generally poses concerns for the accuracy of the results. A demonstration is needed showing that operation of the BOP furnaces during all those past tests is essentially identical to their operation during the period when monitoring was conducted. US Steel would also need to address the effect on emission measurements of any changes that have been made to the ESP system since those tests were conducted to tighten up ductwork and reduce air infiltration. In this regard, it is unfortunate that US Steel did not conduct an emission test during the period of monitoring to obtain concurrent data for exhaust gas flow rate. Finally, background information may be important to reviewing the new values for emissions based on monitoring data. In particular, the new values for maximum VOM emissions in pounds per ton of steel appear to be inconsistent with the results of prior testing for the BOP furnaces conducted in April and July of 2012.

Background information for the methodology for emission monitoring and the calculation of emission rates is critical to enable the Agency to confirm that appropriate methodologies were used. This is of particular concern for VOM. It is unclear how monitored data for total hydrocarbons, as carbon, was converted into data for VOM concentrations. It is also unclear how oxygen concentrations were used in the emission calculations for both VOM and NOx. It also appears that the calculations for maximum annual emissions rates from the maximum emission rates in pounds/ton are erroneous. The annual values for maximum emissions reflect annual steel production of approximately 8,628,000 tons. However, the permitted annual steel production of the BOP furnaces is only 3,580,000 tons. Some data also appears to be incorrectly identified. For NOx, 58.43 ppmv does not appear to be the average chart reading but the average of the chart readings plus two standard deviations. The average chart reading appears to be 24.21 ppmv. Accordingly, US Steel's new monitored emission data may indicate, based on the average NOx emission rate, maximum actual annual NOx emissions of only about 143 tons/year (average NOx rate of 0.08 lbs/ton x 3,580,000 tons/yr = 143.2 tons/yr). Of course, the potential annual NOx emissions would be higher as they must be based on the maximum short-term emission rate.

Information describing the rationale for the manner in which the maximum values for emissions were derived is important to ensure that these values have been properly calculated from the measured data. This does not appear to the case. This is because the shortest time-period on which future limits for NOx and VOM would apply would be at least three-hours (average of three emission test runs, each nominally one-hour in duration). On the other hand, assuming that this data for NOx and VOM emissions of the BOP furnaces is normally distributed, if a future emission limit is set at a value that is the sum of the mean of this monitored data and two standard deviations, the statistical probability that a future measurement would show compliance with such a limit is only 97.5 percent. These two observations suggest that measured data should be considered over a longer averaging time than one minute, at least as long as a single heat, to reduce the magnitude of the standard deviation. However, the value of the proposed limit should be set to reflect a probability for future compliance greater than 97.5 percent. Moreover, consideration may need to be given to "temporary emission monitoring" as the compliance method to accompany the proposed limits.

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In conclusion, US Steel needs to conduct additional evaluation and provide supporting information for its proposed maximum values for the NOx and VOM emissions from the BOP furnaces. The Agency would like to have a discussion with US Steel on January 7, 2015 to investigate the further work that US Steel must undertake and how long it will take to be completed.

Christopher Romaine
Manager, Construction Unit
Air Permit Section
217/785-1882

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